The University of Arizona
College of Agriculture and Life Sciences

Undergraduate Academic Programs

Brief History of the College

The University of Arizona was established in 1885 and had as its foundation, what is now called the College of Agriculture and Life Sciences. Both the University and the College of Agriculture and Life Sciences were authorized by the Territorial Legislature and shaped by three pieces of federal legislation. In 1862 the Morrill Act provided the funding for resident classroom instruction in the new land grant universities. In 1887, the Hatch Act, authorized experiment stations and in 1914, the Smith-Lever act established the cooperative extension service. Both the USDA and UA have worked cooperatively to transform agriculture, forestry and rural and urban home life at the state, federal, and global level.
The College of Agriculture and Life Sciences provides professional education for a wide range of career opportunities in the sciences, business and education. The various curricula offer professional preparation for careers in management, government, public service agencies, retail and service industries, human and animal health, the food processing industry, financial institutions, youth development agencies, conservation and environmental organizations, farming and ranching, research, extension, communications and education. A broad education in a professional knowledge area is combined with foundation courses in the biological, physical and social sciences, communications and the humanities to develop a well-rounded academic experience.

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Overview on the College's organization

Assessment & Analysis

As the primary land-grant component of the University, the College administers a variety of programs and engages in cooperative efforts with federal, state and county governments and agencies. There are three broad divisions in the College of Agriculture and Life Sciences:

- **Teaching:** Includes formal, on-campus instruction and informal, off-campus instruction. There are 24 undergraduate and graduate majors among the 13 departments and schools within the College with the major subjects covering Agricultural and Biological Sciences, Environmental Sciences, Family and Consumer Studies and Natural Resources. The teaching area of the College is coordinated by the Office of Academic Programs.

- **Research:** Highlights state priorities, with consideration for regional, national and international needs. There are 11 agricultural research centers and demonstration sites within the state. The research area of the College is coordinated by the Agricultural Experiment Station.

- **Outreach:** Emphasizes non-formal education and transfer of knowledge to audiences throughout the state, based on research information from within the College and elsewhere. There are 22 offices in the 15 counties plus 4 offices on Indian reservations. The outreach/extension area of the College is coordinated by Arizona Cooperative Extension.
COLLEGE OF AGRICULTURE AND LIFE SCIENCES
DEPARTMENT HEADS, SCHOOL DIRECTORS AND UNDERGRADUATE ADVISING COORDINATORS
http://ag.arizona.edu/general/students.html

AGRICULTURAL SYSTEMS MANAGEMENT
Dr. Stephen Poe
spoe@ag.arizona.edu
Yuma Only
928-317-6418

AGRICULTURAL ECONOMICS AND MANAGEMENT
Dr. Gary Thompson
aker@ag.arizona.edu
Dr. Roger Dahlgran
dahlgran@email.arizona.edu
Dr. Paul Wilson
pwilson@ag.arizona.edu
Ms. Heather Jepsen
jepsenh@email.arizona.edu
Chavez 319
621-6249
621-6254
621-6258
621-2544

AGRICULTURAL TECHNOLOGY MANAGEMENT AND EDUCATION
FORBES 224
Dr. Jack Elliot, Head
elliot@ag.arizona.edu
Dr. Jim Knight
jkhight@ag.arizona.edu
Teaching Option
Mr. Quint Molina
qmolina@email.arizona.edu
Agricultural Technology Management Option
Dr. Ed. Franklin
eafrank@ag.arizona.edu
621-7173
621-1523
940-2471
940-3718

ANIMAL SCIENCES
SHANTZ 221
Dr. Ron Allen, Head
rallen@ag.arizona.edu
Ms. Sharon Culotta
sculotta@cals.arizona.edu
Ms. Wendy Davis (Race Track Industry Program)
wDavis@email.arizona.edu
621-7626
621-9965
621-5663

BIOSYSTEMS ENGINEERING
SHANTZ 403
Dr. Donald Slack, Head
slackd@email.arizona.edu
Dr. Mark Riley
riley@ag.arizona.edu
621-3691
626-9120
COLLEGE OF AGRICULTURE AND LIFE SCIENCES
DEPARTMENT HEADS, SCHOOL DIRECTORS AND
UNDERGRADUATE ADVISING COORDINATORS
(Continued)

ENVIRONMENTAL SCIENCE
SHANTZ 429
Dr. Jeffrey Silvertooth, Head
silver@ag.arizona.edu
621-7228
Dr. Tom Wilson
twilson@ag.arizona.edu
621-9308
Dr. James Riley
jjriley@ag.arizona.edu
591-4019
Dr. Allan Matthias
amatthia@email.arizona.edu
621-7226

NORTON SCHOOL OF
FAMILY AND CONSUMER SCIENCES
McClelland Park Building
Dr. Soyeon Shim, Director
shim@ag.arizona.edu
621-7147
Family Studies and Human Development
Dr. Amy Chandler
alc@email.arizona.edu
621-7127
Family & Consumer Sciences Education
Dr. Maureen Kelly
mekelly@ag.arizona.edu
621-7127
Retailing and Consumer Sciences
Ms. Felicia Frontain
frontain@ag.arizona.edu
621-7144

NUTRITIONAL SCIENCES
SHANTZ 309
Dr. Joy Winzerling, Head
jwinzerl@ag.arizona.edu
621-3096
Ms. Kelly Jackson
kjackson@email.arizona.edu
626-3504

PLANT SCIENCES
FORBES 303
Dr. Robert Leonard, Head
plshead@ag.arizona.edu
621-1945
Ms. Libby Davison
edavison@ag.arizona.edu
621-1582
COLLEGE OF AGRICULTURE AND LIFE SCIENCES
DEPARTMENT HEADS, SCHOOL DIRECTORS AND
UNDERGRADUATE ADVISING COORDINATORS
(Continued)

NATURAL RESOURCES (School of)  
Natural Resources (formerly Wildlife Watershed and Rangeland Resources)  
Dr. C.P. Patrick Reid, Director  
  cppr@ag.arizona.edu  
Ms. Cheryl Craddock  
  ccradoc@email.arizona.edu  
Dr. William Matter  
  wmatter@ag.arizona.edu

VETERINARY SCIENCES & MICROBIOLOGY  
VETERINARY SCIENCE 201  
Dr. Jack Schmitz, Head  
  jschmitz@u.arizona.edu  
Dr. Elaine Marchello  
  evm@email.arizona.edu  
Dr. Janet Decker  
  jdecker@email.arizona.edu

GENERAL INFORMATION  
Forbes 201 & 211  
Dr. David E. Cox, Associate Dean  
  621-3612  
Dr. Elaine Marchello, Interim Assistant Dean  
  626-3631  
  evm@email.arizona.edu  
Ms. Nancy Rangel, Academic Advising Coordinator  
  nancyr@ag.arizona.edu  
Ms. Amy Rogers, Academic Advisor  
  rogers@cals.arizona.edu  
Mr. Frank Santiago, Coordinator, Recruitment Services  
  fvs@email.arizona.edu

BIO SCIENCES EAST 325
The College of Agriculture and Life Sciences has a wide array of scholarships available for its students. All you need to do is fill out one application, and that information is submitted to multiple donors. You may be eligible for one, so go online at www.ag.arizona.edu/oap and click on the ‘Scholarships’ link to submit one electronically. Undergraduate students must be enrolled for a minimum of 12 units for each semester and making academic progress toward completion of their degree. Additional donor criteria for GPA, residency, financial need or classification will be reviewed when applicable.

If you wish to speak with someone directly, please contact the scholarship administrator at 621-3612.
Student Clubs and Activities

Alpha Gamma Rho
National Agricultural Fraternity
638 E. University
Tucson, AZ 85705
Advisor: Mr. Don Shields
Donald.shields@gmail.com
http://ag.arizona.edu/agr/

Aggie House
819 N. Euclid
Tucson, AZ 85719
Advisor: Dr. Jeff Silvertooth, 621-1977

Agricultural Communicators of Tomorrow (ACT)
Agricultural Education
Forbes 232, P.O. Box 210036
Tucson, AZ 85721-0036
Advisor: Dr. Jack Elliot, 621-7173

Alpha Tau Alpha
Agricultural Education Honorary
P.O. Box 210036
Tucson, AZ 85721-0036
Advisor: Dr. Billye Foster, 621-1523

Alpha Zeta Honorary
P.O. Box 210038
Tucson, AZ 85721-0038
Advisor: Dr. Dennis Ray 621-7612
Dr. Elaine Marchello 621-3058

Ambassadors for Agriculture and Life Sciences
c/o Agricultural Education
P.O. Box 210036
Tucson, AZ 85721-0036
Advisors: Dr. James Knight, 621-9144
Ms. Amy Rogers, 626-9836
http://ag.arizona.edu/OAP/ambassadors/

Ambassadors for Family Study and Human Dev.
Norton School of Family and Consumer Sciences
650 N. Park Ave.
Tucson, AZ 85721
Advisor: Dr. Amy Chandler, 621-7127
Ms. Kim Brooke, 621-1715
Ms. Allison Ewing, 621-7132

Collegiate Cattle Grower’s Association
Dept. of Animal Sciences
P.O. Box 210038
Tucson, AZ 85721
Advisor: Dr. Glenn Duff, 626-5573

Collegiate Equestrian Team
Dept. of Animal Sciences, Horse Unit
4101 N. Campbell Ave.
Tucson, AZ 85719
Advisor: Ms. Laura Walker, 318-7023

Future Retail Leaders Association (F.R.L.A.)
Norton School of Family and Consumer Sciences
650 N. Park Ave.
Tucson, AZ 85721
Advisors: Dr. Amy Chandler, 621-9158
Ms. Felicia Frontain, 621-7144

Horticulture Club
Plant Sciences
P.O. Box 210036
Tucson, AZ 85721-0036
Advisor: Ms. Libby Davison, 621-1582

Jacobs-Cline Society
Agricultural Education
P.O. Box 210036
Tucson, AZ 85721-0036
Advisor: Mr. Frank Santiago, 621-1145
Mr. Quint Molina, 940-2471

Kappa Omicron Nu
Norton School of Family and Consumer Sciences
650 N. Park Ave.
Tucson, AZ 85721
Advisor: Ms. Pat Sparks, 626-9536

Minorities in Agriculture, Natural Resources and Related Sciences (MANNRS)
Office of Academic Programs
Forbes 211, P.O. Box 210036
Tucson, AZ 85721
Advisor: Mr. Frank Santiago
Nutritional Sciences Club
Shantz 307
Tucson, AZ 85721
Advisor: Ms. Kelly Jackson 626-3504

Pre-Veterinary Club
Box 210090
Tucson, AZ 85721-0090
Advisor: Dr. Michael Riggs, 621-8445

Race Track Industry Club
845 N. Park Ave. Ste. 370
Tucson, AZ 85721
Advisor: Mr. Doug Reed, 621-5660

Rodeo Club
Dept. of Animal Sciences
PO Box 210038
Tucson, AZ 85721-0038
Advisor: Dr. John Marchello, 621-1188

Sigma Alpha—National Agricultural Sorority
PO Box 20894
1303 E. University Blvd.
Tucson, AZ 85719-0521
Advisors: Ms. Nancy Rangel 621-3611

Soil, Water and Environmental Science Club
P.O. Box 210033
Tucson, AZ 85721-0033
Advisor: Dr. Jim Riley, 591-4019

Students in Free Enterprise (S.I.F.E.)
University of Arizona
PO Box 210033
Tucson, AZ 85721-0033
Advisor: Melinda Burke, 621-1295

Tierra Seca
Student Chapter of the Society for Range Management
School of Natural Resources
P.O. Box 210043
Tucson, AZ 85721-0043
Advisor: Dr. Mitch McClaran, 621-1673

Wildlife Society
School of Natural Resources
P.O. Box 210043
Tucson, AZ 85721-0043
Advisor: Dr. Bill Mannan, 621-7283
Management, sales and analyst careers in:
- Manufacturing
- Retailing and wholesaling
- Real estate
- Finance/banking/brokerage
- Agribusiness firms
- International business
- Graduate study in business, law or economics

Course work includes:
- Microeconomics
- Macroeconomics
- Marketing
- Management
- Strategy
- Finance
- Accounting
- Negotiation

**Agribusiness Economics & Management Bachelor of Science Degree**

The Agribusiness Management Option (B.S. Agricultural Economics and Management) prepares students for management careers in all aspects of modern business, not just agribusiness. Students acquire the skills to analyze financial and economic information, evaluate competitive strategies, manage risk, develop new markets and enterprises, and work effectively with others. Capstone courses, problem solving, case studies, and real-world simulations prepare students for future careers in business. Smaller classes, accessible advising and outstanding teachers make this option a viable alternative to any traditional business school.

Contact information:
Agricultural and Resource Economics
Economics Building 403
The University of Arizona
PO Box 210023
Tucson, AZ 85721-0023
(520) 621-6241  FAX: (520) 621-6250
http://ag.arizona.edu/AREC/arechome.html

Still in High School?
Interest in business and problem solving;
moderate to substantial knowledge of math.
Option — Teaching
- Agricultural Science teacher
- Biology teacher
- General Science teacher
- Extension Education

Option — Technology Management
- Careers in agribusiness, banking, mechanization, marketing, communications, public relations, landscape/nursery, and turf.

This major has two options. The first one is the Teaching option which provides course work in basic sciences, technical agriculture, teaching principles and techniques, and communication skills. The teacher preparation in agricultural education for secondary schools or community colleges meets requirements for Arizona secondary school certification in agricultural education and general science. Formal admission to professional education courses is required. Requirements include a cumulative GPA of 2.0 or better, a faculty interview, and successful completion of admission application. The Technology Management option includes course work in communications, business, economics, environmental science, and agricultural technology. This option provides students with the skills necessary to enter the agricultural industry in a number of careers including, but not limited to, ornamental plant/nursery industry, the landscape management industry, agribusiness/banking, and golf and turf industry.

Still in High School?
Classes in agricultural education, biology, chemistry are recommended.

Scholarships and internships are available! Visit our web-site and select teacher prep program: See Prop 301 Opportunities for information and applications.

Contact information:
Frank Santiago
Forbes Building 201
The University of Arizona
PO Box 210036
Tucson, AZ 85721-0036
(520) 621-1145  FAX: (520) 621-9889
URL http://ag.arizona.edu/AED/aedhome.html
Animal Science
Bachelor of Science Degree

Animal scientists study the breeding, production, marketing, and use of animals in agriculture, entertainment, and companionship. Students learn the biological processes involved in genetics, nutrition, and reproduction as well as the business aspects of livestock and racing management. Specializations include animal industry, science and pre-professional training, equine or race track industry.

- Livestock production management
- Positions in racing administration and industries
- Agribusiness firms, financial in, breeding associations
- Graduate school
- Veterinary medicine or other professional school

OPTIONS

- **Animal Industry**
  - Includes additional business, plant/range management

- **Food Safety**
  - Emphasis on producing safe foods

- **Dairy Science Pathway**
  - Emphasis on the Dairy Industry

- **Science/Pre-professional**
  - additional upper-division lab science courses

- **Equine Industry**
  - Emphasis on equine business and management

- **Equine Science/Pre-professional**
  - Emphasis on equine science including advanced coursework in lab sciences.

- **Race Track Industry**
  - additional business, advanced animal sciences

Contact:
Shantz Building Room 205
The University of Arizona, P.O. Box 210038
Tucson, AZ 85721-0038
(520) 621-7623; FAX (520) 621-9435
URL: http://animal.cals.arizona.edu/

Do you have interest in the biological sciences, or in the science and business of domestic animal management?
Animal Sciences
Animal Industry Option

The Industry option will provide students with coursework not only about animal management and production, but also classes in business management and marketing, communications and leadership. This program is aimed at students who are interested in owning and/or operating an animal facility, sales and financial fields of the animal industry.

**Also now available: Dairy Science and Food Safety Options!!!**

Curriculum:
- General Education Coursework
  - College algebra and Statistics
  - Composition; Foreign language (1 yr)
  - General biology; Inorganic chemistry (1 yr)
  - Communications (1 yr); Computer Applications (1 course)
- Animal Genetics and Animal Breeding
- Anatomy & Physiology of Animals
- Food Safety and Meat Animal Composition
- Professional Development
- Feeds and Feeding; Fundamentals of Nutrition
- Reproductive Physiology
- Ag Marketing, Business Management, Economics, 3 other business electives

Other Opportunities:
V bar V Ranch
Ag Farm Complex that offers students hands-on learning with Beef, Dairy, and Equine Production and Meat Science
Livestock judging, Equestrian show team, Block and Bridle club
Rodeo team

Animal Sciences
Science and Pre-professional Option

This option prepares students for admission to Colleges of Veterinary Medicine and other professional schools while providing hands-on animal production coursework. Students are also prepared to pursue M.S. and Ph.D. programs of study.

Curriculum:
- General Education Coursework
  - College algebra and Statistics
  - Composition; Foreign language (1 yr)
  - General biology; Inorganic chemistry (1 yr)
  - Communications (1 yr); Computer Applications (1 course); Organic chemistry (1 yr)
- Animal Genetics and Animal Breeding
- Anatomy & Physiology of Animals
- Food Safety and Meat Animal Composition
- Professional Development
- Feeds and Feeding; Fundamentals of Nutrition
- Reproductive Physiology
- Animal Science Electives
- Biochemistry, Physics
Animal Sciences
Equine Options

The Department of Animal Science offers undergraduates two Equine Science Options: The Science Path prepares students seeking advanced degrees; while the Industry Path prepares students to enter the equine industry upon graduation.

Curriculum:
- General Education Coursework
- Equine Specific Courses
  - Equine Conformation and Performance Appraisal
  - Introduction to Horse Science
  - Horse Training & Conditioning (Weanling, Yearling or Two Year old)
  - Introduction to Horsemanship
  - Equine Reproductive Management
  - Equine Assisted Reproductive Technologies
  - Equine Nutrition and Management
  - Equine Enterprises
  - Managing the Racing Animal
  - Racing Organization, Structure and Management
  - Race Track Business & Financial Management
  - Marketing & Media Relations
  - Animal Racing Laws and Enforcement

Science Path: Fulfills requirements for admission to Colleges of Veterinary Medicine, Medical, Pharmacy, Dental, as well as M.S. and Ph.D. programs.

Industry Path: Students acquire a blend of animal science courses along with business courses that prepare them for the industry at the managerial level.

Other Opportunities:
V bar V Ranch
Ag Farm Complex that offers students hands on learning with Beef, Dairy, and Equine Production and Meat Science
Livestock judging, Equestrian show team, Block and Bridle club
Rodeo team
Animal Sciences
Race Track Industry Option

The Race Track Industry Program provides students opportunities not duplicated by any other program in the world. Leading industry speakers, symposiums, internships and coursework present students with first hand experience in the pari-mutual racing industry.

**Curriculum:**
- General Education Coursework
- Race Track Specific Courses
  - Managing the Racing Animal
  - Racing Organization, Structure and Management
  - Marketing & Media Relations
  - Animal Racing Laws and Enforcement

**Business Path:** Business Administration and Management electives (21 units)

**Animal Path:** Anatomy and Physiology of Domestic Animals, Reproduction, Nutrition and Equine Training and Conditioning coursework (23-26 units)

**Other Opportunities:**
The U of A Race Track Industry Program hosts the world’s largest Race Tract Symposium every year in December. This event provides extensive student interactions with world wide race track organizations, businesses and corporations. Students play an integral role in producing this first class event.
Biosystems Engineering
Bachelor of Science Degree

This program is in conjunction with the College of Engineering. Biosystems engineers use engineering, math, and biology to design and manage resources such as food, soil, air, water and biomaterials. They work on projects involving wise use of energy, materials, biochemicals, and recyclable wastes. They combine technical knowledge, computer techniques, and control systems for a deeper understanding of biological processes -- knowledge which someday may be used to design life support systems for colonies on other planets. Students may specialize in bioenvironmental engineering, biosystems engineering, irrigation and water resource engineering or pre-medicine.

Curriculum Includes:

- Biology
- Chemistry
- Calculus
- Statistics
- Fluid Mechanics
- Thermodynamics
- Computer Aided Design (CAD)
- Bioprocess Engineering
- Water Resources Engineering
- Machinery
- Engineering Design
- General Education Courses

Contact information:
Shantz Building 403
The University of Arizona
PO Box 210038
Tucson, AZ 85721-0038
(520) 621-1607
FAX: (520) 621-3963
URL http://ag.arizona.edu/ABE

Still in High School?
1/2 unit of trigonometry required; calculus, physics, biology and chemistry strongly recommended
Soil, Water and Environmental Science & Plant Sciences
Bachelor of Science Degree in Crop Production

This undergraduate program provides a solid foundation for students entering a career in modern agriculture and crop production. This degree program provides a good base for students interested in work associated with field crops, permanent tree crop production, turf science, and/or a broad array of horticultural crops that are grown throughout the western United States and other regions in the world. Due to the flexible nature of this program, students can elect to focus on either Agronomy or Turf Science. Fundamentals derived from this program can be applied to crop production systems and land management programs locally, regionally, or globally. Also, graduates from this program will be well prepared academically to enter graduate degree programs.
Soil, Water and Environmental Science
Bachelor of Science Degree
Environmental Science

The program integrates biology, ecology, chemistry, and physics into the study of environmental quality in land and water resources. Environmental scientists investigate how to monitor, resolve, and prevent environmental problems, develop new environmental technology products, evaluate and amend environmental policies, and develop and enforce environmental regulations. They are employed by many government agencies and private businesses. Students may specialize in environmental biology, environmental microbiology, environmental science and technology, environmental chemistry, land and water (pollution science), environmental science and policy, environmental remote sensing and geospatial analysis and soil and water science.

Still in High School?

Moderate to substantial knowledge of math, chemistry and biology

Contact information:
Shantz Building 429
The University of Arizona
PO Box 210038
Tucson, AZ 85721-0038
(520) 621-1646
FAX: (520) 621-1647
http://ag.arizona.edu/SWES/uegrad.html
Environmental and Water Resource Economics
Bachelor of Science Degree

This program explores the economic explanations underlying modern environmental and water resource issues. This major prepares students for careers as environmental professionals, trained to address the environmental and natural resource management challenges of the 21st century. Some of the more prominent challenges include pollution prevention, global climate change, integrating environmental costs and benefits into the global market economy, biodiversity and species extinctions, creating sustainable communities, environmental justice, and the provision of clean and plentiful water.

Students are encouraged to acquire additional preparation in complimentary areas such as environmental science, renewable natural resources, and environmental law.

Contact information:
Agricultural and Resource Economics
Economics Building 403
The University of Arizona
PO Box 210023
Tucson, AZ 85721-0023
(520) 621-6241 FAX: (520) 621-6250
http://ag.arizona.edu/AREC/arechome.html

Still in High School?
Prepare yourself for this degree by taking courses in math, biology, and subjects that provide exposure to environmental topics.
Microbiology Bachelor of Science Degree

A multidisciplinary field, microbiology uses the techniques of chemistry, biochemistry, genetics, ecology, pathology, and physiology to study organisms ranging from viruses and parasites to tapeworms. Microbiologists study the role of microscopic organisms in infectious diseases. They also investigate gene expression at the molecular level, biochemistry of cell surfaces, cell populations in various organs, and the role of microorganisms in biodegradation.

Still in High School?
Prepare yourself for this degree by taking courses in math (calculus), physics, chemistry and biology.

Contact:
Veterinary Science & Microbiology
Bldg, Room 202
The University of Arizona, P.O. Box 210090
Tucson, AZ 85721-0090
(520) 621-3058; FAX (520) 621-6366
URL: microvet.arizona.edu
Nutritional Sciences
Bachelor of Science Degree

Nutritional science is the study of nutrition and foods—in health and disease. Courses cover nutrition education, medical nutrition therapy, food service management, and nutritional biochemistry. Nutritional science combines physiology, chemistry, cell biology and biochemistry with application to human nutrition and foods. Students may specialize in either dietetics or nutrition. The dietetics option can lead to “Registered Dietitian” credentials from the American Dietetic Association and careers in the health field. The dietetics program is fully approved by the Commission on Accreditation for Dietetics Education (CADE), the credentialing agency of the American Dietetics Association (ADA). The nutrition option prepares students for graduate study in nutrition, pharmacy, dentistry, medicine and physical therapy, or careers in the food or biotechnology industries.

Two Options:
- Dietetics
  Emphasis on application of nutrition to health care and education
- Nutrition
  Additional upper-division math and science courses

Careers for Dietetics Option
- Public Health Nutrition
- Medical Nutrition Therapy
- Sports Nutrition
- Corporate Wellness Programs
- Private Nutrition Consulting
- Food Service Management
- Nutrition Research

Careers for Nutrition Option
- Food Science and Technology
- Food Research and Development
- Biomedical Research and Biotechnology
- Medical, Dental, Pharmacy or Graduate School

Contact:
Kelly Jackson, M.S., RD
Shantz Building 309
The University of Arizona
PO Box 210038
Tucson, AZ 85721-0038
(520) 626-3504
FAX: (520) 621-9446
http://nutrition.arizona.edu

Still in High School?
Prepare yourself for this degree by taking courses in math, consumer sciences, and subjects that provide exposure to science-related concepts.
Nutritional Sciences
Dietetics Option vs Nutrition Option

At a Glance, both of these options will provide you with coursework in:
- Metabolism
- Nutritional Biochemistry
- Food Science Fundamentals
- Life Cycle Nutrition

Diet Therapy
Therapeutic Nutrition
Technical Writing
Human Physiology

Curriculum common for both options includes:
- Composition and General Education (approx. 27 units)
- College Algebra (Math 110 or higher), Statistics (1 course), Physics (1 course)
- General Biology (1 course), Microbiology (1 course), Biochemistry (2 courses)
- Inorganic Chemistry (1 yr), Organic Chemistry (1 yr), Computer applic. (1 course)
- Technical writing (1 course)

Dietetics Coursework:
- Food Science Lab
- Nutrition Assessment and Management
- Community Nutrition
- Educational Theory
- Food Service Organization and Management
- Institutional Food Service Management and Lab
- Dietetic Internship Prep Workshop

Nutrition Coursework:
- Analytical Chemistry with lab
- 2 semesters of Physics with lab
- Calculus
- Molecular Biology
- Advanced Physiology

Other Opportunities:
- Kappa Omicron Nu Honor Society
- Nutritional Sciences Club
- Student membership in American Dietetic Association
- Independent studies
- Research
- Volunteer or employment with local dietitians
Plant Sciences
Bachelor of Science Degree

The field involves the study of a wide range of organisms, from the smallest bacteria to the largest of living things. Plant scientists investigate processes that occur on a time scale from fractions of a second to eons. They may examine plant structure, growth, ecology, and genetics as well as a variety of agricultural technologies. Plant scientists improve our supply of foods, fibers, medicines, building materials, turf and landscape plants. They may be involved in managing parks, forests, rangelands and wilderness areas or help solve problems related to environment quality. Wherever plants grow, plant scientists work to understand their roles in the lives of the earth’s populations.

Coursework includes:

15 units Plant Sciences core courses
12 units Plant Sciences Electives
16 units Chemistry
12 units Biological Sciences

Options:
- Controlled Environment Agriculture
- Horticulture Systems
- Plant Biology
- Plant Microbiology

Still in High School?
Moderate to substantial knowledge of math and the biological sciences is recommended
Plant Sciences
Plant Microbiology Option

This option provides experience in understanding principles of relationships between plants and associated microflora. Areas of interest include plant pathogenic and beneficial microbes, soil microbiology, and plant disease management. Courses include offerings from Plant Pathology, Entomology, Microbiology, and Ecology and Evolutionary Biology.

Curriculum:
Plant Pathology, Environmental Microbiology, General Mycology, Microbial Genetics, Plant Pathogenic Agents

Plant Sciences
Plant Biology Option

For students interested in a broad treatment of plant sciences, this option provides an opportunity to explore the biology of plants from the level of the ecosystem through molecular interactions within cells. Additional course options exist in Plant Pathology, Entomology, Molecular and Cellular Biology, and Ecology and Evolutionary Biology.

Curriculum:
Plant Diversity & Evolution, Plant Cell Biology, Plant Pathology, Molecular Biology

Other Opportunities:
Internships, UBRP, UMPIRE, student work with various research projects
Plant Sciences
Horticulture Systems Option

This option provides students exposure to production and culture of citrus and woody ornamental crops. Classes focus on intensive propagation and production systems (greenhouse, nursery, and field), physiology of woody plants, and the use of ornamentals in landscapes and urban environments in arid regions.

Curriculum:
Plant Propagation, Nursery Systems, Landscape Horticulture, Weeds, Plant Pathology, Soil Fertility

Plant Sciences
Controlled Environment Option

The Controlled Environment Agriculture option will provide the student with a broad background in this area. Information covered includes greenhouse structures and other protected agriculture techniques, environmental controls, sensors and computer systems, seedling production, greenhouse crop physiology, plant nutrition and nutrient solution/drip irrigation management, integrated pest management, bee management, personnel management and marketing strategies.

Curriculum:
Hydroponics, Greenhouse Engineering, Plant Pathology, Agriculture and Food Marketing, Pest Management

Other Opportunities:
Horticulture Club, Internships, Campus Arboretum work, UBRP, UMPIRE, student work with various research projects
Veterinary Science
Bachelor of Science Degree

This program applies the biomedical sciences to the health and welfare of animals and studies the public health aspects of human-animal relationships. Students explore human-animal relationships; animal reproduction, anatomy and physiology; the care of animal populations; microbiology; disease ecology and pathology.

Still in High School?
Prepare yourself for this degree by taking courses in math (calculus), physics, chemistry and biology.

Contact:
Veterinary Science & Microbiology Bldg, Room 202
The University of Arizona, P.O. Box 210090
Tucson, AZ 85721-0090
(520) 621-3058; FAX (520) 621-6366
URL: microvet.arizona.edu
Family Studies and Human Development
Bachelor of Science Degree

Majors complete a core curriculum taught by award-winning faculty, designed to provide a foundation in family relationships, interpersonal processes and human development across the life span. To help students explore and define career options and to create strong resumes for eventual job and graduate school applications, we provide experiential learning opportunities (internships, practica, independent study) in community workplaces and on faculty research projects.

Coursework Topics
- Lifespan development & relations
- Child and adolescent development
- Problems in development and relations
- Skills and theories of counseling
- Issues in aging
- Program planning and evaluation

Contact information:
Amy Chandler, Ph.D.
Family Studies and Human Development Office: Room 210
Norton School of Family and Consumer Sciences Bldg.
1110 E South Campus Dr
The University of Arizona
Tucson, Arizona 85721-0033
(520) 621-7127; FAX (520) 621-3401
URL: ag.arizona.edu/fcs/fshd

Still in High School?
Prepare yourself for this degree by taking courses in consumer sciences and subjects relevant to human issues: psychology, human development and biology.
Family and Consumer Science Education
Bachelor of Science Degree

Family and Consumer Sciences Education (FACS) students are prepared to teach in school settings. FACS majors can obtain provisional Arizona teacher certification in secondary education (grades 7-12) and standard certification in Career and Technical Education in FACS.

Career Areas

- Family and Consumer Science Education Teacher, K-12
- Career and Technology Education (FACS) Teacher, 6-12

Coursework

30 semester hours in Family and Consumer Sciences Classes including:
- Human development
- Consumer economics
- Family and human relationships
- Nutrition and health
- Food production/culinary arts

30 semester hours in professional preparation including:
- Classroom management
- Curriculum and instruction
- Assessment and evaluation
- Educational foundations
- Organization and administration
- Student teaching

Contact information:
Maureen E. Kelly, Ph.D. mekelly@ag.arizona.edu
Family and Consumer Sciences Education
Rm. 203J
Norton School of Family and Consumer Sciences
650 North Park Avenue
Tucson, Arizona 85721-0078
(520) 621-7141; FAX (520) 626-3209
URL: ag.arizona.edu/fcs/facs

Still in High School?
Prepare yourself for this degree by taking courses in math & family and consumer sciences
Retailing and Consumer Sciences  
Bachelor of Science Degree

Students examine retailing marketing and management principles that are applied across a broad spectrum of U.S. and global retail businesses including store, catalog, Internet, and service-oriented firms. Traditional academic preparation is supplemented by experiential learning opportunities offered via the Terry J. Lundgren Retailing Center through activities such as one-on-one exposure to retail executives, seminars, internship programs, global conferences, and study tours.

Contact information:  
Retailing and Consumer Sciences, FCS 123  
Norton School of Family and Consumer Sciences  
1110 E. South Campus Drive  
The University of Arizona  
Tucson, AZ 85721-0033  
(520) 621-1295; FAX (520) 621-3209  
URL: ag.arizona.edu/fcs/rcsc

Still in High School?  
Prepare yourself for this degree by taking courses in math, consumer sciences, and subjects that provide exposure to business-oriented topics such as marketing, accounting, economics, and vocational education.
Natural Resources
Bachelor of Science in Natural Resources

The School of Natural Resources provides instruction related to the conservation and management of natural resources. Students in the School learn to integrate physical and biological sciences with socio-economic and political factors necessary for the conservation, protection and management of plant and animal species, ecosystems and landscapes. Students who graduate from the School assume leadership positions in agencies and organizations that manage and administer forests, wetlands, rangelands, parks, refuges, and other wildlands in Arizona and the nation.

Select an “option” in either:
- Wildlife Conservation & Management
- Fisheries Conservation & Management
- Rangeland Ecology & Management
- Watershed Hydrology & Management
- Landscape Assessment & Analysis

Careers
- Engineering consulting firms
- Agricultural and biotechnology industries
- Government agencies
- Good preparation for careers in law, business and government

Still in High School?
Moderate to substantial knowledge of math and the biological sciences is recommended.
Wildlife, Watershed & Rangeland Resources
Rangeland Ecology & Management Option

Rangeland Ecology and Management deals with the biological and physical processes of rangeland ecosystems and application of this knowledge to sustainable use of rangelands. Faculty guide students in developing the scientific background, knowledge, and skills to become resource managers, ecologists, restoration biologists, or conservation biologists able to help manage rangeland resources so their long-term productivity is assured. Students find employment in a variety of federal, state, and tribal land management agencies, on ranches and preserves, with environmental consulting firms and companies specializing in disturbed land restoration, or private conservation organizations.


Wildlife, Watershed & Rangeland Resources
Wildlife Conservation & Management Option & Fisheries Conservation & Management Option

Wildlife Conservation & Management and Fisheries Conservation & Management focus on wild animals, fish, and other aquatic organisms. They involve the study of the relationships among organisms, with humans, and with the physical and biological environment that makes their habitat. Faculty guide students in developing the scientific background, knowledge, and skills to maintain healthy populations and species diversity, work for conservation of declining and endangered species, manage populations that are hunted or fished, and coordinate resource management activities to maintain environmental quality. Professionals in the wildlife and fisheries are employed by a variety of federals, state, and tribal agencies, large land owners, environmental consulting firms, and conservation organizations. There are many international opportunities for graduates as well.

Courses include: Ecology, Genetics, Anatomy, Avian Wildlife Management, Mammalian Wildlife Management, Fishery Management, Limnology, Ornithology, Mammalogy, Resource Policy and Planning and several electives
Wildlife, Watershed & Rangeland Resources
Watershed Hydrology & Management Option

Watershed Hydrology and Management is the art and science of managing wildland drainage basins, with special consideration of the quantity and quality of water resources. Faculty guide students in developing the scientific background, knowledge, and skills to manage landscapes for sustained productivity of products such as water, wood, forage, wildlife, and recreational opportunities. Watershed management graduates are qualified for careers in integrated land management and water resources. Many are employed as hydrologists. Employers include federal or state agencies, municipal water districts, private consulting firms, and conservation organizations.


Wildlife, Watershed & Rangeland Resources
Landscape Assessment & Analysis Option

The Landscape Assessment & Analysis Option provides students with a strong background in natural resource science and management, computer technology, and geographical information systems (GIS). Students are prepared for careers in resource inventory, monitoring, and mapping; in spatial analysis and planning for environmental management; and as information specialists in natural resources. Students have excellent employment opportunities in the private sector and with resource management and planning agencies at the local, state, national and international levels.

Courses include: Ecology, Geographic Information Systems, Advanced GIS, Resource Mapping, Remote Sensing, Computer Programming, Resource Measurements, Re-