## Bioscience/Biotechnology Option

### Fall 2020/Spring 2021

**NAME**

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### **120 Total Hours Required for Graduation**

45 hours must be at the 300 level or above

### GENERAL COURSES

| ASI | 101 | Found in ASI (freshman) Jr.  | 1 |
| GENAG | 200 | Topics in Ag (transfer)  | 0 |
| BIOL | 198* | Principles of Biology  | 4 |
| CHM | 210* | Chemistry I  | 4 |
| COMM | 105* | Public Speaking IA  | 2 |
| ENGL | 100* | Expository Writing I  | 3 |
| ENGL | 200* | Expository Writing II  | 3 |
| MATH | 100 | College Algebra  | 3 |

### BUSINESS & ECONOMICS

2 courses (Minimum 6 hours)  
Course list on the back.

### COMMUNICATIONS

(Select 1)

| AGCOM | 400 | Ag Bus Comm  | 3 |
| COMM | 311 | Bus Prof Speaking  | 3 |
| COMM | 321 | Pub Speaking II  | 3 |
| ENGL | 510 | Intro to Prof Writing  | 3 |
| ENGL | 516 | Written Comm for Sci  | 3 |
| MC | 110 | Mass Comm in Soc  | 3 |

More courses listed on the back.

### AGRICULTURE

2 courses from 2 other AG depts.  
(Minimum 5 hours-1 hr courses do not apply)  
Course list on the back.

### STAT/COMP/MATH/PHYS

(Select 1)

| STAT | 325 | Intro to Statistics  | 3 |
| STAT | 340 | Biometrics I  | 3 |
| STAT | 350 | Business Econ Stat  | 3 |
| ASI | 290 | Micro Computer Appl  | 3 |
| CIS | Any course  |  |
| MATH | 150 to 799  |  |
| PHYS | 113* | Gen Physics I  | 4 |
| PHYS | 114* | Gen Physics II  | 4 |

* Required Pre-Vet Courses for K-State (always check the requirements for other schools you are considering applying to as requirements vary among schools)

### CHEMISTRY

(Required 9 hours)

| ASI | 265 | Intro Organic & Bioch  | 5 |
| ASI | 521* | Gen Biochem  | 3 |
| ASI | 522 | Gen Biochem Lab  | 3 |
| CHM | 230* | Chemistry II  | 4 |
| CHM | 350* | Gen Organic Chem  | 3 |
| CHM | 351* | Gen Organic Chem Lab  | 2 |
| CHM | 531 | Organic Chemistry I  | 3 |
| CHM | 532 | Organic Chemistry Lab  | 2 |
| CHM | 550 | Organic Chemistry II  | 3 |

### CHEMISTRY/BIOLOGICAL SCIENCES/CORE COURSES

(Required 12 hours)

| ASI | 210 | Intro to Animal Biotech  | 3 |
| BIOL | 455* | Gen Microbiology  | 4 |
| PLPTH | 610 | Biotechnology  |  |
| ASI | 561 | Undergrad Research  |  | 0-3 |
| ASI | 598 | Bioscience Internship  |  | 1-6 |
| ASI | 601 | Endocrinology & Lactation  |  | 3 |
| ASI | 658 | Growth & Development  |  | 3 |
| ASI | 695 | Equine Exercise Physiol  |  | 3 |
| BIOL | 330 | Public Health Biology  |  | 3 |
| BIOL | 410 | Biology of Cancer Cells  |  | 2 |
| BIOL | 450 | Modern Genetics  |  | 4 |
| BIOL | 510 | Developmental Biol  |  | 3 |
| BIOL | 511 | Developmental Biol Lab  |  | 1 |
| BIOL | 530 | Pathogenic Micro  |  | 3 |
| BIOL | 541 | Cell Biology  |  | 3 |
| BIOL | 545 | Human Parasitology  |  | 3 |
| BIOL | 546 | Human Para. Lab  |  | 1 |
| BIOL | 625 | Animal Parasitology  |  | 4 |
| BIOL | 670 | Immunology  |  | 4 |
| BIOL | 671 | Immunology Lab  |  | 2 |
| ENTMOS305 | Anml Hlth Entomology  |  | 2 |
| ENTMOS306 | Anml Hlth Entomology Lab  |  | 1-3 |
| FDSCI | 530 | Undergraduate Res  |  | 1-3 |
| FDSCI | 600 | Food Microbiology  |  | 2 |
| FDSCI | 601 | Food Microbiology Lab  |  | 2 |
| PSYCH | 470 | Psychobiology  |  | 3 |

### HUMANITIES/SOCIAL SCIENCE

| ECON | 110 | Prin Macroeconomics  | 3 |
| ECON | 110 | Prin Macroeconomics  | 3 |

### ANIMAL SCIENCE COURSES

(Required 12 hours)

| ASI | 102 | Prin Animal Science  | 3 |
| ASI | 318 | Fund of Nutrition  | 3 |
| ASI | 400 | Farm Animal Repro  | 3 |
| ASI | 401 | Farm Animal Repro Lab  | 1 |
| ASI | 500* | Genetics  | 3 |
| ASI | 520 | Companion Animal Mgmt  | 3 |
| ASI | 533 | Anatomy & Physiology  | 4 |
| ASI | 580 | Career Preparation  | 1 |

### K-STATE 8 REQUIREMENTS

- Each student must successfully complete credit-bearing courses/experiences to cover all of the K-State 8 areas.
- A minimum of four different course prefixes (e.g., AGEC, MATH, FSHS, COMM) must be represented.
- When a course is tagged for two K-State 8 areas, the student may count that course toward both areas.

### Upper Level ASI Electives

(Minimum 9 hours-6 hrs ≥500)  
(No more than 3 hrs from ASI 561, 599, 660 or 661)  
ASI course list on the back.

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### UNRESTRICTED ELECTIVES

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### Animal Sciences & Industry

KANSAS STATE UNIVERSITY  
College of Agriculture

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*A The KSU Veterinary School requires a minimum of 12 hours in humanities/social science. The vet school counts AGEC 120 as a humanities/social science course.
Communications Courses:
Ag Communications – AGCOM 310, 400, 410, 590, 610 & 712
Animal Sciences & Industry – ASI 326, 420, 470, & 495
Communications – COMM any course 311 or higher
English – ENGL 300, 417, 510, & 516

Marketing – MKTG 542
General Agriculture – GENAG 450
Journalism & Mass Communications – MC 110, 120 & 180
Modern Language – Any course in foreign language

Business/Economics Courses:
Accounting - ACCTG 231 to 799
Agricultural Economics – AGEC 202 to 420, 445 to 799
Economics - ECON 505 to 799
Entrepreneurship – Any course
Family Studies – PFP 105, PFP 305

Finance - Any course
Management - Any course
Management Information Systems – Any course
Marketing - Any course

Humanities/Social Science Courses: *(Max 3 hrs from participatory courses. Must be taken from more than one department.)*
American Ethnic Studies – AMETH 160 to 501
Anthropology – Any course
Architecture – ARCH 301
Art – Any course
Dance – DANCE 120 to 200, 225 to 420, 495 to 690
Engineering – DEN 325, 450
Economics - ECON 300 to 799
English – ENGL 150, 210 to 299, 310, 320 to 399, 420 to 499,
536 to 599, 605 to 660, 670 to 695, 700 to 760, 790 to 799
Environmental Design – ENVD 250, 251
Family Studies and Human Services – Any course
Geography – GEOG 100, 200, 201, 300 to 799 NOT 321

History – Any course
Leadership Studies – Any course 320 or above
Modern Language – Any foreign language
Music – Any course
Philosophy – Any course
Political Science – Any course
Psychological Sciences – Any course
Sociology – Any course
Social Work – Any course
Theater – Any course
Gender, Women & Sexuality Studies – Any course

Ag Courses: *(1-hour courses do not apply)*
Ag Communications – Any course
Ag Economics – Any course
Ag Technology Management – Any course
Agronomy – Any course
ASI 660 Study Abroad

Entomology – Any course
Food Science – Any course
Grain Science – Any course
Horticulture and Natural Resources – Any except RRES 200
General Agriculture – GENAG 210-505

Upper Level ASI Electives:
Minimum of 9 hours with 6 hours over 500, no more than 3 hours from ASI 561, 599, 660 or 661.
ASI 310 Poultry and Poultry Product Evaluation
ASI 315 Livestock and Meat Evaluation
ASI 320 Principles of Feeding
ASI 325 Beginning Horse Evaluation
ASI 326 Advanced Horse Evaluation
ASI 333 Equine Enterprise Management
ASI 345 Beginning Horse Training and Mgmt
ASI 350 Meat Science
ASI 361 Meat Animal Processing
ASI 370 Principles of Meat Evaluation
ASI 385 Wool Grading and Evaluation
ASI 395 Intermediate Horse Training & Mgmt
ASI 396 Dairy Cattle Judging
ASI 402 Calving
ASI 403 Foaling
ASI 404 Lambing
ASI 405 Fundamentals of Milk Processing
ASI 420 Advanced Dairy Cattle Judging
ASI 422 Livestock Sales Management
ASI 444 Equine Health
ASI 445 Advanced Horse Training and Mgmt
ASI 450 Principles of Livestock Selection
ASI 470 Form and Function in Livestock
ASI 495 Advanced Meat Evaluation

ASI 502 Principles of Equine Reproductive Mgmt
ASI 504 Equine Reproduction Management
ASI 510 Animal Breeding Principles
ASI 512 Bovine Reproductive Technologies
ASI 515 Beef Science
ASI 521 Horse Science
ASI 524 Sheep and Meat Goat Science
ASI 535 Swine Science
ASI 540 Principles of Animal Disease Control
ASI 561 Undergraduate Research in ASI
ASI 595 Contemporary Issues in Animal Sci and Ag
ASI 598 Bioscience Internship in Animal Science
ASI 599 Animal Science Internship
ASI 600 Applied Animal Biotechnology
ASI 601 Endocrinology and Lactation
ASI 602 Equine Breeding and Genetics
ASI 603 Dairy Foods Processing & Technology
ASI 610 Processed Meat Operations
ASI 620 Beef Systems Management
ASI 621 Dairy Cattle Management
ASI 635 Gamebird Production and Management
ASI 640 Poultry Products Technology
ASI 645 Poultry Management
ASI 650 ID and Data Mgmt of Food Animals
ASI 655 Behavior of Domestic Animals

ASI 658 Animal Growth and Development
ASI 660 International Study Exp in Animal Science
ASI 661 Animal Sciences and Industry Problems
ASI 662 Special Topics in Animal Science
ASI 675 Monogastric Nutrition
ASI 676 Avian Nutrition
ASI 677 Companion Animal Nutrition
ASI 678 Equine Nutrition
ASI 679 Swine Nutrition
ASI 680 Ruminant Nutrition
ASI 681 Dairy Cattle Nutrition
ASI 682 Formulation of Livestock and Poultry Diets
ASI 683 Grazing Livestock Nutrition
ASI 684 Nutrition of Feedlot Cattle
ASI 685 Stored Forage Sys for Rum Animals
ASI 695 Principles of Equine Exercise Physiology
ASI 710 Physiology of Repro in Farm Animals
ASI 720 Anaerobic Bacteriology
ASI 741 Quant Genetics Appl of Matrix Algebra
ASI 742 Cybersheep: A Genetic Simulation Game
ASI 749 Advanced Animal Breeding
ASI 776 Meat Industry Technology
ASI 777 Meat Technology

ASI 860 Dairy Foods Processing & Technology
ASI 861 Endocrinology and Lactation
ASI 862 Equine Breeding and Genetics
ASI 863 Dairy Foods Processing & Technology
ASI 864 Poultry Products Technology

Special Topics in Animal Science

One course cannot be used to fulfill multiple requirements; must select ASI electives not used elsewhere in curriculum.