By completing this curriculum, graduates will have fulfilled the requirements for an Agricultural Business Management minor or other selected minor. Contact the Enrolled Student Services Office to have the minor recorded.

Additional information is available from the departmental offices or can be found at www.clemson.edu/cafls/safes/agme/index.html.

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### Freshman Year

**First Semester**
1. AGM 1010 Intro. to Ag. Mech. and Business
2. AGM 2050 Principles of Fabrication
3. AGRB 2020 Agricultural Economics or 4. ECON 2110 Principles of Microeconomics
5. BIOL 1030 General Biology I
6. BIOL 1050 General Biology Lab. I
7. MATH 1020 Intro. to Mathematical Analysis

**Second Semester**
3. ACCT 2010 Financial Accounting Concepts
4. BIOL 1040 General Biology II
5. COMM 1500 Intro. to Human Comm. or 6. COMM 2500 Public Speaking
7. ENGL 1030 Accelerated Composition
8. Elective

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### Sophomore Year

**First Semester**
3. AGM 2190 Agribusiness and Food Systems
4. AGM 2210 Surveying
5. CH 1010 General Chemistry
6. ENGR 2080 Engineering Graphics and Machine Design or 7. ENGR 2090 Introduction to Engineering Computer Graphics or
9. PHYS 2010 Introductory Physics I
10. PHYS 2070 General Physics I and 11. PHYS 2090 General Physics I Lab.

**Second Semester**
3. AGM 2060 Machinery Management
4. AGM 3030 Calculations for Mechanized Agric.
5. CH 1020 General Chemistry
6. Arts and Humanities (Literature) Requirement
7. Plant/Crop Science Requirement

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### Junior Year

**First Semester**
3. AGM 3010 Soil and Water Conservation
4. AGM 3190 Agribusiness Decision Analysis
5. AGM 4050 Environmental Control in Animal Structures
6. AGRB 3020 Economics of Farm Management or 7. MGT 2010 Principles of Management
8. PES 2020 Soils

**Second Semester**
3. AGRB 4020 Drainage and Irrigation
4. AGRB 4520 Mobile Power
5. STAT 2300 Statistical Methods I
6. Arts and Humanities (Non-Lit.) Requirement
7. Minor Requirement

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### Senior Year

**First Semester**
1. AGR 4000 Senior Seminar in Agricultural Mechanization and Business
2. AGR 4060, 4110, or 4590. If applicable, these courses may also be used to satisfy minor requirement.
3. MGT 2010 Principles of Management
4. ACCT 2010 Financial Accounting Concepts
5. BIOL 1100 Principles of Biology I
6. BiOL 1110 Principles of Biology II
7. ECON 2110 Principles of Microeconomics
8. Plant/Crop or Soil Science Requirement
9. Social Science Requirement

**Second Semester**
3. AGRB 4100 Precision Agriculture Technology
4. AGRB 4720 Capstone or 5. AGRB 4910 Agribusiness Innov./Enrpren.
6. Minor Requirement
7. Plant/Crop or Soil Science Requirement
8. Social Science Requirement

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### Change of Major into Animal and Veterinary Sciences

Students who change majors into Animal and Veterinary Sciences must have a 2.5 minimum cumulative grade point average.

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### ANIMAL AGRIBUSINESS CONCENTRATION

**Freshman Year**
1. AVS 1000 Orientation to Animal and Vet. Sci.
2. AVS 1500 Introduction to Animal Science
3. AVS 1510 Introduction to Animal Science Lab.
4. BIOL 1030 General Biology I and 5. BIOL 1050 General Biology Lab. I or 6. BIOL 1100 Principles of Biology I
7. CH 1010 General Chemistry
8. Arts and Humanities (Non-Lit.) Requirement

**Second Semester**
3. BIOL 1110 Principles of Biology II
4. ENGR 2080 Engineering Graphics and 5. PHYS 2010 Introductory Physics I
6. MATH 1020 Intro. to Math. Analysis
7. PES 3040, 4050, 4210, 4220, 4230, (AGRB) 4260, PLPA 3100, 4060, 4100, or 4990. If applicable, these courses may also be used to satisfy minor requirement.
8. MGT 2010 can count for either of the AGRB 3020 or 3190 requirement but not for both.
9. See General Education Requirements. Three of these credit hours must also satisfy the Cross-Cultural Awareness and three must satisfy the Science and Technology in Society Requirements.
10. See CAFLS approved minors. If requirements for an approved minor have already been satisfied, this course may be any 3000-level or higher course from an approved program. Any required course in the curriculum can also be used to count towards minor requirements.
11. AGM 4190 is a fall-only course. Students electing to take AGM 4190 must switch the course order with a fall listing.
12. PES 4060, 4100, 4520, 4850, or 4990. If applicable, these courses may also be used to satisfy minor requirement.

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### ANIMAL AND VETERINARY SCIENCES

**Bachelor of Science**

The Animal and Veterinary Sciences curriculum provides students with both a basic and applied understanding of the scientific principles needed for successful careers in the scientific, technical, and business phases of livestock and poultry production, processing, and marketing. Strengths of this program include extensive hands-on instruction at Clemson’s six animal farms, personalized advising, and the opportunity for valued-added experiences, including involvement in research, teaching, extension, international travel, and internships. Students choose from three concentrations.

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The Animal Agribusiness Concentration prepares students for careers in the many facets of the animal industries, including production, sales and marketing, business management, advertising, and extension. The Equine Business Concentration prepares students for such professions as trainers, managers, riding instructors, sales or media representatives, breed association representatives or for equine entrepreneurial careers such as owners of tack shops, boarding facilities, or riding schools. The Preveterinary and Science Concentration prepares students to meet the requirements for most veterinary schools, graduate schools, and medical and dental schools. Students with South Carolina residency may compete for contract seats at Mississippi State, Tuskegee, and University of Georgia Colleges of Veterinary Medicine. Experienced preprofessional advising is provided for all students pursuing advanced degrees.

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**Sophomore Year**

**First Semester**
3. AVS 1000 Orientation to Animal and Vet. Sci.
4. AVS 1500 Introduction to Animal Science
5. AVS 1510 Introduction to Animal Science Lab.
6. BIOL 1030 General Biology I and 7. BIOL 1050 General Biology Lab. I or 8. BIOL 1100 Principles of Biology I
9. CH 1010 General Chemistry
10. Arts and Humanities (Non-Lit.) Requirement

**Second Semester**
3. BIOL 1100 Principles of Biology II
4. CH 1020 General Chemistry
5. ENGR 2080 Engineering Graphics and 6. PHYS 2010 Introductory Physics I
7. MATH 1020 Intro. to Math. Analysis
8. MATH 1060 Calculus of One Variable I
9. AVS Techniques Requirement

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**Junior Year**

**First Semester**
3. ACCT 2010 Financial Accounting Concepts
4. MGT 2010 Principles of Management
5. STAT 2300 Statistical Methods I
6. AVS Techniques Requirement
7. Elective

**Second Semester**
3. ECON 2110 Principles of Microeconomics
4. FIN 3060 Corporation Finance
5. Arts and Humanities (Non-Lit.) Requirement
6. AVS Evaluation Requirement
7. AVS Techniques Requirement
8. Social Science Requirement
### Freshman Year

#### First Semester
- AVS 3010 Animal Health
- AVS 4000 Animal and Veterinary Sciences
  - Professional Development
- AVS 4150 Contemporary Issues in Animal Sci.
- MGT 3030 Principles of Marketing
- AVS 5 Experience-Based Activity
- AVS Techniques Requirement
- 14

#### Second Semester
- AVS 4060 Seminars and Related Topics
- AVS 4100 Domestic Animal Behavior
- AVS 4170 Animal Agribusiness Development
- AVS Experience-Based Activity
- 2 - Elective
- 16

123–126 Total Semester Hours

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2 Select from AVS 2000, 2010, 2120, 2300, 2040, 2050, 2060, 2090, 2110, 2300, 3090, 3110, 3230, 4050 or 4550

3 Select from AVS 3600, 3900, 4410, 4420, 4430, 4440 or 4910

### Sophomore Year

#### First Semester
- ACCT 2010 Financial Accounting Concepts
- AVS 2040 Horse Care Techniques
- MGT 2010 Principles of Management
- STAT 2300 Statistical Methods I
- Elective
- 14

#### Second Semester
- AVS 3090 Principles of Equine Evaluation
- ECON 2110 Principles of Microeconomics
- FIN 3060 Corporation Finance
- Arts and Humanities (Literature) Requirement
- AVS Techniques Requirement
- Social Science Requirement
- 16

### Junior Year

#### First Semester
- AVS 3010 Anat. and Phys. of Domestic Animals
- AVS 3700 Principles of Animal Nutrition
- AVS 4700 Animal Genetics
- ECON 2120 Principles of Microeconomics
- PES 4230 Field Crops—Forages
- 16

#### Second Semester
- AVS 3750 Applied Animal Nutrition
- AVS 4530 Animal Reproduction
- LAW 3220 Legal Environment of Business
- MGT 3030 Principles of Marketing
- AVS Techniques Requirement
- 14

#### Second Semester
- AVS 3750 Applied Animal Nutrition
- AVS 4530 Animal Reproduction
- LAW 3220 Legal Environment of Business
- MGT 3030 Principles of Marketing
- AVS Techniques Requirement
- 14

### Senior Year

#### First Semester
- AVS 3100 Animal Health
- AVS 4000 Animal and Veterinary Sciences
  - Professional Development
- AVS 4060 Seminars and Related Topics
- AVS 4150 Contemporary Issues in Animal Sci.
- AVS 4160 Equine Exercise Physiology
- AVS Experience-Based Activity
- 15

#### Second Semester
- AVS 4010 Domestic Animal Behavior
- AVS 4120 Advanced Equine Management
- AVS 4170 Animal Agribusiness Development
- Elective
- 14

121–124 Total Semester Hours

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3 Select from AVS 2000, 2010, 2030, 2050, 2060, 2090, 2110, 2300, 3090, 3110, 3230, 4050 or 4550

4 Select from AVS 3600, 3900, 4410, 4420, 4430, 4440 or 4910

5 See General Education Requirements. AGRB and ECON courses may not be used to fulfill the Social Science Requirement. Three of these credit hours must also satisfy the Cross-Cultural Awareness Requirement.
Senior Year
First Semester
1 - AVS 4000 Animal and Veterinary Sciences
   Professional Development
2 - AVS 4060 Seminars and Related Topics
3 - AVS 4150 Contemporary Issues in Animal Sci.
2 - AVS Techniques Requirement
3 - Departmental Requirement
3 - Elective
14

Second Semester
3 - AVS 4100 Domestic Animal Behavior
3 - AVS 4130 Animal Products
2 - AVS Experience-Based Activity
3 - Departmental Requirement
3 - Social Science Requirement
14

122–125 Total Semester Hours

See General Education Requirements. Social Science courses must be selected from two different fields. AGRB and ECON are considered the same field. Three of these General Education credit hours must also satisfy the Cross-Cultural Awareness Requirement.


May take GEN 1000 and MICR 3050 in either semester of the junior year.

Select from AVS 3600, 3900, 4410, 4420, 4430, 4440 or 4910.

BIOCHEMISTRY
Bachelor of Science
Biochemistry is the study of the molecular basis of life. To comprehend current biochemical information and make future contributions to our molecular understanding of life processes, students must obtain a broad background in biology and a firm foundation in chemistry, mathematics, and physics. This is the basis of the biochemistry curriculum.

The program provides an excellent educational background for professional school (medicine, dentistry, or veterinary medicine) and graduate school in biochemistry, molecular biology, or another biological science discipline. Graduates will find employment opportunities in the research and service programs of universities, medical schools, hospitals, research institutes, and industrial and government laboratories.

Freshman Year
First Semester
1 - BCHM 1030 Careers in Biochem. and Genetics
2 - BIOL 1100 Principles of Biology I
4 - CH 1010 General Chemistry
4 - MATH 1060 Calculus of One Variable I
14
Second Semester
5 - BIOL 1110 Principles of Biology II
4 - CH 1020 General Chemistry
3 - ENGL 1030 Accelerated Composition
4 - MATH 1080 Calculus of One Variable II
16

Sophomore Year
First Semester
2 - BCHM 3040 Molecular Biology Lab.
3 - CH 2230 Organic Chemistry
1 - CH 2270 Organic Chemistry Lab.
3 - GEN 3020 Molecular and General Genetics
3 - PHYS 1220 Physics with Calculus I
1 - PHYS 1240 Physics Lab. I
3-4 - Advanced Mathematics Requirement
16-17
Second Semester
3 - BCHM 3010 Molecular Biochemistry
3 - CH 2240 Organic Chemistry
1 - CH 2280 Organic Chemistry Lab.
3 - COMM 1500 Intro. to Human Comm. or
3 - COMM 2500 Public Speaking
3 - PHYS 2210 Physics with Calculus II
1 - PHYS 2230 Physics Lab. II
3 - Arts and Humanities (Literature) Requirement

Junior Year
First Semester
3 - BCHM 4310 Physical Approach to Biochem.
2 - BCHM 4330 General Biochemistry Lab. I
3 - CH 3300 Introduction to Physical Chemistry
Science Requirement
3 - Social Science Requirement
2 - Elective
16
Second Semester
3 - BCHM 4320 Biochemistry of Metabolism
2 - BCHM 4340 General Biochemistry Lab. II
3 - BCHM 4360 Molecular Bio.: Genes to Proteins
3 - PHIL 3260 Science and Values
3 - Social Science Requirement
14

Senior Year
First Semester
3 - BIOL 4610 Cell Biology
3 - GEN (BCHM) 4400 Bioinformatics
3 - Science Requirement
4 - Elective
13
Second Semester
2 - BCHM 4930 Senior Seminar
3 - Science Requirement
9 - Elective
14
120–121 Total Semester Hours

See General Education Requirements. Three of these credit hours must also satisfy the Cross-Cultural Awareness Requirement.

BIOLOGICAL SCIENCES
Bachelor of Arts
The Bachelor of Arts in Biological Sciences provides a strong foundation in biology and is ideal for students desiring a liberal education emphasizing an interdisciplinary approach to a thorough understanding of the life sciences.

Freshman Year
First Semester
1 - BIOL 1010 Frontiers in Biology I
5 - BIOL 1100 Principles of Biology I
4 - CH 1010 General Chemistry
4 - MATH 1060 Calculus of One Variable I
3 - Oral Communications Requirement
17
Second Semester
5 - BIOL 1110 Principles of Biology II
4 - CH 1020 General Chemistry
3 - ENGL 1030 Accelerated Composition
3 - Mathematical Sciences Requirement
15

Sophomore Year
First Semester
3 - CH 2230 Organic Chemistry
1 - CH 2270 Organic Chemistry Lab.
3 - GEN 3000 Fundamental Genetics
3 - Arts and Humanities (Literature) Requirement
4 - Foreign Language Requirement
3 - Social Science Requirement
17
Second Semester
3 - BCHM 3050 Essential Elements of Bioch.
4 - Foreign Language Requirement
4 - Major Requirement
4 - Organismal Diversity Requirement
15

Junior Year
First Semester
3 - BIOL 3350 Evolutionary Biology
3 - BIOL 4610 Cell Biology
2 - BIOL 4620 Cell Biology Laboratory
3 - ENGL 3150 Scientific Writing and Comm.
3 - Foreign Language Requirement
2 - BCHM 4340 General Biochemistry Lab. II
3 - BCHM 4360 Molecular Biology: Genes to Proteins
3 - PHIL 3260 Science and Values
3 - Social Science Requirement
14
Second Semester
3 - BCHM 3010 Molecular Biochemistry
3 - CH 2240 Organic Chemistry
1 - CH 2280 Organic Chemistry Lab.
3 - COMM 1500 Intro. to Human Comm. or
3 - COMM 2500 Public Speaking
3 - PHYS 2210 Physics with Calculus II
1 - PHYS 2230 Physics Lab. II
3 - Arts and Humanities (Literature) Requirement
17

Senior Year
First Semester
2 - BCHM 3040 Molecular Biology Lab.
3 - CH 2230 Organic Chemistry
1 - CH 2270 Organic Chemistry Lab.
3 - GEN 3020 Molecular and General Genetics
3 - PHYS 1220 Physics with Calculus I
1 - PHYS 1240 Physics Lab. I
3-4 - Advanced Mathematics Requirement
16-17
Second Semester
3 - BCHM 3010 Molecular Biochemistry
3 - CH 2240 Organic Chemistry
1 - CH 2280 Organic Chemistry Lab.
3 - COMM 1500 Intro. to Human Comm. or
3 - COMM 2500 Public Speaking
3 - PHYS 2210 Physics with Calculus II
1 - PHYS 2230 Physics Lab. II
3 - Arts and Humanities (Literature) Requirement

Notes:
1. A student is allowed to enroll in science and mathematics courses only when all prerequisites have been passed with a grade of C or higher.
2. A minimum grade of C is required in all science and mathematics courses. No student may exceed a maximum of two attempts, excluding a W, to complete successfully any science or mathematics course.

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