Developing the Next Generation of Agriculture Careers

Helene R. Dillard, Dean
5/6/14
College of Agricultural and Environmental Sciences

The College of Agricultural and Environmental Sciences is ranked the No. 1 college of its kind in the world.

The faculty in the college are global leaders addressing critical issues related to agriculture, food systems, the environment, and human and social sciences.

Faculty, students and staff work in interdisciplinary teams to develop solutions to real-world problems.
Overview of CA&ES

15 academic departments representing agricultural, environmental, and human/social sciences

8 major centers or institutes

5,800 undergraduate students

1,000 graduate students

340 faculty

800 staff

5,000 acres; 3,700 devoted to agricultural teaching and research
Research

Focused on innovation, discovery at the frontiers of science, understanding complex systems, and solving problems that address critical issues facing society.

Working in interdisciplinary teams to apply their science to real-world issues.
Teaching

We are focused on creating life long learners and leaders

Students get hands-on/in experiences

An essential goal is to build a highly educated, effective and skilled workforce
Outreach

Cooperative Extension
Agricultural Experiment Station
Centers and Institutes
Helping our CA&ES Students Find Their Career Path

Career Discovery Groups
- All freshmen in CA&ES are eligible
- Undeclared students explore an array of career pathways
- Declared students work on career development

From UCD Internship and Career Center:
- 88% of CAES graduates complete at least one internship during college, and 70% complete more than one

Top employers of CAES graduates: Anheuser Busch, Deloitte&Touche LLP, E&J Gallo, Genentech, Marrone Bio Innovations, National Park Service, Novozymes, Smithsonian Institute, USDA, US Fish & Wildlife Service
Next Generation Ag Careers – Animal Sciences

<table>
<thead>
<tr>
<th>Animal Behaviorist</th>
<th>Extension Agent/Specialist</th>
</tr>
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<tbody>
<tr>
<td>Animal Breeder</td>
<td>Facility Manager</td>
</tr>
<tr>
<td>Animal Caretaker</td>
<td>Farm Business Manager</td>
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<tr>
<td>Animal Control Officer</td>
<td>Feed Manufacturing</td>
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<td>Animal Rehabilitation</td>
<td>Forensics</td>
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<tr>
<td>Animal Shelter Manager</td>
<td>Forestry Technician</td>
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<tr>
<td>Animal Trainer</td>
<td>Geneticist</td>
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<tr>
<td>Artificial Insemination Tech</td>
<td>Groomer</td>
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<tr>
<td>Banking/Finances</td>
<td>Health Inspector</td>
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<tr>
<td>Barn Manager/Herdsman</td>
<td>Humane Law Enforcement</td>
</tr>
<tr>
<td>Behaviorist</td>
<td>Immunologist</td>
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<tr>
<td>Biologist Biotechnologist</td>
<td>Laboratory Researcher</td>
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<tr>
<td>Business Management</td>
<td>Lab Animal Technician</td>
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<tr>
<td>Chemist Clinical Researcher</td>
<td>Livestock Judge/Coach</td>
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<tr>
<td>Compliance</td>
<td>Medical Doctor</td>
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<tr>
<td>Conservationist</td>
<td>Medical Illustrator</td>
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<tr>
<td>Dentist</td>
<td>Nutritional Consultant</td>
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<tr>
<td>Ecologist</td>
<td>Nutritionist</td>
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<tr>
<td>Embryo Transfer Technician</td>
<td>Optometrist</td>
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<tr>
<td>Endocrinologist</td>
<td>Pharmacologist</td>
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<tr>
<td>Environmental Specialist</td>
<td>Pharmaceutical</td>
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<tr>
<td>Epidemiologist</td>
<td>Public Health</td>
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<tr>
<td>Representative</td>
<td>Physical Therapist</td>
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<tr>
<td>Physician Assistant</td>
<td>Political Lobbyist</td>
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<tr>
<td>Professor</td>
<td>Public Outreach</td>
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<tr>
<td>Public Health</td>
<td>Race Track Publicist</td>
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<tr>
<td>Radiologist</td>
<td>Research Investigator</td>
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<tr>
<td>Teacher</td>
<td>Statistician</td>
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<tr>
<td>Veterinarian</td>
<td>Teacher</td>
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<tr>
<td>Veterinary Technician</td>
<td>Wildlife Biologist</td>
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<tr>
<td>Writer/Journalist</td>
<td>Zookeeper</td>
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<td>Zookeeper</td>
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Next Generation Ag Careers – Agriculture and Resource Economics

Managerial Economics (BS): Accounting, appraisal, business analyst, banking (e.g., loan officer), buyer, entrepreneur, farmer/grower, human resources, manager, marketing distribution and sales, financial services, planning, production, taxes
Ag and Resource Econ (MS): Economic consultant, agribusiness manager, banking, finance, loans, public sector (state, federal) analyst
Ag and Resource Econ (Ph.D.): Academic teaching and research, attorney, researcher for state, federal, and international agencies, economic consulting
Next Generation Ag Careers – Food Science & Technology

24 academic and cooperative extension faculty
261 undergraduate majors (largest program in the US)
70 graduate students

Career options:
• BS & MS Food Science
  • Quality Assurance
  • Production Management
  • Product Development
  • Brew Master (#1 brewing program in the US)
• PhD
  • Research and Development – Corporate
  • Research – NGOs & Government (e.g., USDA)
  • Academic Career

Facilities:
August A. Busch III Brewing & Food Science Laboratory
• Brewery
• CA processing tomato industry pilot plant
• Milk processing laboratory
Next Generation Ag Careers – Plant Pathology & Nematology (MS, PhD), Entomology (BS, MS, PhD)

- Undergraduate majors:
  - Graduate School; Medical School
  - Research assistants; technicians
  - Pest control advisors; State government (CDFA, DPR); Ag industry (pesticide, seed, fertilizer manufacturers); Biotechnology industry
  - Production Agriculture
  - Pest Control Operators – household insects, termites, etc.
  - Apiculture industry

- Graduate students:
  - University faculty
  - Cooperative extension specialists; County farm advisors
  - Agriculture industry (seeds, chemicals, biologicals, organic)
  - Biotechnology industry
  - State government (e.g., CDFA; DPR, others)
  - Federal Government (e.g., USDA ARS, APHIS) Forest Service
  - NGOs; Museum curator; Military medical
  - Mosquito Abatement Districts
  - Environmental monitoring/Env. Impact assessments
Next Generation Ag Careers - Viticulture and Enology

Enologist/Lab manager
Assistant Winemaker
Winemaker
Vineyard Manager
General Manager
Sales and technical reps for industry suppliers
# Next Generation Ag Careers – Plant Sciences, Environmental Horticulture, Urban Forestry

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<thead>
<tr>
<th>Plant Breeder</th>
<th>Greenhouse/Nursery Manager</th>
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</thead>
<tbody>
<tr>
<td>Biotechnologist</td>
<td>Golf Course/Park Manager</td>
</tr>
<tr>
<td>Pest Control Advisor</td>
<td>Landscape Designer</td>
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<tr>
<td>Food Safety Specialist</td>
<td>Certified Arborist</td>
</tr>
<tr>
<td>Research Scientist</td>
<td>Flower Seed Producer</td>
</tr>
<tr>
<td>Agronomist</td>
<td>Native/Exotic Plant Propagator</td>
</tr>
<tr>
<td>Farm Operations Manager</td>
<td>International trade</td>
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<tr>
<td>Agricultural Marketing</td>
<td>International agriculture development</td>
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</tbody>
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Next Generation Ag Careers – Environmental Toxicology

- Academia: 21%
- Consulting: 12%
- Government: 14%
- Research Foundations: 4%
- Other: 2%
- Pharmaceutical: 17%
- Industries: 47%
- Chemical: 7%
- Consumer Products: 3%
- Other: 20%
Next Generation Ag Careers – Nutrition Science

Bachelor of Science Degree (Nutritional Biology, Public Health Nutrition, Clinical Nutrition)
- Lab Technician and Research Assistant (University, USDA, Biotech or Pharmaceutical)
- Food Science/ Product Development
- Food and Drug Investigator, state Dept of Health
- Quality Control Supervisor, Foods
- Registered Dietitian
- Dietetic Technician
- Food Service Supervisor/ Dietary Manager
- Health and Wellness Educator (community & public health settings, hospital settings)
- Public Health Analyst (State, County)
- Nutritionist (WIC, SNAP Ed, FSNEP, Head Start, County public health programs, Grocery stores, Wellness programs)
- Sales representative (Pharmaceuticals, Nutritional Products, Medical Nutrition Products)

• Master’s or PhD Degree
  - University Faculty (teaching, research, and/or cooperative extension specialist)
  - Scientist/Senior Scientist at Biotechnology or Pharmaceutical company
  - Public service
    - State level - Dept of Ag, Dept of Health and Human Services, Dept of Education
    - Federal level – USDA, FDA
    - Non Governmental Organizations – domestic & international
    - World Health Organization
  - Food companies
    - Nutrition Research Scientist
    - Regulatory affairs
  - Self-employed and Consultants
  - Registered Dietitian, Supervisor and Program Director

• Platform for Additional Education for Medical Careers
  - Medical, Nursing, Pharmacy, Physical Therapy, Physician Assistant
  - Dental
## Next Generation Ag Careers – Human Ecology

### Sample careers in the undergraduate programs

- **Community Development**
  - Community education (i.e. ESL, environmental, parent support)
  - City planning and economic development
  - Youth advocate/organizer
  - Nonprofit administration
- **Human Development**
  - K-12 teaching (with certification)
  - Health sciences (with professional training)
  - Child care (teacher, director)
- **Landscape Architecture**
  - Public agencies (CalTrans, State Parks, City/County/National Parks)
  - Professional design offices (urban design, ecological planning, recreational facilities, etc.)
  - Private practice (residential, design-build)
- **Sustainable Agriculture and Food Systems**
  - Farming and ranching
  - Education/community organizing and development
  - International development

### Sample careers in the graduate programs

- **Child Development (MS)**
  - Education (teacher, specialist, administrator)
  - Child care (teacher, administrator, counselor)
- **Community Development (MS)**
  - Government agencies/Cooperative Extension
  - Economic development and housing corporations
  - Land trusts, farmland preservation organization
  - Nonprofits and public interest groups
- **Geography (MS & PhD)**
  - University educator and researcher
  - Government agency or private industry scientist
- **Human Development (PhD)**
  - University educator and researcher
  - Government agency or private industry scientist

[UC Davis College of Agricultural and Environmental Sciences]
Next Generation Ag Careers – Land Air and Water Resources

Atmospheric Science
   California Air Resources Board, County Air Pollution Control Districts
   National Weather Service, R and D in the private sector

Hydrology
   USGS, DWR, ARS, Resource Conservation Districts
   US Fish and Wildlife
   Water Resources Control Board
   Forest Service, NRCS, USEPA
   Regional Water Quality Control Boards

Environmental Science and Management
   Resource Conservation Districts, DWR, USDA-ARS
   Water Resources Control Board, US Forest Service, USGS
   USDA-NRCS, USEPA
   CA Department of Conservation, CA Department of Food and Agriculture
### Next Generation Ag Careers – Textiles

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<thead>
<tr>
<th>Materials Developer</th>
<th>Merchandizing coordinator</th>
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<tbody>
<tr>
<td>Materials Coordinator</td>
<td>Sourcing Analyst</td>
</tr>
<tr>
<td>Materials Research Analyst</td>
<td>Global Sourcing Manager</td>
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<tr>
<td>Fabric researcher and developer</td>
<td>Merchandiser/Web Merchandiser</td>
</tr>
<tr>
<td>Analyst/Materials Testing</td>
<td>Business Analyst</td>
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<tr>
<td>Materials Analyst</td>
<td>Buyer/Merchandiser</td>
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<td>Materials Testing</td>
<td>Product Manager</td>
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<tr>
<td>Materials Quality analyst/Manager</td>
<td>Brand Development Manager</td>
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<tr>
<td>Research and Development</td>
<td>Marketing/Sales Manager</td>
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<tr>
<td>Materials Manager</td>
<td>Logistics Manager</td>
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<tr>
<td>Product Developer</td>
<td>Human Resources Manager</td>
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<tr>
<td>Technical Designer</td>
<td>Retail Planning and Allocation</td>
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<tr>
<td>Color Analyst/Colorist</td>
<td>Control Buyer</td>
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<tr>
<td>Designer/Graphic Designer Developer</td>
<td>Product Copywriter/Copy Editor</td>
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<td>Content Producer</td>
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### Companies
- Nike
- Gymboree
- Abercrombie & Fitch
- Royal Robbins
- Pendleton Woolen Mills
- 511 Tactical
- Eddie Bauer
- Noble Outfitters
- Mountain Hardware
- Patagonia
- Macy's
- 5.11
- REI
- The North Face
- JCPenney
- Target
- NORDSTROM
- BCBG
- Levi's
- adidas
- World Market
- Pottery Barn
- Williams-Sonoma
Next Generation Ag Careers – Ecological Management & Restoration

Natural Resource Manager
Rangeland Ecologist
Hydrologist
Ecologist
Environmental Restoration Expert
Environmental Analysis and Remediation Expert
Next Generation Ag Careers – Wildlife Fish and Conservation Biology

_Fisheries_
Fish hatchery biologist, Aquarium keeper, Aquaculture specialist, Fisheries biologist, Endangered species coordinator, Marine biologist, Restoration ecologist, Research scientist, Fisheries manager, Ecotoxicologist

_Law/Policy Related_
Environmental consultant, Lobbyist, Environmental attorney

_Wildlife_
Wildlife biologist, Wildlife manager, Endangered species coordinator, Local wildlife interest groups coordinator, Marine biologist, Zoo keeper, Animal trainer, Animal damage control specialist, Research scientist, Habitat restoration ecologist

_Veterinary Medicine_
Veterinarian (zoo, private, wildlife), Wildlife rehabilitator

_Ecosystem / Habitat_
Conservation biologist Forest / Park ranger Forest manager, Park biologist/manager, Habitat restoration ecologist, GIS specialist

_Education/Communication_
Environmental journalist, Nature photographer, Environmental instructor, Reserve docent, Peace Corps volunteer, Ecotourism, Teacher / Professor
Individual Training
Group Training
Learn by doing...
The Next Generation of Agriculture Careers Require our Graduates to be …

Collaborative and able to work in multidisciplinary teams
Bright, smart, and well educated
Thinkers and problem solvers
Hard workers and have an inherently strong work ethic
Exposed to other cultures and understand global markets
Think global, act local
Well versed in technology
Sustainability conscious
Systems thinkers
Able to cope with change and uncertainty
Early adopters and early adapters
Eager to innovate
Able to lead the way
The College of Agricultural and Environmental Sciences has those graduates coming your way!