Horticulture and Agronomy (A Graduate Group)

Chairperson of the Group

Group Office, 1224 Plant and Environmental Sciences Building
530 752-7738; http://ggha.ucdavis.edu

Faculty

Douglas O. Adams, Ph.D., Professor
(Viticulture and Enology)
Kazsim Ali-khatib, Ph.D., Professor (Plant Sciences)
Diane M. Beckles, Ph.D., Associate Professor
(Plant Sciences)
Alan B. Bennett, Ph.D., Professor (Plant Sciences)
Alison M. Berry, Ph.D., Professor (Plant Sciences)
A. Bloome, Ph.D., Professor (Plant Sciences)
Eduardo Blumwald, Ph.D., Professor (Plant Sciences)
Karl R. Bradford, Ph.D., Professor (Plant Sciences)
Patrick H. Brown, Ph.D., Professor (Plant Sciences)
Dario Cantu, Ph.D., Assistant Professor (Viticulture and Enology)
Abhay M. Dandekar, Ph.D., Professor (Plant Sciences)
Theodore M. Delong, Ph.D., Professor (Plant Sciences)
Jorge Dubcovsky, Ph.D., Professor (Plant Sciences)
Jan Dvorak, Ph.D., Professor (Plant Sciences)
Valerie T. Fivner, Ph.D., Associate Professor (Plant Sciences)
Albert J. Fischer, Ph.D., Professor (Plant Sciences)
Paul L. Gepts, Ph.D., Professor (Plant Sciences)
Matthew E. Gilbert, Ph.D., Assistant Professor (Plant Sciences)
Michael P. Parrella, Ph.D., Professor (Plant Sciences)
Kerri L. Steenwerth, Ph.D., Assistant Adjunct Professor (Plant Sciences)
Andrew J. McClure, Ph.D., Assistant Adjunct Professor (Viticulture and Enology)
Elizabeth J. Mitcham, Ph.D., Professor (Plant Sciences)
Jeffrey P. Mitchell, Ph.D., Professor (Plant Sciences)
Anita Oberholzer, Ph.D., Lecturer and Assistant Specialist in Cooperative Extension (Viticulture and Enology)
Lorenzo R. Oki, Ph.D., Lecturer and Associate Specialist in Cooperative Extension (Plant Sciences)
Don E. Parlin, Ph.D., Lecturer and Pomologist (Plant Sciences)
Andrew J. Smith, Ph.D., Professor (Plant Sciences)
Mark Van Horn, M.S., Lecturer (Plant Sciences)
Robert Hijmans, Ph.D., Associate Professor (Plant Sciences)
M. Andrew Walker, Ph.D., Professor (Plant Sciences)
Jeffrey S. Ross-Ibarra, Ph.D., Associate Professor (Plant Sciences)
Kate M. Scow, Ph.D., Professor (Land, Air and Water Resources)
Kenneth A. Shackel, Ph.D., Professor (Plant Sciences)
David R. Smart, Ph.D., Associate Professor (Viticulture and Enology)
Dina St. Clair, Ph.D., Professor (Plant Sciences)
Kenneth W. Tate, Ph.D., Professor (Plant Sciences)
Larry R. Teuber, Ph.D., Professor (Plant Sciences)
Li. Tran, Ph.D., Professor (Plant Sciences)
Chris van Kessel, Ph.D., Professor (Plant Sciences)
Astrid Vorderberg, Ph.D., Assistant Professor (Plant Sciences)
M. Andrew Wylie, Ph.D., Professor (Viticulture and Enology)
Larry E. Williams, Ph.D., Professor (Viticulture and Enology)
John L. Yoder, Ph.D., Professor (Plant Sciences)
Florence Zakharov, Ph.D., Associate Professor (Plant Sciences)

Affiliated Faculty

Kendra Baumgartner, Ph.D., Lecturer and Research Specialist in Plant Pathology
Christian Cantwell, Ph.D., Lecturer and Specialist in Cooperative Extension (Plant Pathology)
Marita Cantwell, Ph.D., Lecturer and Specialist in Cooperative Extension (Plant Sciences)
Roger T. Chetelat, Ph.D., Lecturer and Agronomist (Plant Sciences)
Carlos H. Crisosto, Ph.D., Lecturer and Specialist in Cooperative Extension (Plant Sciences)
Joseph M. DiTomaso, Ph.D., Lecturer and Specialist in Cooperative Extension (Plant Sciences)
Richard Y. Evans, Ph.D., Lecturer and Specialist in Cooperative Extension (Plant Sciences)
Steven A. Fennimore, Ph.D., Lecturer and Specialist in Cooperative Extension (Plant Sciences)
Louise Ferguson, Ph.D., Lecturer and Specialist in Cooperative Extension (Plant Sciences)
Matthew W. Fidelibus, Ph.D., Associate Specialist in Cooperative Extension (Viticulture & Enology)
W. Douglas Gubler, Ph.D., Lecturer and Extension Plant Pathologist (Plant Sciences)
Bradley D. Hanson, Ph.D., Lecturer and Associate Specialist in Cooperative Extension (Plant Sciences)
Timothy K. Hartz, Ph.D., Lecturer and Specialist in Cooperative Extension (Plant Sciences)
James E. Hill, Ph.D., Lecturer and Specialist in Cooperative Extension (Plant Sciences)
Stephen K. Karr, Ph.D., Lecturer and Specialist in Cooperative Extension (Plant Sciences)
Bruce D. Lampinen, Ph.D., Lecturer and Specialists in Cooperative Extension (Plant Sciences)
Brad Linquist, Ph.D., Lecturer and Assistant Specialist in Cooperative Extension (Plant Sciences)
David J. Mackill, Ph.D., Adjunct Professor (Plant Sciences)
Andrew J. McElrone, Ph.D., Assistant Adjunct Professor (Viticulture and Enology)
Elizabeth J. Mitcham, Ph.D., Professor and Specialist in Cooperative Extension (Plant Sciences)
Jeffrey P. Mitchell, Ph.D., Professor in Cooperative Extension (Plant Sciences)
Anita Oberholzer, Ph.D., Lecturer and Assistant Specialist in Cooperative Extension (Viticulture and Enology)
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Don E. Parlin, Ph.D., Lecturer and Pomologist (Plant Sciences)
Andrew J. Smith, Ph.D., Professor (Plant Sciences)
Daniel H. Putnam, Ph.D., Lecturer in Cooperative Extension (Plant Sciences)
John W. Six, Ph.D., Adjunct Professor (Plant Sciences)
Ken K. Steenwerth, Ph.D., Assistant Adjunct Professor (Viticulture and Enology)

Graduate Study

The Graduate Group in Horticulture and Agronomy offers programs of study leading to the M.S. and Ph.D. degrees for students interested in research on horticultural crops, including their ecology, physiology, genetics, and post-harvest management, as well as the interaction of agricultural crops with the environment. These programs are designed to focus on a cropping system, such as agronomy, environmental horticulture, pomology, vegetable crops, viticulture and weed science. Within that cropping system, the student can specialize in one of a number of areas, including agronomy, horticulture, biotechnology, breeding and crop improvement, crop physiology, crop production, floriculture, landscape horticulture, mineral nutrition, modeling, nursery production, pest management, plant growth and development, postharvest physiology, revegetation/restoration, and water relations. Research may be conducted within these areas with an applied or basic focus, but in association with a cropping system.

Preparation. For both the M.S. and Ph.D. programs, a level of competence equivalent to that of a sound undergraduate program in Plant Science is required. This includes courses in general biology, chemistry, organic chemistry, physics, statistics, genetics, plant physiology, and soil science. A few limited deficiencies in any of these areas can be made up after admission to the graduate program. Specific requirements are outlined in detail on the group’s website. The graduate advisor, the major professor, and the student will design a program of advanced courses to meet the academic needs within one of the specializations.

Graduate Advisers. Consult the Group office.

Courses in Horticulture (HRT)

Graduate

203. Research Perspectives in Horticulture (3)
Lecture—1 hour; lecture/discussion—2 hours. Prerequisite: Plant Biology 111 and 112, or Environmental Horticulture 102 or the equivalent. Following lectures/discussions of scientific methodology, students develop research proposals aided by class discussion and individual interactions with instructors. Lectures and critiques of “classical papers” provide a sense of the evolution of the current concepts in perennial plant biology. Offered in alternate years.—II. (II.) Delong, van Kessel

251. Modeling Horticultural Systems (4)
Lecture—3 hours; laboratory—3 hours. Prerequisites: Plant Sciences 142, calculus, or consent of instructor. Development and application of models. Emphasis on physiological and ecological models, with examples from areas of interest to class participants. Applications to horticultural systems. Offered in alternate years.—II.

II. Winter
Human and Community Development

See Human Ecology, on page 342.

Human Anatomy

See Courses in Cell Biology and Human Anatomy (CHA), on page 401.

Human Development

[College of Agricultural and Environmental Sciences]

Faculty
Jay Belsky, Ph.D., Distinguished Professor
Zha Chen, Ph.D., Professor
Katherine Conger, Ph.D., Professor
Rand Conger, Ph.D., Distinguished Professor
Amanda Gruen, Ph.D., Associate Professor
Leah Hebel, Ph.D., Assistant Professor
Siwei Liu, Ph.D., Assistant Professor
Lisa Miller, Ph.D., Associate Professor
Richard Ponzio, Ph.D., Extension Specialist Emeritus
Lawrence V. Harper, Ph.D., Professor Emeritus
Rosemarie Kraft, Ph.D., Lecturer SOE, Emerita
Brenda Bryant, Ph.D., Professor Emerita
Emeriti Faculty
Keith Barton, Ph.D., Professor Emeritus
Brenda Bryant, Ph.D., Professor Emeritus
Rosemarie Krafft, Ph.D., Lecturer SOE, Emerita
Lawrence V. Harper, Ph.D., Professor Emeritus
Richard Ponzio, Ph.D., Extension Specialist Emeritus
Emmy E. Werner, Ph.D., Extension Specialist Emerita

Affiliated Faculty
Jennifer Gonzales, Child Development Demonstration Lecturer
Julia Luckenbill, Child Development Demonstration Lecturer
Lenna Ontai Ph.D., Associate Specialist in Cooperative Extension
Martin Smith, Ph.D., Associate Specialist in Cooperative Extension
Kali Trzesniewski, Ph.D., Associate Specialist in Cooperative Extension
Kelly Twibell, Child Development Demonstration Lecturer, Continuing

The Major Program

Human development explores the developmental process in humans throughout the life cycle. Biological, cognitive, and personality/sociocultural aspects of development are studied.

The Program. Human development majors complete a group of preparatory courses in anthropology, general biology, genetics, history, philosophy, physiology, psychology, and sociology. Upper division students can design their programs in consultation with a faculty member to emphasize a particular interest. For instance, students can study the cognitive, social, and biological aspects of human development while emphasizing children or adult development.

Internships and Career Alternatives. At least one practicum course is required. A second practicum or supervised work experience can be used to fulfill the restricted elective requirement for the major. In addition, students can intern in schools, early childhood education or senior centers, hospitals, rehabilitation centers, probation offices, group foster homes, mental health clinics, or as tutors for handicapped or bilingual students. Human development graduates fill a wide variety of positions as in preschools, elementary and special educational settings, programs designed for parents, families, and the elderly, as well as governmental jobs related to social services for people of all ages. Students who emphasize biological aspects of human development can apply to medical school or pursue training for positions in the health sciences. Human development prepares students to pursue advanced degrees in behavioral and social sciences, education, social work, family law, or health sciences.

Preparatory Requirements. UC Davis students who wish to change their major to Human Development must complete the following courses with a combined grade point average of at least 2.50. All of the following courses must be taken for a letter grade:

- **Psychology courses:**
  - Psychology 1
  - Statistics 10A or 13A or Psychology 41 or Sociology 46A and 46B
  - One course from: Anthropology 1A, 1B or 1C
  - One course from: Biological Sciences 2A, 10, 16V, Microbiology 10, Neurobiology, Physiology, and Behavior 12
  - One course from: Molecular and Cellular Biology 10 or Neurobiology, Physiology, and Behavior 10
  - One course from: History 17A, 17B, 72A, 72B, or Political Science 1
  - Two courses from: Philosophy 5, 30, 31, 32, or 38
  - One course from: Neurobiology, Physiology, and Behavior 101, or Psychology 101
  - One course from: Psychology 41 or Sociology 46A and 46B, or Statistics 10 or 13

- **Depth Subject Matter:**

  - **Life Span:**
    - Human Development 100A, 100B, 100C
    - Social-Sexual Processes:
      - one course from: Biological Sciences 101T
      - Human Development 117, Nutrition 111V, or Psychology 121
      - Social-Cultural Processes:
        - one course from: Human Development 102, 110, 130, or 160
      - Cognitive Processes:
        - one course from: Human Development 101, 103, 122, 161, or 163
      - Practicum:
        - one course from: Human Development 140-140L, or 141 or 142 or 143
  - **Restricted Electives:** Five additional upper division courses chosen from among Human Development courses or from a list of restricted electives in consultation with faculty adviser. May include only one practicum course.

At least one of the courses from the Depth Subject Group or Restricted Electives listed above must focus on child/adolescence (101, 102, 103, 110, 130, 132) and one on adulthood/aging (117, 143, 160, 161, 163).

English Composition Requirement

In addition to the College English Composition requirements, choose one from University Writing Program 101, 102A, 102B, 102C, 102D, 102E, 102F, 102G, 102H, 104A, 104B, 104C, 104D, 104E, 104F.

Total Units for the Major 92-106

At least 92 upper division units are required. At least 6 of the upper division units must be taken at UC Davis.

Minor Program Requirements:

The Department of Human and Community Development offers two minors.

**Minor Adviser.** L. Miller

**Minor Program Requirements:**

- **Human Development**
  - Total Units: 20
  - At least 92 upper division units are required. At least 6 of the upper division units must be taken at UC Davis.
  - At least one of the courses from the Depth Subject Group or Restricted Electives listed above must focus on child/adolescence (101, 102, 103, 110, 130, 132) and one on adulthood/aging (117, 143, 160, 161, 163).
  - **English Composition Requirement**
    - In addition to the College English Composition requirements, choose one from University Writing Program 101, 102A, 102B, 102C, 102D, 102E, 102F, 102G, 102H, 104A, 104B, 104C, 104D, 104E, 104F.
  - **Total Units for the Minor:** 92-106

At least 92 upper division units are required. At least 6 of the upper division units must be taken at UC Davis.

**Courses in Human Development (HDE)**

Questions pertaining to the following courses should be directed to the instructor or to the Human and Community Development Advising Center in 1303 Hart Hall 530-752-2244.

**Lower Division**

- **12. Human Sexuality (3)**
  - Lecture—3 hours. Vocabulary, structure/function of reproductive system; sexual response; pre-natal development; pregnancy and childbirth; development of sexuality; rape and sexual assault; birth control; sexually transmitted diseases; homosexuality; establishing/maintaining intimacy; sexual dysfunction; communication; enhancing sexual interaction, cultural differences in attitudes towards sexuality. GE credit: SocSci, Div [ ACCH, DD, SS, SL, WE, WC, WE = Writing Experience ]

**92. Internship (1-12)**

- Internship—3-36 hours. Prerequisite: field work experience or at least one course (e.g., course 100A, 100B, 140 or 142 to be work assignment; consent of instructor. Supervised internship, off campus and on campus, in community and institutional setting. May be repeated for credit for a total of 12 units or if involves progressively greater (supervised) participation in program delivery or assessment. P/NP grading only.)—II, III, III, (II, III)

**98. Directed Group Study for Undergraduates (1-5)**

- Prerequisite: consent of instructor. P/NP grading only.

**99. Special Study for Undergraduates (1-5)**

- P/NP grading only.