

PRECISION AGRICULTURE TECHNOLOGY & MANAGEMENT

Agricultural Technology Option

Department of Agricultural and Biosystems Engineering - North Dakota State University

FALL 2023*

Student: _____ Student ID # _____ Specialization/Minor _____ Advisor _____

	FALL					SPRING				
	Course	Crs	Grade ¹	300/400 Level ²	Gen Ed	Course	Crs	Grade ¹	300/400 Level ²	Gen Ed
Freshman (<27 crs)	ASM 115 ⁵ Fundamentals of ASM	3				ASM 348 Ag Technology Expo	1			
	ASM 125 ⁵ Fabrication & Const Tech	3				COMM 110 Fund of Public Speaking	3			C
	ENGL 110 ³ College Composition I	3			C	CSCI 114 or TL 116 Micro Pkg/Bus Use	3			S
	PAG 115 Intro to Precision Ag	2				ENGL 120 College Composition II	3			C
	MATH 103 ⁴ Algebra	3				ACCT 102 ⁶ Fund of Accounting	3			
					HUM/FINE ARTS	3				A
	14				16					
Sophomore (27-59 crs)	ASM 225 Computer Appl in ASM	3				ASM 264 Natural Resource Mgmt Sys	3			
	AGEC 242 Intro to Ag Mgmt	3				ASM 264L Natural Resource Mgmt Sys Lab	1			
	ECON 201 Principles of Microeconomics	3			B/G	ECON 202 Principles of Macroeconomics	3			B/G
	PHYS 120 Fundamentals of Physics	3			S	Elective (Option)	6			B
	PHYS 120L/CHEM 121L Choose either lab course	1			S/L	Elective (Free)	4			
	13				17					
Junior (60 - 89 crs)	ASM 323 Post Harvest Technology	3				ASM 373 Tractor and Power Units	3			
	CHEM 121 General Chemistry I	3			S	ASM 374 Power Units Lab	1			
	STAT 330 Introductory Statistics	3			R	Upper-Level Writing (see side list)	3			C
	Wellness	2			W	Elective (Option)	3			
	Elective (Option)	3				Elective (Free)	4			
	14				14					*Complete your Degree Audit this semester
Senior (90 + crs)	ASM 354 Electricity and Electronic Appl	3				ASM 429 Hydraulic Principles/App	3			
	ASM 378 Machinery Princ & Mgmt	3				ASM 475 Mgmt Agric Systems (capstone)	2			
	HUM/FINE ARTS	3			A/D	Elective (Option)	9			
	Elective (Option)	6				Elective (Free)	3			
		15				17				

General Education Electives			
See www.ndsu.edu/registrar/gened for approved courses.			
Gen Ed	Course	Crs	Grade
A		3	
A		3	
B	ECON 201	3	
B	ECON 202	3	
C	ENGL 320, 321, 324, 459 or approved course		
		3	
D	(Double-count with A above)	3	
G	ECON 201	3	
W		2	

General Education Categories:
A - Humanities/Fine Arts G - Global Perspectives ●
B - Social/Behavioral Sciences L - Co-requisite Lab
C - Communication R - Quantitative Reasoning
D - Cultural Diversity ■ S - Science & Technology
F - First-Year Experience W - Wellness

Electives - 38 cr. total			
Select courses in consultation with your advisor.			
Course	Crs	Grade	
Program Electives - 27 credits required			
(May select any courses listed on back)			
Free Electives - 11 credits required			

Total Credits
120

- 120 minimum total credits required. The last 30 credits must be earned in residence at NDSU.
- A minor may require more than 16 credits, therefore, select electives apply. Check with the minor department for current requirements/changes and assignment of a minor advisor.
- ASM students must maintain a 2.25 GPA in ASM courses.
- Students must register for an internship in ASM the semester it is being taken. This includes Career Center internships.
- As a student at NDSU, it is your responsibility to know the requirements of your degree. To ensure all degree requirements are met, meet with your academic advisor regularly and follow your Academic Requirements Report found on Campus Connection. Required ASM courses are typically offered only once per year and all course offerings are subject to change.

¹ Use this column to tally grades; use "T" for transfer courses and "IP" for courses currently in progress.
² Use this column to tally 36 credits of 300/400 level courses required for graduation.
³ First year students with a composite ACT ENGL sub-score ≥ 18 should register for ENGL 120 (unless transfer credit for ENGL 120 is received). If ENGL 120 is completed with a grade of "C" or better, credits will be awarded for ENGL 110 with a passing grade (P). For more details on NDSU's English Placement process, go to http://english.ndsu.edu/placement_guidelines_writing_courses/.
⁴ MATH 103 or higher.
⁵ ASM 115 and ASM 125 are required for students who enter the ASM program with fewer than 32 earned credits.
⁶ May substitute with ACCT 200 AND 201 for a total of 6 credits.

ASM-CurriculumGuide2023.xlsx

Last Updated 03/10/2023

Potential Minors

Note – The ASM curriculum has the flexibility to double major or to major and double minor if you select courses appropriately.

Check with the minor department for current requirements/changes and assignment of a minor advisor. Information on minors listed here was taken from the 2020/21 listings at <http://bulletin.ndsu.edu/undergraduate/program-curriculum>. Minors in other disciplines are available. Check minor requirements with the minor department no later than the beginning of the junior year. The minor department must certify completion of requirements before a minor will be recorded on the transcript.

Agribusiness Minor (18 credits)	Economics Minor (18 -19 credits)	Crop & Weed Science Minor (18 credits)
♦ECON 201-3 2 of the following (6 credits) AGECE 242-3 AGECE 244-3 AGECE 246-3	♦ECON 201-3 ♦ECON 202-3 ECON 341-3 or BUSN 487-4 ECON 343-3	PLSC 110-3 PLSC 225-3
At least 9 add'l cr. ECON 341 or any AGECE prefix course numbered 242 or higher (excluding AGECE 397 & AGECE 496)	3 credits of 300/400 level ECON AND 3 credits of 400 level ECON	6-7 cr. (2 courses required): PLSC 315/L - 3/1 PLSC 320-3 PLSC 323-3

Precision Ag Minor (17 credits)	Animal Science Minor (16 credits)	Agricultural Comm Minor (21 credits)
♦PAG 115-2 PAG 215-3 2 of the following (6 credits) PAG 315-3 PAG 455-3 PAG 454-3	ANSC 114-3 ANSC 220-3 ANSC 223-2 ANSC 240-3	COMM 112-3 COMM 133-3 COMM 200-3
Select 6 credits from the following: See complete list of approved courses at: https://bulletin.ndsu.edu/undergraduate/program-curriculum/precision-agriculture/#minortext	Must include 1 of the following courses: ANSC 300-3 ANSC 370-3 ANSC 314-3 ANSC 444-3 ANSC 323-3 ANSC 463-3 ANSC 324-3 ANSC 487-3 ANSC 340-3 ANSC 357-3	Select 12 credits from the following: COMM 245-3 COMM 362-3 COMM 308-3 COMM 375-3 COMM 310-3 COMM 465-3 COMM 313-3 COMM 470-3 COMM 330-3 COMM 485-3

♦ Courses already required for ASM major

Last Updated 03/10/2023

Approved Course List for Option Electives

May select those courses listed here.

Additional courses may be acceptable. Please discuss with your advisor.

ACCT 201	Fundamentals of Accounting	3	IME 335	Welding Technology	3
ACEC 244	Agricultural Marketing	3	MGMT 320	Foundations of Management	3
AGEC 246	Intro to Agricultural Finance	3	MRKT 320	Foundations of Marketing	3
ANSC 114	Intro to Animal Sciences	3	ME 311	Intro to Aviation	3
ANSC 218	Anatomy & Physiology of Domestic Animals		ME 312	Intro to Flight	2
ANSC 220	Livestock Production	3	ME 313	Commercial Instrument Ground School	3
ANSC 222	Meat Animal Evaluation	2	NRM 452	Managing Natural & Rangeland using GIS	
ANSC 240	Meat Animal Eval & Mrkt		PLSC 110	World Food Crops	3
ANSC 320	Dairy Cattle Selection	1-2	PLSC 215	Weed Identification	1
ANSC 323	Fundamentals of Nutrition	3	PLSC 225	Principles of Crop Production	3
ANSC 330	Meat Selection, Grading & Judging	1-2	PLSC 315/L	Genetics/Genetics Lab	3/1
ANSC 331	Livestock Selection	1-2	PLSC 320	Principles of Forage Production	3
ANSC 357	Animal Genetics	3	PLSC 323	Principles of Weed Science	3
ANSC 463	Physiology of Reproduction	3	PAG 115L	Intro to Precision Ag Lab	1
ANSC 470	Applied Nutrition	4	PAG 215	Mapping of Precision Ag Data	3
ASM 234	3D Printing & Manufacturing		PAG 315	Electronic Systems in Precision Ag	3
BIOL 150	General Biology		PAG 454	Principles & Applications of Precision Ag	3
BIOL 150L	General Biology Lab		PPTH 324	Introductory Plant Pathology	3
BUSN 340	International Business	3	PPTH 454	Diseases of Field and Forage Crops	3
BUSN 487	Managerial Economics	4	SOIL 210	Introduction to Soil Science	3
COMM 212	Interpersonal Communication	3	SOIL 217	Introduction to Meteorology & Climatology	3
COMM 216	Intercultural Communication	3	SOIL 322	Soil Fertility & Fertilizers	3
COMM 308	Bus. & Prof. Speaking	3	SOIL 351	Soil Ecology	3
CSCI 479	Intro to Data Mining	3	PAG 455	Big Data Management in Precision Ag	3
ECON 105	Elements of Economics	3	PAG 475	Precision Ag Capstone	2
ECON 341	Intermediate Microeconomics	3	PAG 496	Field Experience/Internship	1
ECON 343	Intermediate Microeconomics	3	SOIL 410	Soils and Land Use	3
ENT 210	Insects, Humans & the Environment	3	SOIL 433	Soil Physics	3
ENT 350	General Entomology	3	SOIL 444	Soil Genesis and Survey	3
ENT 360	Economic Entomology	1-3	SOIL 447	Microclimatology	3
ENT 410	Intergrated Management of Pests	3	SOIL 465	Soil and Plant Analysis	3
ENT 470	Insect Ecology	3	SOIL 480	Soils and Pollution	3
FIN 320	Principles of Finance	3			
GEOG 105	Fundamentals of GIS				
GEOG 455	Introduction to Geographic Info Sys	4			
GEOG 456	Adv Geographic Info Sys	3			
GEOG 470	Remote Sensing	3			
GEOG 480	GIS Pattern Analysis & Modeling	3			

Program Elective Course Suggestions:

Students graduating from the ASM program have a variety of career goals and opportunities. The lists below suggest courses which may help students prepare for their field(s) of interest. The lists are not all-inclusive and some suggestions may not be appropriate, e.g., livestock courses for crop farmers. The courses listed here meet the "Program Electives" category of the ASM curriculum. Prerequisite courses are not listed and may not count toward "Program Electives."

Production Ag

AGEC 242	Introduction to Agricultural Mangement
AGEC 244	Agricultural Marketing
AGEC 246	Introduction to Agricultural Finance
ANSC 114	Introduction to Animal Sciences
ANSC 123	Feed and Feeding
ANSC 220	Livestock Production
and/or	add'l ANSC courses for specific animals as approp.
ENT 210	Insects, Humans and the Environment
or ENT 350	General Entomology
or ENT 360	Economic Entomology
PLSC 110	World Food Crops
PLSC 215	Weed Identification
PLSC 225	Principles of Crop Production
and/or	add'l PLSC courses for specific crops as approp.
PPTH 324	Introductory Plant Pathology
PPTH 454	Diseases of Field and Forage Crops
SOIL 210	Introduction to Soil Science
SOIL 217	Introduction to Meterology & Climatology
SOIL 322	Soil Fertility and Fertilizers
and/or	add'l SOIL courses as approp.

Precision Agriculture

GEOG 105	Fundamentals of Geographic Info Systems (GIS)
GEOG 455	Intro. to Geographic Information Systems
GEOG 456	Adv. Geographic Inormation Systems
GEOG 470	Remote Sensing
GEOG/GEOG 480	GIS Pattern Analysis & Modeling
PAG 115L	Intro to Precision Ag Lab
PAG 215	Mapping of Precision Ag Data
PAG 315	Electronic Systems in Precision Ag
PAG 454	Principles & Applications of Precision Ag
PAG 455	Big Data Management in Precision Ag
PAG 475	Precision Ag Capstone
PAG 496	Field Experience/Internship
SOIL 210	Intro. to Soil Science
SOIL 322	Soil Fertility and Fertilizers
ME 311	Intro to Aviation
ME 312	Intro to Flight
ME 313	Commercial Instrument Ground School

Ranching

ANSC 114	Introduction to Animal Sciences
ANSC 220	Livestock Production
ANSC 331	Livestock Selection
ANSC 357	Animal Genetics
ANSC 463	Physiology of Reproduction
ANSC 470	Applied Nutrition
and/or	add'l ANSC courses as approp.
RNG 336	Intro to Range Management
RNG 450	Range Plants
RNG 452	Geographic Info Systems in Range Survey
RNG 453	Rangeland Resources Watershed Mgmt
RNG 456	Range Habitat Mgmt
RNG 458	Grazing Ecology
RNG 462	Natural Resource & Rangeland Planning
and/or	add'l RNG courses as approp.
PLSC 110	World Food Crops
PLSC 215	Weed Identification
PLSC 225	Principles of Crop Production
PLSC 320	Principles of Forage Production
PLSC 323	Principles of Weed Science
PLSC 433	Weed Biology & Ecology
PLSC 453	Advanced Weed Science
and/or	add'l PLSC courses as approp.
SOIL 210	Introduction to Soil Science
SOIL 217	Introduction to Meterology & Climatology
SOIL 332	Soil Fertility and Fertilizers
SOIL 410	Soils and Land Use
and/or	add'l SOIL courses as approp.
PPTH 454	Diseases of Field and Forage Crops

Agricultural Sales

AGEC 242	Introduction to Agricultural Mangement
AGEC 244	Agricultural Marketing
AGEC 246	Introduction to Agricultural Finance
AGEC 344	Agricultural Price Analysis
AGEC 347	Principles of Real Estate
AGEC 444	Commodity Trading
AGEC 446	Agribusiness Finance
AGEC 450	National AgriMarketing Association (NAMA)
AGEC 474	Cooperatives
and/or	add'l AGEC courses as approp.
PLSC 215	Weed Identification
PLSC 323	Principles of Weed Science
COMM 212	Interpersonal Communication
COMM 308	Business and Professional Speaking
BUSN 487	Managerial Economics

Grain Marketing

AGEC 242	Introduction to Agricultural Mangement
AGEC 244	Agricultural Marketing
AGEC 246	Introduction to Agricultural Finance
AGEC 344	Agricultural Price Analysis
AGEC 444	Commodity Trading
AGEC 446	Agribusiness Finance
and/or	add'l AGEC courses as approp.
SOILS 210	Introduction to Soil Science
SOILS 322	Soil Fertility and Fertilizers
PLSC 110	World Food Crops
PLSC 215	Weed Identification
PLSC 315/L	Genetics & Lab
PLSC 323	Principles of Weed Science
PLSC 335	Seed Technology & Production
PLSC 340	Grain Grading