The College of Agriculture and Life Sciences is one of the world’s leading agricultural colleges preparing students to make a difference as leaders who address life’s challenges in food, the environment, and plant-animal-health systems. Students will gain valuable hands-on experiences inside and outside the classroom through research and internships. Graduates from the College of Agriculture and Life Sciences have careers as research scientists, horticulturists, agronomists, farm operations director, and more!

Qualifying Degree Programs*:
Tap the major you are interested in
to learn more!

Click on a major from the list below to learn more!

- Agricultural Biochemistry
- Agricultural Business
- Agricultural and Life Sciences Education
- Agricultural Systems Technology
- Agronomy
- Animal Ecology
- Animal Science
- Biology
- Dairy Science
- Diet & Exercise
- Dietetics
- Environmental Science
- Food Science
- Forestry
- Genetics
- Global Resource Systems
- Horticulture
- Industrial Technology
- Microbiology
- Nutritional Science

Degree may be listed in more than one college *Qualifying majors may change based on the programs of study. Science Bound makes the final decision regarding which majors qualify for the scholarship. ** Student must work with SB staff to ensure acceptance. *** Students entering as Open Option must discuss courses with SB staff.
TEACHER CERTIFICATION OPTION:

- Many opportunities available
- Gain a solid background in:
  - Food
  - Agriculture
  - Natural Resources
- Prepares for opportunities in:
  - Agricultural Businesses
  - Commodity Organizations
  - Governmental Agencies

AGRICULTURAL COMMUNICATIONS OPTION:

- Select from a variety of:
  - Agricultural Sciences
  - Economics
  - Communication
  - Journalism
  - Management
- Find careers related to:
  - Marketing
  - Advertising
  - Journalism
  - Extension
AGRICULTURAL SYSTEMS TECHNOLOGY

WHAT IS IT?
DISCOVER THE INDIVIDUAL PIECES OF SUSTAINABILITY, CONSERVATION, AND PROFITABILITY.

CAREERS?
THERE'S A VARIETY OF AGRICULTURAL AND ENVIRONMENTAL BUSINESSES THAT FOCUS ON MANAGING, USING, AND TROUBLESHOOTING TECHNOLOGY.

LEARNING?
LEARN HANDS-ON HOW TO MANAGE MACHINES AND EQUIPMENT, BIOLOGICAL PROCESSES, COMPUTERS AND OTHER TECHNOLOGIES TO CREATE NEW AND IMPROVED AGRICULTURAL SYSTEMS.

AGRICULTURAL & BIOSYSTEMS MANAGEMENT:
LEARN THE TECH OF:
- MACHINE SYSTEMS
- SOIL AND WATER CONSERVATION
- PRECISION AGRICULTURE
- BIORENEWABLES
- ANIMAL PRODUCTION SYSTEMS

MACHINE SYSTEMS:
- SOLVE PROBLEMS FOR OFF-ROAD VEHICLES AND AGRICULTURAL EQUIPMENT
- LEARN THE MACHINERY SYSTEMS, SAFETY, & MANUFACTURING.
AGRICULTURE BIOCHEMISTRY

QUICK FACTS

- Understand life processes in terms of chemical and physical principles
- Analyze data & research
- Prepare scientific reports

WHAT DO THEY DO?

- Find ways to genetically engineer crops so they are resistant to drought, disease, insects, and other afflictions

CAREERS

- Teaching
- Scientist
- Microbiologist
- Chemist
- Veterinarian
- Pathologist
AGRICULTURE BUSINESS

• Overview
  ○ Receive training in business, economics, and agriculture

• Fun Fact
  ○ ISU is in the top 4% of programs in agriculture & forestry worldwide

• Careers
  ○ agricultural finance
  ○ business research
  ○ farm management
  ○ agricultural sales
Agronomy

What is Agronomy?
- Agronomy focuses on new and ways of:
  - agriculture
  - conservation
  - improved soil health
  - bioenergy
  - water quality
  - genetic traits
- Produce food, fuel and fiber in an efficient and economical way for the benefit of people and the environment.

GRADS
100% of ISU students get a job within 6 months of graduation

Fun Fact:
Sophomores take a field-intensive class where they spend time in the field applying the core agronomic concepts.
ANIMAL ECOLOGY

CAREERS
- AQUACULTURISTS
- AQUATIC ECOLOGISTS
- WILDLIFE BIologists
- FISHERIES BIOLOGISTS
- RESOURCE MANAGERS
- ECOLOGISTS

CHOOSE FROM FOUR OPTIONS:
- FISHERIES & AQUATIC SCIENCES
- INTERPRETATION OF NATURAL RESOURCES
- PRE-VETERINARY & WILDLIFE CARE
- WILDLIFE

LEARNING:
- WORK IN THE MULTIDISCIPLINARY ARENA OF ECOLOGY AND NATURAL RESOURCE MANAGEMENT
LEARN ABOUT:
SUSTAINABLE ANIMAL PRODUCTION PRACTICES THAT ENSURE ANIMAL HEALTH AND WELL-BEING AND STEWARDSHIP OF NATURAL RESOURCES

FOCUS AREAS INCLUDE:
- BEEF CATTLE
- DAIRY CATTLE
- HORSES
- POULTRY
- SWINE
- SHEEP
- COMPANION
- LABORATORY
- ZOO

AWARD
Recognized globally as being one of the best programs

RESEARCH
State-of-the-art research facilities in swine & ruminant nutrition
Biology

“Study living organisms’ functions and characteristics including the origin and history of animal and plant life and their characteristics, functions, processes, and habits.”

Learning Outcomes:

- Apply the process of science
- Use quantitative reasoning
- Use modeling and simulation
- Utilize, communicate, and collaborate with other disciplines
- Understand the relationship between science and society

Disciplines:

- Human medicine & pre-med
- Veterinary medicine & pre-vet
- Biodiversity & evolution
- Cellular & molecular
- Ecology & conservation
- Teaching & education
Dairy Science

CAREERS
- Own/Manage Farms
- Ag Business
- Biotechnology
- Manufacturing
- Education
- Finance
- Marketing & Sales
- Research
- Vet Medicine

LEARNING
- Provides training for a variety of careers in agriculture, particularly those involved with dairy cattle
Diet & Exercise

Program:
You will apply to graduate admission at the beginning of junior year
Only accredited Didactic Program in Dietetics within Iowa

Learning:
Earn both a bachelor’s and master’s degree in 5-6 years.
Advanced study in the theory and application of nutrition and exercise science

Careers:
Wellness educator/instructor
Dietitian & health fitness instructor
Cardiac rehabilitation coordinator/dietitian
Corporate/school wellness educator
Preventive medicine coordinator
Sport enhancement specialist
Dietetics

Dietitians: are nutrition experts who strive for optimal health & nutrition of individuals

Study: basic sciences, nutrition, & food science apply medical dietetics, nutrition counseling, and education

Career Groups: Clinical Nutrition, Education, Community, Food & Nutrition Management, Consultation, and Business
ENVIRONMENTAL SCIENCE

NEED
The magnitude and complexity of environmental problems are creating a growing need for scientists with training in environmental science.

STUDY
Biological & Physical Natural Sciences and specialized training for integrated analysis of environmental systems.

CAREER
40% Public Sector
40% Private Sector
10-20% Go to Grad School
County, State, & Federal Agency
Private sector jobs often consult companies, but can include public interest groups.
FOOD SCIENCE

ABOUT:
The process of food from the time it leaves the farm until consumers buy the food products.

STUDY:
Apply chemistry, biology, and physics to improve food quality, safety, and nutrition & develop new food products.

CAREERS:
Food quality, food engineering, product development, food chemistry, sensory science, marketing & sales.
FORESTRY

GOAL:
EDUCATE STUDENTS TO SCIENTIFICALLY MANAGE THE NATION’S PRIVATE & PUBLIC FOREST LANDS AND RELATED ECOSYSTEMS

OUTCOME:
ASSESS, UTILIZE, PROTECT, PRESERVE, RESTORE, AND RE-ESTABLISH FORESTS
GENETICS

AREAS OF STUDY:
- HEALTHCARE
- GENETIC COUNSELING
- BIOMEDICAL RESEARCH
- PLANT SCIENCES RESEARCH

FOCUS:
- LEARN TO IDENTIFY, ALTER, OR MANAGE THE FUNDAMENTAL MOLECULAR AND CELLULAR PROPERTIES OF LIFE

CAREERS:
- BIOMEDICAL SCIENTIST.
- CLINICAL RESEARCH ASSOCIATE
- CLINICAL SCIENTIST
- GENETIC COUNSELLOR.
- PLANT BREEDER/GENETICIST
- RESEARCH SCIENTIST
Global Resource Systems

Take courses that change the course of world issues

Global Resource Systems studies the way the world uses its limited resources to create sustainable systems

Careers in Global Resource Issues:

- Public Health
- Global Business/Foundations
- Government Agencies
- Non-Governmental Organizations
- Educational Institutions
Horticulture

Feed the world or make it more beautiful

Careers: producer, landscape professional, field manager, lawn care, horticulturist, environmental specialist & more

Become a grower, gardener, designer, and technical advisor in horticulture

Horticulture: A career you’ll grow to love
INDUSTRIAL TECHNOLOGY

CHOOSE BETWEEN THREE OPTIONS:

BIOLOGICAL & BIOMANUFACTURING SYSTEMS TECH:
- Implement, manage, & document analytical protocols
- Technical project management
- Implement, manage, & maintain instrumentation and equipment
- Manage bioprocessing and biotech systems

INDUSTRIAL TECHNOLOGY MANUFACTURING:
- Quality management
- Production supervision
- Product process design
- Facility planning and management

ITEC OCCUPATIONAL SAFETY:
- Develop, manage, and evaluate safety programs and systems
- Hazard identification & mitigation
- Loss prevention
**Microbiology**

Students prepare for:
- Dentistry
- Medical Laboratory Science
- Optometry
- Pharmacy
- Physician Assistant Programs
- Physician or Veterinary education

Study life:
- Research and evaluate topics in microbiology
- Utilize quantitative and qualitative microbiological lab techniques and equipment
- Explain how evolution unifies and explains the diversity of microbes
- Describe how organisms survive in an ecological niche
- Interpret data
Nutritional Science

Students learn:
- How diet can play a crucial role in the cause, treatment, and prevention of many diseases.

Pre-health and research:
- Prepares you for research labs, grad study or health professional programs

Nutrition & wellness:
- Prepare for program planning and evaluation for public interest in nutrition, wellness, and preventative health

Department offers:
- a nutrition minor