Revised Program Request Form

CA2

General Information

Institution Submitting Proposal	Barton County Community College
Name and Title of Contact Person	Julie Kramp
	Executive Director of Workforce Training & Economic Development
Current Program Title	Crop Protection (Certificate) (In addition to the 33 hour certificate currently approved – we are requesting approval of a 22 hour certificate)
Current CIP Code	01.0301
Revised Program Title	Crop Protection
Revised CIP Code	01.0301
Degree/Certificate Program Description	Certificate
Number of Credits for the Revised degree and/or certificate	20
Proposed Date of Initiation	Fall 2009
Specialty Accrediting Agency	NONE
Date entered into Program Inventory	

Signature of College Official_____ Date

Signature of KBOR Official_____ Date

Application for Revision of Existing Educational Program

Please respond to the following criteria in narrative form. Attach all **required** (CA2-a, Perkins Program Verification Form) and any additional supporting documents to the application as appendices. **Provide complete answers to all criteria.**

Criterion I: Rationale For Program Revision

- Changes in the agriculture industry have created an increased need for Crop Protection Applicators. These changes include more use of no-till agriculture and the increased demand by producers for the commercial application of crop protection products.
- The demand for grain crops continues to increase due to increased world demand for food and increased production of alternative fuels. Trained applicators help to meet this demand for increased grain production by increasing efficiency of grain production.
- The revised program responds to the agriculture industry's' need for trained/skilled employees who can enter the workforce rapidly and continue their training while employed. The proposed changes offer an entry level certificate that will prepare students for employment in one semester, and then leads to a more advanced certificate and potential degree.

  Please find attached (Appendix A) business and industry letters of support:
  Gary Meyer, Kansas Department of Agriculture – Pesticide & Fertilizer Program
  Marvin Rose, Agronomy Manager – Great Bend Coop Association
  Frank Riedl, General Manager – Great Bend Coop Association

Please find attached (Appendix B) a letter of support from:

Criterion II: Curriculum

The new curriculum provides training to meet the entry level skills necessary for employment as a Crop Protection Applicator. It is designed to be completed in a much shorter time than the previously approved curriculum. This provides students the ability to gain employment and continue their education as necessary for job requirements and/or advancement in the industry.

Please find attached (Appendix C) the completed CA2-a form showing the classes in the current 33 hour certificate (that we want to continue) and the courses required in the new 20 hour certificate.

Please find attached (Appendix D) the list of program (certificate) competencies.

Please find attached (Appendix E) the syllabi for the courses required for this certificate.

Criterion III: Admission and Graduation Requirements

Admissions: Students entering the program must be either a junior/senior in high school, graduated from a high school or possess a GED.

Graduation: Students must complete all 20 hours to achieve certificate level.

Criterion IV: Facilities

Current facilities required for the Crop Protection degree and the Crop Protection 33 hour certificate are already in place.

Criterion V: Resources

Current resources required for the Crop Protection degree and the Crop Protection 33 hour certificate are already in place.

Criterion VI: Faculty

Current faculty qualifications required for the Crop Protection degree and the Crop Protection 33 hour certificate are already in place.

Criterion VI: Outside accreditation

Completers of these courses will be prepared to take the Kansas Chem 1A certificate and the Kansas Commercial Driver's License exam. There is no outside accreditation for this certificate program.

Criterion VIII: Approvals

Minutes will be attached (Appendix F) for the following:

LICC April 30th for 2 syllabi (CDL & GIS/GPS) and 20 hour certificate approval
Advisory Board Meeting – April 30th
President's Staff – May 4th
Board of Trustees:
Trustees Meeting – May 19th (Draft)

NOTE: Appendix G contains a Verification Form – to submit for Perkins Approval.

Submit the completed application and supporting documents to the following:

Director of Academic Services
Kansas Board of Regents
1000 SW Jackson, Ste. 520
Topeka, KS 66612-1368

APPENDIX A

Industry Support Letters

KANSAS
DEPARTMENT OF AGRICULTURE

Kathleen Sebelius, Governor
Adrian J. Polansky, Secretary

www.ksda.gov

February 9, 2009

Mr. Steve Pottorff
Barton Community College
245 NE 30 Road
Great Bend, KS 67530

Dear Mr. Pottorff:

The Kansas Department of Agriculture, Pesticide & Fertilizer Program, enforces the Kansas Pesticide Law which regulates commercial applicators, private applicators, pesticide businesses and pesticide dealers in the state. Under this law and a cooperative agreement with the Environmental Protection Agency, the Pesticide & Fertilizer Program conducts a certification program for commercial pesticide applicators in Kansas.

The Pesticide & Fertilizer Program will provide Barton Community College with guidance to assist them in preparing their students for the commercial pesticide applicator examinations. The Pesticide & Fertilizer Program will administer the certification examinations for the participants at special examination sessions, if possible, or at the regularly scheduled examinations.

Well trained commercial pesticide applicators benefit their employers and the general public by effectively and safely applying pesticides.

Sincerely,

Gary D. Meyer, DVM, MPH
Manager, Pesticide & Fertilizer Program
Kansas Department of Agriculture
109 SW 9th Street - 3rd Floor
Topeka, Kansas 66612

Gary.Meyer@kda.ks.gov

Voice: (785) 296-3786
FAX: (785) 296-0673

Great Bend Coop Association
323 S 281 Hwy
Great Bend, Kansas 67530

Dear Mr. Pottorff:

Great Bend Coop Association is pleased to support the Agriculture Program at Barton Community College in its mission to provide Crop Protection Technicians in Kansas. Great Bend Coop has 8 certified applicators and currently has 1 open position and is constantly seeking additional employees to fill these positions. As such Great Bend Coop commits the following resources to the success of this endeavor.

Great Bend Coop supports the education of students by providing $2000 in scholarships to Barton Community College's Foundation.

Great Bend Coop will provide 1 internship opportunities who want to come to work part time while attending college.

Marvin rose will serve as a representative to the Agriculture Advisory Board. In this capacity Marvin Rose will devote 8 hours/month to these activities.

Great Bend Coop will provide the following equipment, systems and/or financial resources.

Technical support

Equipment & land for training purposes on limited basis when needed

We look forward to our continued collaboration with Barton's Agriculture Program and our other colleagues in this important effort.

Sincerely,

Marvin Rose

Marvin Rose
Agronomy Manager

The Great Bend Cooperative Association
Business Office
P.O. Box 68
Great Bend, KS 67530
Telephone: (620) 793-3531
Fax: (620) 792-1909

February 11, 2009

Dear Mr. Pottorff,

Great Bend Coop Association is pleased to support the Agriculture Program at Barton Community College in its mission to provide Crop Protection Application training that will increase the availability of skilled and certified Crop Protection Application Technicians in Kansas. Great Bend Coop has 9 certified applicators and currently has 1 open position and is constantly seeking additional employees to fill these positions. As such Great Bend Coop commits the following resources to the success of this endeavor:

. Great Bend Coop supports the education of students by providing $2000 in scholarships to Barton Community College's Foundation.

. Great Bend Coop will provide 3 internship opportunities who want to come to work part time while attending college.

. Frank Riedl will serve as a representative to the Agriculture Advisory Board. In this capacity Frank Riedl will devote 4 hours/month to these activities.

. Great Bend Coop will provide the following equipment, systems and/or financial resources:

Technical support

equipment & land for training purposes on limited basis when needed

We look forward to our continued collaboration with Barton's Agriculture Program and our other colleagues in this important effort.

Sincerely,

Frank Riedl

General Manager

APPENDIX **B**

Barton's Administrative Support

April 20, 2009

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

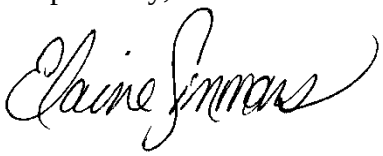
CROP PROTECTION PROGRAM APPLICATION

Barton County Community College is pleased to submit a CA2 application for its current Crop Protection program. Currently, the program is offered in a certificate and degree format, i.e. 33.0 credit hour certificate and 64.0 credit Associate in Applied Science degree. In response to industry demands and needs, the institution is now seeking a first level certificate program, i.e. 20.0 credits that will prepare students for employment in one semester. This added flexibility provides students with the option to seek the first level certificate as their terminal training credential, while other students will have the opportunity to seek the second level certificate and degree.

Changes in the agriculture industry have created an increased need for Crop Protection Applicators. These changes include more use of no-till agriculture and the increased demand by producers for the commercial application of crop protection products. The demand for grain crops continues to increase due to increased world demand for food and increased production of alternative fuels. Trained applicators help to meet this demand for increased grain production by increasing efficiency of grain production.

The revised program which includes multiple levels of certificates and an applied science degree responds to the agriculture industry's' need for trained/skilled employees who can enter the workforce rapidly and continue their training while employed. I applaud Barton's advisory board as well as members of the agriculture industry for bringing the training need to our team's attention. I'm hopeful members of the Kansas Board of Regents as well as the Kansas Technical Education Authority will see merit in Barton's efforts to tailor career technical training to their needs.

Respectfully,



Elaine R. Simmons
Dean of Workforce Training & Community Education

APPENDIX **C**

CA2-a Form

CA2a-A Program Revision Application
Program Comparison Chart

List all courses in Current Program below. Note the courses to be changed with an * before the course		List all courses in the Revised Program below. Note the NEW courses with ** before the course	
Current Program Courses	Number of Credits	Proposed Program Courses	Number of Credits
Introduction to Soils/Lab	4	Introduction to Soils/Lab	4
Crop Protection	3	Crop Protection	3
Plant Science	5	Plant Science	5
Fertilizer Management	3	Fertilizer Management	3
		Intro to Global Positioning Systems	2
		CDL (Commercial Drivers License)	3
Agriculture in Our Society	3		
Farm Crop Production	3		
Economic Entomoogy	4		
Agriculture Orientation	2		
Computer Concepts and Applications I	3		
Tech Communications or Farm & Business Managment	3		
We are taking four courses from the 33 hour certificate -- and adding GIS/GPS and CDL to make a 20 hour certificate.			
Total Credits in Current Program	33	Total Credits in Revised Program	20

Submit to the following:

Director of Academic Services
Kansas Board of Regents
1000 SW Jackson, Ste. 520
Topeka, KS 66612-1368

APPENDIX **D**

Program Competencies

Crop Protection Application
Short Term Training
Certificate A Competencies

The Short Term Certificate is designed to prepare students for entry level work as Crop Protection Applicators. These courses are part of a higher level certificate that can lead to a degree based upon job requirements and career advancement.

Competencies for Certificate A include:

- Explain the relationship between soil systems and fertilizer management.
- Distinguish the growth, development and reproduction stages of field crops.
- Identify weeds, pests and diseases that affect crop production.
- Control weeds pests and disease that affect crop production by the proper use of crop protection products and cropping practices.
- Describe the proper use and application of soil nutrients.
- Define and properly use fertilizer terminology.
- Demonstrate proficiency while operating a commercial motor vehicle including changing conditions, demands, traffic situations, and hazards that are essential in the professional driver's job.
- Utilize global satellite positioning systems (GPS), agricultural field mapping, navigation, VRT and yield monitoring skills related to environmental conditions that affect agriculture production.

APPENDIX **E**

Certificate Syllabi

BARTON COUNTY COMMUNITY COLLEGE
COURSE SYLLABUS

I. GENERAL COURSE INFORMATION

Course number:	AGRI 1115
Course title:	Introduction to Soils
Credit hours:	4
Prerequisites:	None
Division/Discipline:	Workforce Training and Community Education/Crop Protection
Course description:	This course is an introduction to the principles of Soil Science. The formation of soils, their classification, distribution and management are studied. Fundamentals of physical, chemical and biological properties of soils are included.

II. CLASSROOM POLICY

Students and faculty of Barton County Community College constitute a special community engaged in the process of education. The college assumes that its students and faculty will demonstrate a code of personal honor that is based upon courtesy, integrity, common sense, and respect for others both within and outside the classroom.

The College reserves the right to suspend a student for conduct that is detrimental to the College's educational endeavors as outlined in the College Catalog.

Plagiarism on any academic endeavors at Barton County Community College will not be tolerated. Learn the rules of, and avoid instances of, intentional or unintentional plagiarism.

Anyone seeking an accommodation under provisions of the Americans with Disabilities Act should notify Student Support Services.

III. COURSE AS VIEWED IN TOTAL CURRICULUM

This course is designed as an introductory course and considers basic Soil Science concepts. It is designed to increase the student's soil knowledge and ability to evaluate oral and written statements concerning Soil Science.

IV. ASSESSMENT OF STUDENT LEARNING/COURSE OUTCOMES

Barton County Community College is committed to the assessment of student learning and to quality education. Assessment activities provide a means to develop an understanding of how students learn, what they know, and what they can do with their

knowledge. Results from these various activities guide Barton, as a learning college, in finding ways to improve student learning.

This course is intended to: Explain soil development.

- Explain and interrelate the soil physical, water, biological, and chemical systems.
- Interrelate soil systems and fertilizer management.

IV. COURSE COMPETENCIES

Upon completion of this course, the student should be able to:

1. Identify soil types in any specified area.
2. Explain the importance of soil water and soil solution.
3. Explain the beneficial and detrimental effects of soil fauna and flora.
4. Describe the advantages of organic matter and its effect on soil management.
5. Give examples of the types of soil erosion, what causes them and how to control them
6. Understand the basic concepts of the carbon nitrogen ratio and the hydrologic cycle.
7. Explain the use of soil surveys and soil physical systems
8. Identify and explain the use of soil management systems, soil development and soil fertility
9. Explain the soil biological and soil water relationships

VI. INSTRUCTOR EXPECTATIONS OF STUDENTS IN CLASS

Students are expected to attend class daily and participate in class activities and discussions. Time for makeup work is limited and at some times unavailable. As a result, class attendance and participation are extremely important to the learning process. Students are expected to read the text and other material presented by the instructor. The instructor also expects the students to do their best work and let the instructor know of individual needs and problems that affect performance in this class.

VII. TEXTBOOK AND OTHER REQUIRED MATERIALS

Text: Singer and Munns. 1996. Soils, An Introduction, 3rd Ed. Prentice Hall, Upper Saddle River, NJ.

Thein, S.J. & J.G. Graveel, 1997. Laboratory Manual for Soil Science, Agricultural & Environmental Principles, 7th Ed., Wm. C. Brown Publishers.

VIII. REFERENCES

Soils in Kansas
Barton County Soil Survey

IX. METHODS OF EVALUATION

Lecture: Four one-hour examinations and six unannounced quizzes will be given in addition to the final examination. Each examination will consist of 100 points. The unannounced quizzes will be 10 points each and one may be dropped. Your lecture score will determine 75% of your grade.

Laboratory: There will be l0 quizzes and laboratory assignments. Each is worth l0 points. Your laboratory score will determine 25% of your grade.

Final grades will be determined using the following percentage scale: <60%=F; 60-69.9%=D; 70-79.9%=C; 80-89.9%=B; 90-100%=A.

Additional points may be earned by the student by turning in a typed three-page report on a related topic, using three separate resources, for a possible 20 points. A student may hand in a maximum of three reports during the semester. The reports are due before finals week.

X. ATTENDANCE REQUIREMENTS

Regular attendance in class and laboratory sessions is an obligation assumed by each student at the time of registration. It is the student's responsibility to fulfill all the requirements of a course as prescribed by the instructor. If a student must miss a class, arrangements should be made in advance with the instructor. Work missed for a school-related activity, verifiable illness, personal emergency, or death of a family member or close friend may be made up by arrangement with the instructor within one week of the student's return to class.

XI. COURSE OUTLINE

l. Soil Development Systems
2. Soil Physical Systems
3. Soil Water Systems
4. Soil Biological Systems
5. Soil Chemical and Fertility Systems
6. Fertility Management

SYLLABUS ADDENDUM

Course Number: AGRI 1115
Course Title: Introduction to Soils
Instructor:
Academic Term:

ADDENDUM TO SECTION III

Course Transferability to Regent Universities

[enter course] at BCCC is equivalent to:

INSTITUTION	EQUIVALENT COURSE(s) [a]	SOURCE(s) OF INFORMATION [b]
Emporia State University	Elective credit	ESU website, May 1998 update.
Fort Hays State University	Soils (AGRI 215) and Soils Laboratory (AGRI 215L) *student must have had Chemistry before taking course	FHSU website, October 1998 update.
Kansas State University	Soils and Soils Lab (AGRON 305)	KSU website, October 22, 1998 update.
Pittsburg State University	Elective credit	PSU website, September 10, 1998 update.
University of Kansas		
Wichita State University		

[a] Highlighted (**boldface** font) courses may be used at the institution to fulfill general education requirements.

[b] Include both the name (location) and date of the source of information.

BARTON COUNTY COMMUNITY COLLEGE
COURSE SYLLABUS

I. GENERAL COURSE INFORMATION

Course Number: AGRI1114
Course Title: Plant Science
Hours Credit: 5
Division & Discipline: Workforce Training and Community Education/Crop Protection
Course Description: A study of the principles of production of economic plants including morphology, taxonomy, physiology, ecology, propagation, preservation and storage.

II. CLASSROOM POLICY

Students and faculty of Barton County Community College constitute a special community engaged in the process of education. The college assumes that its students and faculty will demonstrate a code of personal honor that is based upon courtesy, integrity, common sense, and respect for others both within and outside the classroom.

The College reserves the right to suspend a student for conduct that is detrimental to the College's educational endeavors as outlined in the College Catalog.

Plagiarism on any academic endeavors at Barton County Community College will not be tolerated. Learn the rules of, and avoid instances of, intentional or unintentional plagiarism.

Anyone seeking an accommodation under provisions of the Americans with Disabilities Act should notify Student Support Services.

III. COURSE AS VIEWED IN TOTAL CURRICULUM

This is an introductory course in agriculture which will give the student the basics he/she will need to understand and relate to the growth, development and reproduction of plants which she/he might grow for agriculture, home, or industry. This course will transfer to Kansas State University and Fort Hays State University for an equivalent course.

IV. ASSESSMENT OF STUDENT LEARNING / COURSE OUTCOMES

Barton County Community College is committed to the assessment of student learning and to quality education. Assessment activities provide a means to develop an understanding of how students learn, what they know, and what they can do with their knowledge. Results from these various activities guide Barton, as a learning college, in finding ways to improve student learning.

This course is intended to:

1. study plants importance to agriculture .
2. study plant parts, plant reproduction, and plant growth.
3. study how the environment affects plants.
4. visually identify common cropland and rangeland plants
5. determine if a plant is a pest or beneficial species
6. use references to identify unknown plants

V. COURSE COMPETENCIES

Through this course students will have been able to demonstrate mastery of the following competencies at the 85% or better level.

1. List and compare the relationship of plants to man's needs.
2. Identify and explain the structure of plants as they relate to growth and development.
3. Explain the fundamental plant processes of absorption, photosynthesis, respiration and metabolism.
4. Differentiate between and show examples of sexual and asexual reproduction in plants.
5. List and compare the relationship between plants and their environment as to the factors of geography, topography, climate, soil and the biotic factors.
6. Apply learned management practices to problems of crop and horticultural production such as fertilizing, insect control, weed control, seeding and improvement of crops through plant breeding.
7. Express, through written papers and oral reports, the student problems and solutions to current and perceived future issues and careers in plant science.
8. Demonstrate team work and knowledge of international significance of plant science through group work.

VI. INSTRUCTOR EXPECTATIONS OF STUDENTS IN CLASS

Each student is expected to participate in class assignments, Labs, activities, and discussions. Students are expected to read the text and other material presented by the instructor. The instructor also expects the students to do their best work and let the instructor know of individual needs and problems which effect performance in this class.

VII. TEXT AND OTHER REQUIRED MATERIALS

Waldren, Richard P., Introductory Crop Science, 4th edition. Burgess Publishing: University of Nebraska, Lincoln, NE. 1997.

VIII. REFERENCES

Stubbendieck, James, Geir Y. Friisoe and Margaret R. Bolick. Weeds of Nebraska and the Great Plains. 2nd edition. Nebraska Department of Agriculture. 1995.

Barkley, T.M., Field Guide To The Common Weeds of Kansas. Lawrence, Kansas: University of Kansas Press. 1983.

Ohlenbusch, Paul D., Elizabeth P. Hodges and Susan Pope. Range Grasses of Kansas. Manhattan, Kansas: Kansas State University. 1983.

IX. METHODS OF EVALUATION

Lecture

Three one hour examinations, unannounced quizzes, and a final exam will be given. Each exam will be 100 points. The unannounced quizzes will be worth 10 points each, one may be dropped. A research paper on a related topic and class presentation are required.

Lab Assignments and Quizzes

There will be 9 quizzes and assignments completed in the lab. Each is worth l0 points.

Additional points may be earned by the student by turning in a typed three page report on a related topic, using three separate resources, for a possible 20 points. A student may hand in a maximum of three reports during the semester. The reports are due before finals week.

X. ATTENDANCE REQUIREMENTS

Regular attendance in class and laboratory sessions is an obligation assumed by each student at the time of registration. If a student needs to miss class he/she should contact the instructor before class. Work missed for a school related activity, illness, personal emergency, or death of a family member or close friend may be made up by arrangement with the instructor within one week of the student's return to class.

XI. COURSE OUTLINE

A. Introduction of the Course

B. Plants and Man's Needs
C. Structures of Economic Plant Related to Growth, Reproduction, Classification and Use
D. Classification of Economic Plant Families
E. Fundamental Plant Processes
    1. Photosynthesis
    2. Reproduction
    3. Absorption
    4. Transpiration
    5. Metabolism
F. Plant-Environmental Relationships (Influence of Geographic Factors, Topographic Factors, Climatic Factors, Soil Factors, Biotic Factors)
G. Plant Growth Regulators
H. Light
I. Plant Nutrition
J. Soils
K. Crop Geography & Ecology
L. Plant Propagation
M. Crop Improvement
N. Plant Protection
O. Cropping Systems
P. Trends in Agricultural Research
Q. Plant Identification

SYLLABUS ADDENDUM

Course Number: AGRI 1114
Course Title: Plant Science
Instructor:
Academic Term:

ADDENDUM TO SECTION III

Course Transferability to Regent Universities

Plant Science at BCCC is equivalent to:

INSTITUTION	EQUIVALENT COURSE(s) [a]	SOURCE(s) OF INFORMATION [b]
Emporia State University		
Fort Hays State University	AGRI112/112L Econ Plant Sci/Lab	FHSU Website
Kansas State University	Hort 201 Intro Hort Science	KSU Website
Pittsburg State University	Elective credit	PSU Website
University of Kansas		
Wichita State University	Elective Credit	WSU Website

[a] Highlighted (**boldface** font) courses may be used at the institution to fulfill general education requirements.
[b] Include both the name (location) and date of the source of information.

Barton County Community College
Course Syllabus

I. GENERAL COURSE INFORMATION

Course Number: AGRI 1105
Course Title: Crop Protection
Hours Credit: 3
Division & Discipline: Workforce Training and Community Education/Crop Protection
Course Description: A study of weeds, pests, and diseases that affect crop production and grain storage. Emphasis will be placed on identification of and control by the use of herbicides, insecticides and cropping practices.

II. CLASSROOM POLICY

Students and faculty of Barton County Community College constitute a special community engaged in the process of education. The college assumes that its students and faculty will demonstrate a code of personal honor that is based upon courtesy, integrity, common sense, and respect for others both within and outside the classroom.

The College reserves the right to suspend a student for conduct that is detrimental to the College's educational endeavors as outlined in the College Catalog.

Plagiarism on any academic endeavors at Barton County Community College will not be tolerated. Learn the rules of, and avoid instances of, intentional or unintentional plagiarism.

Anyone seeking an accommodation under provisions of the Americans with Disabilities Act should notify Student Support Services.

III. COURSE AS VIEWED IN THE TOTAL CURRICULUM

This course is one in a series of vocational courses designed to prepare students for entry-level positions. Students planning to transfer credit for a baccalaureate degree will be granted transfer credit only as determined by the four-year institution.

This course is designed to increase the students literacy so that he/she will be better able to evaluate oral and written statements concerning the control of crop pests.

IV. ASSESSMENT OF STUDENT LEARNING/COURSE OUTCOMES

Barton County Community College is committed to the assessment of student learning and to quality education. Assessment activities provide a means to develop an

understanding of how students learn, what they know, and what they can do with their knowledge. Results from these various activities guide Barton, as a learning college, in finding ways to improve student learning.

This course is intended to:
1. Familiarize the student with crop protection terminology
2. Describe the proper use and application of pesticides
3. Prepare student to take state pesticide certification examination

V. COURSE COMPETENCIES

The student will have demonstrated competency in the following areas:

1. Understand the economic and production purpose of pesticides in agriculture.
2. Read and follow label directions on pesticide containers.
3. Identify common weeds harmful to crops.
4. Identify harmful and beneficial insects.
5. Identify diseases in crop.
6. Making decisions in what chemicals should be used in crop protection.
7. Demonstrate proper safety precautions when handling and applying pesticides.
8. Identify alternate crop protection practices in crop production.
9. Understand basic first aid techniques when pesticide accidents occur.

VI. INSTRUCTOR EXPECTATIONS OF STUDENTS IN CLASS

Each student is expected to participate in class assignments, activities, and discussions. Students are expected to read the text and other material presented by the instructor. The instructor also expects the students to do their best work and let the instructor know of individual needs and problems which effect performance in this class.

VII. TEXTBOOK AND OTHER REQUIRED MATERIALS

Kuhar, John E., ed. Chemical Application Management. 3rd edition. Deere & Company: Moline, IL. 1994.

VIII. REFERENCES

Compendium of Wheat Disease
Sorghum Diseases in the United States
Compendium of Corn Diseases
Compendium of Soybean Diseases
Wilfarm Crop Protection Guide
The Kansas Noxious Weed Law
Understanding Your Sprayer
Weeds of Nebraska and the Great Plains

IX. METHODS OF EVALUATION

Four one-hour examinations and six unannounced quizzes will be given in addition to the final examination. Each examination will consist of 100 points. The unannounced quizzes will be worth 10 points each and one may be dropped. Class assignments and participation will also be used for evaluation.

Additional points may be earned by the student by turning in a typed, three page report on a related topic using at least three separate resources for a possible 20 points. Extra credit will be graded on content, grammar, spelling and punctuation. A student may hand in a maximum of three reports during the semester. The reports are due before finals week.

X. ATTENDANCE REQUIREMENTS

Regular attendance in class and laboratory sessions is an obligation assumed by each student at the time of registration. It is the student's responsibility to fulfill all the requirements of a course as prescribed by the instructor. If a student must miss a class, arrangements should be made in advance with the instructor. Work missed for a school-related activity, verifiable illness, personal emergency, or death of a family member or close friend may be made up by arrangement with the instructor within one week of the student's return to class.

IX. COURSE OUTLINE

1. Weed Identification
2. Weed Control
3. Diseases of Wheat
4. Diseases of Corn
5. Diseases of Sorghum
6. Diseases of Alfalfa
7. Diseases of Soybeans
8. Insects of Wheat
9. Insects of Corn
10. Insects of Sorghum
11. Insects of Alfalfa
12. Insects of Soybeans
13. Safety of Using Pesticides
14. Applying Pesticides
15. Chemicals for Corn Production
16. Chemicals for Wheat Production
17. Chemicals for Sorghum Production
18. Chemicals for Soybean Production
19. Chemicals for Alfalfa Production
20. Study for Certification Test

SYLLABUS ADDENDUM

Course Number: AGRI 1105
Course Title: Crop Protection
Instructor:
Academic Term:

ADDENDUM TO SECTION III

Course Transferability to Regent Universities

[enter course] at BCCC is equivalent to:

INSTITUTION	EQUIVALENT COURSE(s) [a]	SOURCE(s) OF INFORMATION [b]
Emporia State University	Elective credit	ESU website, May 1998 update.
Fort Hays State University	Elective credit	FHSU website, October 1998 update.
Kansas State University	Elective credit	KSU website, October 22, 1998 update.
Pittsburg State University	Elective credit	PSU website, September 10, 1998 update.
University of Kansas		
Wichita State University		

[a] Highlighted (**boldface** font) courses may be used at the institution to fulfill general education requirements.

[b] Include both the name (location) and date of the source of information.

BARTON COUNTY COMMUNITY COLLEGE
COURSE SYLLABUS

I. GENERAL COURSE INFORMATION

Course Number:	AGRI 1125
Course Title:	Fertilizer Management
Hours Credit:	3
Division/Discipline:	Workforce Training and Community Education/Crop Protection
Course Description:	This course is designed to give students a better understanding of the proper use and application of fertilizers on different types of soils for different crops.

II. CLASSROOM POLICY

Students and faculty of Barton County Community College constitute a special community engaged in the process of education. The college assumes that its students and faculty will demonstrate a code of personal honor that is based upon courtesy, integrity, common sense, and respect for others both within and outside the classroom.

The College reserves the right to suspend a student for conduct that is detrimental to the College's educational endeavors as outlined in the College Catalog.

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Anyone seeking an accommodation under provisions of the Americans with Disabilities Act should notify Student Support Services.

VI. COURSE AS VIEWED IN THE TOTAL CURRICULUM

This course is one in a series of vocational courses designed to prepare students for entry-level positions. Students planning to transfer credit for a baccalaureate degree will be granted transfer credit only as determined by the four-year institution.

This course is designed to increase the student's fertilizer knowledge so he will be better able to evaluate oral and written statements concerning the fertilizer industry.

IV. ASSESSMENT OF STUDENT LEARNING/COURSE OUTCOMES

Barton County Community College is committed to the assessment of student learning and to quality education. Assessment activities provide a means to develop an understanding of how students learn, what they know, and what they can do with their knowledge. Results from these various activities guide Barton, as a learning college, in finding ways to improve student learning.

This course is intended to:

- Familiarize the student with fertilizer terminology
- Describe the proper use and application of fertilizers

VII. COURSE COMPETENCIES

The student will have demonstrated competency in the following areas:

1. Understand the economic and production purpose of fertilizers in agriculture.
2. Read and follow label directions on fertilizer containers.
3. Demonstrate proper safety precautions when handling and applying fertilizers.
4. Differentiate between storing and application of dry vs. liquid fertilizers.
5. Take and read soil tests.
6. Write field reports and recommendation reports.
7. Orally present a current issue on fertilizer use in agriculture.
8. Utilize basic computer fertilizer programs.
9. Calibrate fertilizer equipment.
10. Calculate fertilizer needs, rates and residues.
11. Understand conservation practices and environmental concerns relating to fertilizers.
12. Identify alternate fertilizer practices in crop production.
13. Examine fertilizer use in the U.S. and internationally.
14. Identify fertilizer deficiencies and/or toxicity.
15. List essential plant nutrients and their function in plants.
16. Calculate profitable fertilizer rates for sample crops.
17. Practice applying basic first aid techniques when fertilizer accidents occur.

VI. INSTRUCTOR EXPECTATIONS OF STUDENTS IN CLASS

Each student is expected to participate in class assignments, activities, and discussions. Students are expected to read the text and other material presented by the instructor. The instructor also expects the students to do their best work and let the instructor know of individual needs and problems which effect performance in this class.

VII. TEXT AND OTHER REQUIRED MATERIALS

Text: Fertilizer Handbook (First Edition). Kansas City, Missouri: Farmland Industries Inc.

Soil Fertility Manual (First Edition). Kansas City, Missouri: Farmland Industries Inc.

VIII. REFERENCES

Kansas Extension Bulletins.

IX. METHODS OF EVALUATION

Two one hour examinations and five unannounced quizzes will be given in addition to the final examination. Each examination will consist of 100 points. The unannounced quizzes will be 10 points each. One may be dropped. In addition, an individual presentation or group project will be assigned which will be worth 100 points.

X. ATTENDANCE REQUIREMENTS

Regular attendance in class and laboratory sessions is an obligation assumed by each student at the time of registration. It is the student's responsibility to fulfill all the requirements of a course as prescribed by the instructor. If a student must miss a class, arrangements should be made in advance with the instructor. Work missed for a school-related activity, verifiable illness, personal emergency, or death of a family member or close friend may be made up by arrangement with the instructor within one week of the student's return to class.

IX. COURSE OUTLINE

1. Fertilizers and Fertilizer Industry
2. Nitrogen Fertilizers
3. Phosphate Fertilizers
4. Potash Fertilizers
5. Secondary and Trace Elements
6. Dry Fertilizers
7. Liquid Fertilizers
8. Measuring Fertility of Soil, Rates, Profitability
9. Methods of Applying Fertilizers
10. Organic Matter and Fertilizers
11. Fertilizers in Corn Production
12. Fertilizers in Sorghum Production
13. Fertilizers in Alfalfa
14. Fertilizers in Wheat
15. Special Uses of Fertilizers
16. Fertilizer Safety and Handling
17. Fertilizer Storage

SYLLABUS ADDENDUM

Course Number: AGRI 1125
Course Title: Fertilizer Management
Instructor:
Academic Term:

ADDENDUM TO SECTION III

Course Transferability to Regent Universities

[enter course] at BCCC is equivalent to:

INSTITUTION	EQUIVALENT COURSE(s) [a]	SOURCE(s) OF INFORMATION [b]
Emporia State University	Elective credit	ESU website, May 1998 update.
Fort Hays State University	Elective credit	FHSU website, October 1998 update.
Kansas State University	Elective credit	KSU website, October 22, 1998 update.
Pittsburg State University	Elective credit	PSU website, September 10, 1998 update.
University of Kansas		
Wichita State University		

[a] Highlighted (**boldface** font) courses may be used at the institution to fulfill general education requirements.

[b] Include both the name (location) and date of the source of information.

BARTON COUNTY COMMUNITY COLLEGE
COURSE SYLLABUS

I. GENERAL COURSE INFORMATION

Course Number: AGRI 1212
Course Title: Commercial Drivers License
Credit Hours: 3
Prerequisite: None
Division and Discipline: Workforce Training and Community Education/Crop Protection
Course Description: This course provides necessary information to successfully acquire a Commercial Drivers License. The student will be taught skills to demonstrate proficiency while operating a commercial motor vehicle. Students will understand changing conditions, demands, traffic situations, and hazards that are essential in the professional driver's job.

II. CLASSROOM POLICY

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The College reserves the right to suspend a student for conduct that is detrimental to the College's educational endeavors as outlined in the College Catalog.

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Anyone seeking an accommodation under provisions of the Americans with Disabilities Act should notify Student Services.

III. COURSE AS VIEWED IN THE TOTAL CURRICULUM

This course is one course that students complete in the pursuit of attaining the Crop Protection 20 hour certificate.

This course is not intended for transfer.

IV. ASSESSMENT OF STUDENT LEARNING/COURSE OUTCOMES

Barton County Community College assesses student learning at several levels: institutional, program, degree and classroom. The goal of these assessment activities is to

improve student learning. As a student in this course, you will participate in various assessment activities. Results of these activities will be used to improve the content and delivery of Barton's instructional program.

Upon completion of this course students will be able to:

1. Identify, locate, and explain the function and use of the common controls and gauges on a truck tractor.
2. Explain procedures to complete vehicle inspections.
3. Discuss basic control principles necessary to operate a tractor-trailer vehicle in forward motion and reverse.
4. Identify industry-accepted standards for coupling and uncoupling two unit combination commercial vehicles.

V. COURSE COMPETENCIES

1. Identify, locate, and explain the function and use of the common controls and gauges on a truck tractor.
    a. Identify, locate, and explain the function of each of the primary and secondary controls on a truck tractor.
    b. Identify, locate, explain, and indicate the acceptable reading range of the various instruments required to monitor vehicle and engine speed as well as the status of fuel, oil, air, cooling, exhaust, and electrical systems.
    c. Explain how to read and use gauge information in making on-going decisions.
    d. Explain the purpose and use of an inter-axle differential lock.
    e. Explain the purpose, use, and possible consequences of improper use of engine retarders.
2. Explain procedures to complete vehicle inspections.
    a. Describe a systematic procedure to assure quick and complete vehicle inspections.
    b. Discuss the effect of undiscovered malfunctions upon safety, vehicle effectiveness, and economy.
    c. Explain regulations governing vehicle inspections and cargo securement.
3. Discuss basic control principles necessary to operate a tractor-trailer vehicle in forward motion and reverse.
    a. Locate and explain how the frame, axles, wheels and their parts, engine, drive train, and brakes operate.
    b. Explain the clearance requirements of tractor-trailers of various dimensions.
    c. Explain the starting, warm-up, and shut down procedures for heavy-duty truck engines.
    d. Discuss modulation procedures for air brakes.
    e. Explain steering techniques to track a combination vehicle in lane and drive a straight line.
    f. Illustrate the proper position from which a combination vehicle should begin a turn, and how to set-up, execute and recover from a turn.
    g. Explain proper hand placement on the steering wheel.
    h. Explain shifting procedures and patterns for different transmissions.

i. Discuss the effects of speed on the rig's weight, the rig's center of gravity and the rig's stability.
j. Explain instruments and controls necessary to shift gears.
k. Discuss common shifting errors and their consequences.
l. Explain which gear most likely will be the best choice for various highway, traffic, turning, and terrain conditions.
m. Explain the importance of matching RPM's with MPH in shifting.
n. Explain proper mirror adjustment and use.
o. Explain procedures for backing a tractor-trailer combination in a straight line and along a curved path.
p. Identify and explain hazards of backing and discuss possible alternative strategies.

4. Identify industry-accepted standards for coupling and uncoupling two unit combination commercial vehicles.
a. Explain coupling and uncoupling procedures according to the states commercial driver's manual's specifications.
b. Explain the hazards of coupling and uncoupling improperly.

VI. INSTRUCTOR'S EXPECTATIONS OF STUDENTS IN CLASS

Students are individually responsible for:

1. Awareness and comprehension of all course material requirements and assignments presented in this syllabus.
2. Awareness and adherence to all deadlines for the completion of assignments as announced.
3. Awareness of test dates and times as announced.
4. Awareness of adherence to all college policies and regulations regarding academic conduct and social conduct.
5. Awareness and comprehension of substantive material presented in lectures, discussions, handout materials and assigned readings.

VII. TEXTBOOKS AND OTHER REQUIRED MATERIALS

To be determined

V. VIII. REFERENCES

None

VI. IX. METHODS OF INSTRUCTION AND EVALUATION

Methods of instruction will include classroom lecture, homework, classroom discussion, hands-on participation, and written exams.

The required percentage necessary for the satisfactory completion of the class is 70 percent. The grading scale is as follows:

90 - 100 A
80 - 89 B
70 - 79 C
60 - 69 D
59 and lower F

All exams will be made up within one week of the class exam date. Arrangements must be made by the student with the instructor to set up the test make-up at a time approved by the instructor.

X. ATTENDANCE REQUIREMENTS

Regular attendance in class and laboratory sessions is an obligation assumed by each student at the time of registration. It is the student's responsibility to fulfill all the requirements of a course as prescribed by the instructor. If a student must miss a class, arrangements should be made in advance with the instructor. Instructors have the responsibility to provide the opportunity for students to make up, in a reasonable and appropriate manner, work missed for a school-related activity, verifiable illness, personal emergency, or death of a family member. A published procedure allows students to address inequities in this policy.

XI. COURSE OUTLINE

To Be Determined

SYLLABUS ADDENDUM

Course Number: AGRI 1212
Course Title: Commercial Drivers License
Instructor:
Academic Term:

ADDENDUM TO SECTION III

Course Transferability to Regent Universities

Commercial Drivers License at BCCC is not intended for transfer.

INSTITUTION	EQUIVALENT COURSE(s) [a]	SOURCE(s) OF INFORMATION [b]
Emporia State University		
Fort Hays State University		
Kansas State University		
Pittsburg State University		
University of Kansas		
Wichita State University		

[a] Highlighted (**boldface** font) courses may be used at the institution to fulfill general education requirements.
[b] Include both the name (location) and date of the source of information.

BARTON COUNTY COMMUNITY COLLEGE
COURSE SYLLABUS

I. GENERAL COURSE INFORMATION

Course Number: AGRI 1213
Course Title: Introduction to Global Positioning Systems
Credit Hours: 3
Prerequisite: None
Division/Discipline: Workforce Training and Community Education/Crop Protection
Course Description: This class has been designed to introduce the student to the agricultural applications of GPS (Global Positioning Systems), also called precision agriculture. General technical aspects of GPS satellites, differential correction, and hardware will be covered. Instruction in agricultural mapping, navigation, variable rate technology (VRT) and yield monitoring will also be included.

II. CLASSROOM POLICY

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III. COURSE AS VIEWED IN THE TOTAL CURRICULUM

This course is designed to explore agricultural application of GPS, yield monitoring and field mapping and how they relate to economic and environmental conditions that affect agriculture production.

IV. ASSESSMENT OF STUDENT LEARNING / COURSE OUTCOMES

Barton County Community College assesses student learning at several levels: institutional, program, degree and classroom. The goal of these assessment activities is to improve student learning. As a student in this course, you will participate in various

assessment activities. Results of these activities will be used to improve the content and delivery of Barton's instructional program

Upon completion of this course students will be able to:

1. Explain the basic principles of satellite navigation and differential correction.
2. Discuss and analyze crop yield monitoring maps.
3. Summarize how GPS equipment is use to map and collect soil samples and other georeferenced data.
4. Describe the application or remote sensing for crop production.
5. Discover how to use data layers and analyze results.
6. Relate how variable rate technology is used in precision agriculture.

V. COURSE COMPETENCIES

1. Explain the basic principles of satellite navigation and differential correction.
   a. List the benefits of precision agriculture.
   b. Identify types of GPS satellite systems.
   c. Describe the concept of spatial variability.
   d. Explain how GPS works.
   e. Compare the sources of differential correction and their advantages and disadvantages.
   f. Discuss GPS applications in agriculture
2. Discuss and analyze crop yield monitoring maps.
   a. Recognize differences in combine harvesting monitoring systems.
   b. Identify the basic components of yield monitors.
   c. Describe how grain flow sensors work.
   d. Analyze yield maps for variation in field results.
   e. Determine if yield differences are due to physical features of the field or cropping factors.
3. Summarize how GPG equipment is use to map and collect soil samples and other georeferenced data.
   a. Compare soil nutrients that affect crop yields.
   b. Identify soil factors that affect crop yield.
   c. Describe grid soil sampling.
   d. Explain the procedure for collecting soil samples.
   e. Analyze nutrient layers to determine feasibility of using Variable Rate Technology.
4. Describe the application or remote sensing for crop production.
   a. Describe remote sensing and its application to crop production.
   b. Explains methods used to do remote sensing.
   c. Compare the measures of performance of remote sensing systems.
   d. Describe the future of using remote sensing.
   e. Locate satellite remote sensing on the web.
5. Discover how to use data layers and analyze results.
   a. Describe the basic components of GIS.
   b. Compare different GIS formats.
   c. Describe methods used to analyze precision farming data.

d. Contrast different coordinate systems in use today.
e. Make crop management recommendations based on GIS data layers.

6. Relate how variable rate technology is used in precision agriculture.
   a. Compare VRT options.
   b. Identify VRT components.
   c. Compare common sensors used with VRT.
   d. Describe applications of VRT.
   e. Identify current VRT equipment available.

VI. INSTRUCTOR'S EXPECTATIONS OF STUDENTS IN CLASS

Each student is expected to attend class daily. Time for make up work is very limited and at some times unavailable. As a result, class attendance and participation are extremely important to the learning process

VII. TEXTBOOKS AND OTHER REQUIRED MATERIALS

Deere and Co. The Precision-Farming Guide for Agriculturalists, 2003.

VIII. REFERENCES

Brase, Terry A. Precision Agriculture, Thompson/Delmar Learning 2006.

IX. METHODS OF INSTRUCTION AND EVALUATION

The competencies provide an outline for material to be discussed in class and will comprise the material over which students will complete assignments and be tested. The course will progress through all chapters of the book and a study guide assignment will be provided to highlight the important aspects of each chapter. Exam questions will be taken mostly from study guide material.

The course will also incorporate several videotapes that describe and demonstrate how the industry is using GPS. Web assignments are also included in this course to help the student understand how much information is available on the Internet. Because technology is changing so rapidly the Internet is a very good source of the latest information. The student will complete a written assignment over each web site.

7 Text Assignments @ 15	105
7 Video Assignments @ 10	70
9 Web Assignments @ 15	135
Semester Project	100
3 Exams @ 100	300
	710

Additional points may be earned by the student by turning in a typed three page report on a related topic using separate resources for a possible 20 points. Extra credit will be graded on content, grammar, spelling and punctuation. A student may hand in a maximum of three reports during the semester. The reports are due before finals week.

Grades
92 to 100% = A
84 to 91% = B
76 to 83% = C
65 to 75% = D
Below 65 = F

X. ATTENDANCE REQUIREMENTS

Students are expected to attend class regularly and on time. If a student cannot attend a class session for various reasons, the student must contact the instructor ahead of time. Points will be deducted from the student's grade if the instructor is not contacted.

Make up:
If a student misses a scheduled test, the student has one week to make arrangement to make it up and must do so on the student's own time. It is recorded a zero after that time. Missed unannounced quizzes cannot be made up.

XI. COURSE OUTLINE

1. Introduction to Precision Agriculture
2. Positioning Systems
3. Yield Monitoring and Mapping
4. Soil Sampling and Analysis
5. Remote Sensing
6. Computers and Geographic Information Systems
7. Variable Rate Technologies

SYLLABUS ADDENDUM

Course Number: AGRI 1213
Course Title: Introduction to Global Positioning Systems
Instructor:
Academic Term:

ADDENDUM TO SECTION III

Course Transferability to Regent Universities

Introduction to Global Positioning Systems at Barton County Community College is equivalent to:

INSTITUTION	EQUIVALENT COURSE(s) [a]	SOURCE(s) OF INFORMATION [b]
Emporia State University		ESU Website
Fort Hays State University		FHSU Website
Kansas State University		KSU Website
Pittsburg State University		PSU Website
University of Kansas		KU Website
Wichita State University		WSU Website

[a] Highlighted (**boldface** font) courses may be used at the institution to fulfill general education requirements.
[b] Include both the name (location) and date of the source of information.

APPENDIX **F**

Minutes Showing Approval

Attach minutes from the following:

- LICC
- President's Staff
- Ag Advisory Board
- Board of Trustees Meeting

APPENDIX **G**

Verification Form
For Perkins Approval

KANSAS BOARD OF REGENTS

PERKINS APPROVED PROGRAM VERIFICATION

FY2009

Name of Institution: Barton County Community College Date of Submission: 4-2009

Program CIP Code: 01.0301 **Program Name: Crop Protection**

Program Status: ☒ **Active** ☐ **Inactive**

Award Level: ☐ **AAS***(04)* ☐ ***AS***(04)* **Credit Hours Required:** **Total Technical Cr, Required:**

☒ **Technical Certificate**(05) **Credit Hours Required: 32** **Total Non-Tech Cr. Required:**

☐ ****Certificate of Completion***(07/09)* **Credit Hours Required:**

☐ **Apprenticeship** *(08)***Credit Hours Required:**

(Please list program courses in sequential order, beginning with the first course, where possible)

R-Required E-Elective	T-Technical G-General Education	Course Name	Credit Hours
R	T	Introduction to Soils/Lab	4
R	T	Crop Protection	3
R	T	Plant Science	5
R	T	Fertilizer Management	3
R	T	Intro to Global Positioning Systems	2
R	T	CDL (Commercial Drivers License)	3

**** AS programs must have at least 55% of the total program credit hours from technical courses for Perkins approval.***

*****Certificate of Completion programs must be reported as Adult Short-Term(07) or Business & Industry(09) programs.***

Signature of Administrator Title Date

Submit one copy to the Career and Technical Education office, Kansas Board of Regents, 1000 SW Jackson Street, Suite 520, Topeka, KS 66612-1368.

FOR STATE USE ONLY: ☐ Approved for Perkins Funding ☐ Not Approved for Perkins Funding

Director, Career and Technical Education

Date