



**SOUTH DAKOTA BOARD OF REGENTS
ACADEMIC AFFAIRS FORMS**

Substantive Program Modification Form

UNIVERSITY:	SDSU
CURRENT PROGRAM TITLE:	Precision Agriculture (B.S.)
CIP CODE:	01.0301
UNIVERSITY DEPARTMENT:	Agricultural & Biosystems Engineering; Agronomy, Horticulture & Plant Science
BANNER DEPARTMENT CODE:	SPRA
UNIVERSITY DIVISION:	Agricultural, Food and Environmental Sciences
BANNER DIVISION CODE:	3F

University Approval

To the Board of Regents and the Executive Director: I certify that I have read this proposal, that I believe it to be accurate, and that it has been evaluated and approved as provided by university policy.

Dennis D. Hedge

Vice President of Academic Affairs or
President of the University

4/29/2020

Date

1. This modification addresses a change in:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Total credits required within the discipline | <input checked="" type="checkbox"/> Total credits of supportive course work |
| <input checked="" type="checkbox"/> Total credits of elective course work | <input type="checkbox"/> Total credits required for program |
| <input type="checkbox"/> Program name | <input type="checkbox"/> Existing specialization |
| <input type="checkbox"/> CIP Code | <input type="checkbox"/> Other (explain below) |

2. Effective date of change: 2020-2021 Academic Year

3. Program Degree Level: Associate Bachelor's Master's Doctoral

4. Category: Certificate Specialization Minor Major

5. If a name change is proposed, the change will occur:

- On the effective date for all students
- On the effective date for students new to the program (enrolled students will graduate from existing program)

Proposed new name:

6. Primary Aspects of the Modification:

Existing Curriculum

Proposed Curriculum (Highlight Changes)

Pref	Num	Title	Cr Hrs	Pref	Num	Title	Cr Hrs
		System General Requirements	32			System General Requirements	31
		SGR 1 Written Communication	6			SGR 1 Written Communication	6
		ENGL 101 Composition I (3)				ENGL 101 Composition I (3)	
		ENGL 277 Technical Communications (3)				ENGL 277 Technical Communications (3)	
		SGR 2 Oral Communication	3			SGR 2 Oral Communication	3
		SGR 3 Social Sciences/Diversity	6			SGR 3 Social Sciences/Diversity	6
		ABS 203 Global Food Systems (3)				ABS 203 Global Food Systems (3)	
		ECON 201 Principles of Microeconomics (3)				ECON 201 Principles of Microeconomics (3)	

Existing Curriculum

Proposed Curriculum (Highlight Changes)

Pref	Num	Title	Cr Hrs	Pref	Num	Title	Cr Hrs
SGR 4		Arts and Humanities/Diversity	6	SGR 4		Arts and Humanities/Diversity	6
SGR 5		Mathematics	3	SGR 5		Mathematics	3
MATH 114		College Algebra (3)		MATH 114		College Algebra (3)	
Goal #6		Natural Sciences	8	Goal #6		Natural Sciences	7
CHEM 106-106L		Chemistry Survey & Lab (4)		CHEM 106-106L		Chemistry Survey & Lab (4)	
AND				AND			
BIOL 151-151L		General Biology I (4)		BIOL 101-101L		Survey of Biology I & Lab (3)	
				BIOL 151-151L		General Biology I (4)	
College Requirements			0	College Requirements			0
Students who wish to complete a Bachelor of Science in Agriculture, Food and Environmental Sciences must complete a minimum of 11 credits from the approved list of Group 1 courses.			0	Students who wish to complete a Bachelor of Science in Agriculture, Food and Environmental Sciences must complete a minimum of 11 credits from the approved list of Group 1 courses.			0
<ul style="list-style-type: none"> ABS 203 Global Food Systems (SGR #3) ABS 475-475L Integrated Natural Resource Management & Lab (3) (Major Requirements) AST 333-333L Soil and water Mechanics & Lab (3) (Major Requirements) PS 213-213L Soils & Lab (3) (Major Requirements) 				<ul style="list-style-type: none"> ABS 203 Global Food Systems (SGR #3) ABS 475-475L Integrated Natural Resource Management & Lab (3) (Major Requirements) AST 333-333L Soil and water Mechanics & Lab (3) (Major Requirements) PS 213-213L Soils & Lab (3) (Major Requirements) 			
Major Requirements			69-70	Major Requirements			69
ABS	475-475L	Integrated Natural Resource Management & Lab	3	ABS	475-475L	Integrated Natural Resource Management & Lab	3
ACCT	210	Principles of Accounting I (3)	3	ACCT	210	Principles of Accounting I (3)	3
OR				OR			
AGEC	271	Farm and Ranch Management (3)		AGEC	271	Farm and Ranch Management (3)	
OR				OR			
AGEC	354	Agricultural Marketing and Prices (3)		AGEC	354	Agricultural Marketing and Prices (3)	
AST	119	First Year Seminar (2)	1-2	AST	119	First Year Seminar (1)	1
OR				OR			
PS	119	First Year Seminar (1)		PS	119	First Year Seminar (1)	
AST	273-273L	Micro Computer Applications in Agriculture & Lab	3	AST	273-273L	Micro Computer Applications in Agriculture & Lab	3
AST	313-313L	Farm Machinery Systems Mgmt. & Lab	3	AST	313-313L	Farm Machinery Systems Mgmt. & Lab	3
AST	333-333L	Soil and Water Mechanics & Lab	3	AST	333-333L	Soil and Water Mechanics & Lab	3
AST	390	Seminar (1)	1	AST	390	Seminar (1)	1
OR				OR			
PS	490	Seminar (1)		PS	490	Seminar (1)	
AST	412-412L	Fluid Power Technology & Lab	3	AST	412-412L	Fluid Power Technology & Lab	3
AST	426-426L	Emerging Technologies in Agriculture & Lab (3)	3	AST	426-426L	Technology Applications for Precision Agriculture & Lab (3)	3
OR				OR			
PRAG	428	Use of Soil and Plant Sensors in Crop Production (3)		PRAG	428	Use of Soil and Plant Sensors in Crop Production (3)	
AST	494	Internship (2)	2	AST	494	Internship (1)	1
OR				OR			
PS	494	Internship (2)		PS	494	Internship (1)	
PRAG	203-203L	Introduction to Precision Agriculture & Lab	2	PRAG	203-203L	Introduction to Precision Agriculture & Lab	3
PRAG	304-304L	Electrical Diagnostics in Farm Machinery & Lab	3	PRAG	304-304L	Electrical Diagnostics in Farm Machinery & Lab	3
PRAG	340	Climate Risk Management with Precision Agriculture	3	PRAG	340	Climate Risk Management with Precision Agriculture	3
PRAG	345-345L	Principles and Implications of Chemical Application Systems	3	PRAG	345-345L	Principles and Implications of Chemical Application Systems	3
PRAG	410-410L	Soil Geography and Land Use Interpretation & Lab (3)	3	PRAG	410-410L	Soil Geography and Land Use Interpretation & Lab (3)	3
OR				OR			
PS	462-462L	Environmental Soil Management & Lab (3)		PS	462-462L	Environmental Soil Management & Lab (3)	
PRAG	427	Precision Ag Data Mapping	2	PRAG	427	Precision Ag Data Mapping	2
PRAG	440-440L	Crop Management with Precision Farming	3	PRAG	440-440L	Crop Management with Precision Farming	3

Existing Curriculum

Proposed Curriculum (Highlight Changes)

Pref	Num	Title	Cr Hrs	Pref	Num	Title	Cr Hrs
PRAG OR PRAG OR PRAG	424 425 426	Select four credits from the following three courses: Wheat Production (2) Soybean Production (2) Corn Production (2)	4	PRAG OR PRAG OR PRAG	424 425 426	Select four credits from the following three courses: Wheat Production (2) Soybean Production (2) Corn Production (2)	4
PS	103-103L	Crop Production & Lab	3	PS	103-103L	Crop Production & Lab	3
PS	213-213L	Soils & Lab	3	PS	213-213L	Soils & Lab	3
PS	223-223L	Principles of Plant Pathology & Lab	3	PS	223-223L	Principles of Plant Pathology & Lab	3
PS OR PS	307-307L 405-405L	Insect Pest Management & Lab (3) Entomology & Lab (3)	3	PS OR PS	307-307L 405-405L	Insect Pest Management & Lab (3) Entomology & Lab (3)	3
PS	423	Soil Fertility and Plant Nutrient Management	3	PS	423	Soil Fertility and Plant Nutrient Management	3
PS	445-445L	Weed Science & Lab	3	PS	445-445L	Weed Science & Lab	3
STAT	383	Geospatial Dataset Analysis	3	STAT	383	Geospatial Dataset Analysis	3
Supporting Coursework			18	Supporting Coursework			16
				AST	342-342L	Applied Electricity & Lab	3
BOT	201-201L	General Botany and Lab	3	BOT	201-201L	General Botany and Lab	3
CHEM	120-120L	Elementary Organic Chemistry & Lab	4	CHEM	120-120L	Elementary Organic Chemistry & Lab	3
ET	210-210L	Introduction to Electronic Systems & Lab	4	ET	210-210L	Introduction to Electronic Systems & Lab	4
PHYS	101-101L	Survey of Physics & Lab	4	PHYS	101-101L	Survey of Physics & Lab	4
STAT	281	Introduction to Statistics	3	STAT	281	Introduction to Statistics	3
Electives			0-1	Electives			4
Summary of Credits Precision Agriculture (B.S.)							
System General Requirements			32	System General Requirements			31
College Requirements			0	College Requirements			0
Major Requirements			69-70	Major Requirements			69
Supporting Coursework			18	Supporting Coursework			16
Electives			0-1	Electives			4
Total number of hours required for major			69-70	Total number of hours required for major			69
Total number of hours required for degree			120	Total number of hours required for degree			120

7. Explanation of the Change:

Precision Agriculture has expanded tremendously since the program was created and topics have expanded as well. Changes to the curriculum include:

- AST 426-426L Emerging Technologies in Agriculture and Lab was taught as part of the ag systems technology curriculum before being added to the precision agriculture curriculum and as such the course has evolved to meet the needs of both programs and to fit amongst the new precision agriculture coursework introduced. The revised title will reflect this course is an advanced course in precision agriculture technologies.
- AST 119 First Year Seminar has decreased from 2cr to 1cr. This equalizes the PS 119 and AST 119 courses to both be one credit.
- BIOL 151-151L General Biology I was replaced by BIOL 101-101L Survey of Biology I & Lab. This change will align AST 342-342L into the curriculum as the prerequisite for PRAG 304-304L.
- CHEM 120-120L Elementary Organic Chemistry & Lab will be reduced from four credits to three.
- AST 494 Internship and PS 494 reduced from 2 cr. to 1 cr.

- Overall credit changes have resulted in the addition of 4 credits of elective for the Precision Agriculture degree program.