

299. Research (1-12)

Prerequisite: consent of instructor. (S/U grading only.)

Avian Sciences (A Graduate Group)

John M. Eadie, Ph.D., Chairperson of the Group

Group Office. 1202B Meyer Hall
(530) 752-2382; <http://aviansciences.ucdavis.edu>

Faculty

- Dan Anderson, Ph.D., Professor
(*Wildlife, Fish, and Conservation Biology*)
Francine A. Bradley, Ph.D., Specialist in
Cooperative Extension and Lecturer
(*Animal Science*)
C. Christopher Calvert, Ph.D., Professor
(*Animal Science*)
Carol J. Cardona, D.V.M., Ph.D., ACPV, Associate
Veterinarian; Associate Extension Specialist
(*Population Health and Reproduction, School of
Veterinary Medicine*)
Mary E. Delany, Ph.D., Professor (*Animal Science*)
John M. Eadie, Ph.D., Professor
(*Wildlife, Fish, and Conservation Biology, Animal
Science*)
Holly B Ernest, D.V.M., Ph.D., Assistant Professor in
Residence: Wildlife Geneticist
(*Veterinary Genetics Laboratory and Population
Health and Reproduction, School of Veterinary
Medicine*)
Thomas P. Coombs-Hahn, Ph.D., Associate Professor
(*Neurobiology, Physiology, and Behavior*)
Michelle Hawkins, V.M.D., ABVP, Assistant Professor
(*Medicine and Epidemiology, School of
Veterinary Medicine*)
Annie J. King, Ph.D., Professor (*Animal Science*)
Kirk C. Klasing, Ph.D., Professor (*Animal Science*)
Jenella E. Loye, Ph.D., Research Associate
(*Entomology*)
Joy A. Mench, Ph.D., Professor (*Animal Science*)
James R. Millam, Ph.D., Professor (*Animal Science*)
Lisa A. Tell, D.V.M., Professor
(*Medicine and Epidemiology, School of
Veterinary Medicine*)
Barry W. Wilson, Ph.D., Professor
(*Animal Science, Environmental Toxicology*)

Emeriti Faculty

- Ursula K. Abbott, Ph.D., Professor Emerita
Hans Abplanalp, Ph.D., Professor Emeritus
Ralph A. Ernst, Ph.D., Specialist Emeritus
Peter Marler, Ph.D., Professor Emeritus

Graduate Study. The Graduate Group in Avian Sciences offers the M.S. degree program to students who wish to pursue specialized advanced work on avian species. Specializations students may choose include behavior, nutrition, physiology, reproduction, pathology, immunology, toxicology, food chemistry, management, ecology, genetics, comparative incubation, environmental physiology, and cellular and developmental studies using wild and domestic birds as experimental animals. Both master's degree plans, thesis or comprehensive examination, are available.

Preparation. Applicants should have undergraduate preparation in a field appropriate to the course of study selected, including courses in most of the following subjects: general biology, general and organic chemistry, biochemistry, avian biology, genetics, nutrition, physiology, and statistics.

Graduate Adviser. Consult program office.

Biochemistry and Molecular Biology

See **Molecular and Cellular Biology**, on page 406; **Biochemistry and Molecular Biology (A Graduate Group)**, on page 165.

Biochemistry and Molecular Biology (A Graduate Group)

JoAnne Engebrecht, Ph.D., Chairperson of the Group

Group Office. 306 Life Sciences;
(530) 752-9091;
<http://www-ggc.ucdavis.edu/ggc/bmb>

Faculty

- Steffen Abel, Ph.D., Associate Professor
(*Plant Sciences*)
James Ames, Ph.D., Associate Professor (*Chemistry*)
Peter Armstrong, Ph.D., Professor
(*Molecular and Cellular Biology*)
Enoch Baldwin, Ph.D., Associate Professor
(*Molecular and Cellular Biology*)
Kenneth A Beck, Ph.D., Associate Professor
(*Cell Biology and Human Anatomy*)
Diane Beckles, Ph.D., Assistant Professor
(*Plant Sciences*)
Alan Bennett, Ph.D., Professor (*Plant Sciences*)
Charles Bevins, Ph.D., Professor
(*Medical Microbiology and Immunology*)
Linda F. Bisson, Ph.D., Professor
(*Viticulture and Enology*)
Eduardo Blumwald, Ph.D., Professor (*Plant Sciences*)
Sue Bodine, Ph.D., Professor
(*Neurobiology, Physiology, and Behavior*)
R. David Britt, Ph.D., Professor (*Chemistry*)
Sean Burgess, Ph.D., Associate Professor
(*Molecular and Cellular Biology*)
Marie E. Burns, Ph.D., Associate Professor
(*Center for Neuroscience*)
Judy Callis, Ph.D., Professor
(*Molecular and Cellular Biology*)
Kermit L. Carraway, Ph.D. Associate Professor
(*Cancer Center UCDMC*)
Simon Chan, Ph.D., Assistant Professor
(*Plant Biology*)
Frederic Chedin, Ph.D., Assistant Professor
(*Molecular and Cellular Biology*)
Hongwu Chen, Ph.D., Associate Professor
(*Cancer Center UCDMC*)
Tsong-Yu Chen Ph.D., Associate Professor
(*Center for Neuroscience*)
Xinbin Chen, Ph.D., Director
(*Surgical and Radiological Science*)
Hwai-Jong Cheng, Ph.D., Associate Professor
(*Neurobiology, Physiology, and Behavior*)
R. Holland Cheng, Ph.D., Professor
(*Molecular and Cellular Biology*)
Gino A. Cortopassi, Ph.D., Professor
(*Molecular Biosciences*)
Michael E. Dahms, Ph.D., Professor
(*Molecular and Cellular Biology*)
Sheila David, Ph.D., Professor (*Chemistry*)
Scott Dawson, Ph.D., Assistant Professor
(*Microbiology*)
William DeBello, Ph.D., Assistant Professor
(*Center for Neuroscience*)
Katayoon Dehesh, Ph.D., Professor (*Plant Biology*)
Wenbin Deng, Ph.D., Assistant Professor
(*Cell Biology and Human Anatomy*)
Michael S. Denison, Ph.D., Professor
(*Environmental Toxicology*)
Elva Diaz, Ph.D., Assistant Professor
(*Medical Pharmacology and Toxicology*)
Bruce Draper, Ph.D., Assistant Professor
(*Molecular and Cellular Biology*)
JoAnne Engebrecht, Ph.D., Associate Professor
(*Molecular and Cellular Biology*)
Carol Erickson, Ph.D., Professor
(*Molecular and Cellular Biology*)
Marilynn E. Etzler, Ph.D., Professor
(*Molecular and Cellular Biology*)
Robert H. Fairclough, Ph.D., Associate Professor
(*Neurology*)
Peggy Farnham, Ph.D., Professor
(*Medical Pharmacology and Toxicology*)
Oliver Fiehn, Ph.D., Associate Professor
(*Genome Center and Bioinformatics*)
Andrew Fisher, Ph.D., Associate Professor
(*Chemistry*)
Paul G. FitzGerald, Ph.D., Professor
(*Cell Biology and Human Anatomy*)
J. David Furlow, Ph.D., Associate Professor
(*Neurobiology, Physiology, and Behavior*)
Charles S. Gasser, Ph.D., Professor
(*Molecular and Cellular Biology*)
Angela Gelli, Ph.D., Assistant Professor
(*Medical Pharmacology and Toxicology*)
Paramita Ghosh, Ph.D., Assistant Adjunct Professor
(*Urology*)
Cecilia Giulivi, Ph.D., Professor
(*Molecular Biosciences*)
Tzipora Goldkorn, Ph.D., Professor
(*Internal Medicine*)
Qizhi Gong, Ph.D., Assistant Professor
(*Cell Biology and Human Anatomy*)
Paul Hagerman, Ph.D., Professor
(*Biochemistry and Molecular Medicine*)
Nobuko Hagiwara, Ph.D., Assistant Professor
(*Internal Medicine: Cardiovascular Medicine*)
Fawaz Hajj, Ph.D., Assistant Professor (*Nutrition*)
Bruce D. Hammock, Ph.D., Professor (*Entomology*)
John H. Harada, Ph.D., Professor (*Plant Biology*)
Stacey L. Harmer, Ph.D., Assistant Professor
(*Plant Biology*)
Jerry L. Hedrick, Ph.D., Professor (*Animal Science*)
Distinguished Graduate Mentoring Award
Wolf-Dietrich Heyer, Ph.D., Professor (*Microbiology*)
Neil Hunter, Ph.D., Assistant Professor
(*Microbiology*)
Kentaro Inoue, Ph.D., Assistant Professor
(*Plant Sciences*)
Clarence I. Kado, Ph.D., Professor
(*Plant Pathology*)
Ken Kaplan, Ph.D., Associate Professor
(*Molecular and Cellular Biology*)
Daniel Kliebenstein, Ph.D., Assistant Professor
(*Plant Sciences*)
Ian Korf, Ph.D., Assistant Professor
(*Molecular and Cellular Biology*)
Stephen C. Kowalczykowski, Ph.D., Professor
(*Microbiology*)
Hsing-Jien Kung, Ph.D., Professor
(*Cancer Center UCDMC*)
J. Clark Lagarias, Ph.D., Professor
(*Molecular and Cellular Biology*)
Kit S. Lam, Ph.D., Professor
(*Hematology—Oncology*)
Janine LaSalle, Ph.D., Professor
(*Medical Microbiology and Immunology*)
Jerrold A. Last, Ph.D., Professor (*Internal Medicine*)
Walter Leal, Ph.D., Professor (*Entomology*)
Julie A. Leary, Ph.D., Professor
(*Molecular and Cellular Biology*)
Noelle L'Etiole, Ph.D., Assistant Professor
(*Center for Neuroscience*)
Su-Ju Lin, Ph.D., Assistant Professor (*Microbiology*)
Yu-Fung Lin, Ph.D., Assistant Professor
(*Physiology and Membrane Biology*)
Su Hao Lo, Ph.D., Associate Professor
(*Orthopaedic Surgery*)
Angie Louie, Ph.D., Assistant Professor
(*Biomedical Engineering*)
Paul Luciw, Ph.D., Professor (*Pathology*)
Kimberley A. McAllister, Ph.D., Associate Professor
(*Center for Neuroscience*)
Francis J. McNally, Ph.D., Associate Professor
(*Molecular and Cellular Biology*)
Claude F. Meares, Ph.D., Professor (*Chemistry*)

Quarter Offered: I=Fall, II=Winter, III=Spring, IV=Summer; 2009-2010 offering in parentheses

General Education (GE) credit: ArtHum=Arts and Humanities; SciEng=Science and Engineering; SocSci=Social Sciences; Div=Social-Cultural Diversity; Wrt=Writing Experience

Maria Mudryj, Ph.D., Associate Professor
(Microbiology and Immunology)

Florence Negre, Ph.D., Assistant Professor
(Plant Sciences)

Diana Myles, Ph.D., Professor
(Molecular and Cellular Biology)

Thomas W. North, Ph.D., Professor
(Center for Comparative Medicine)

Jodi M. Nunnari, Ph.D., Associate Professor
(Molecular and Cellular Biology)

Sharman D. O'Neill, Ph.D., Professor
(Plant Biology)

Rebecca Parales, Ph.D., Associate Professor
(Microbiology)

John A. Payne, Ph.D., Associate Professor
(Human Physiology and Membrane Biology)

Isaac N. Pessah, Ph.D., Professor
(Molecular Biosciences)

Jerry S. Powell, M.D., Professor
(Hematology—Oncology)

Ted Powers, Ph.D., Associate Professor
(Molecular and Cellular Biology)

Martin L. Privalsky, Ph.D., Professor (Microbiology)

Kathryn L. Radke, Ph.D., Professor (Animal Sciences)

Robert H. Rice, Ph.D., Professor
(Environmental Toxicology)

Pamela C. Ronald, Ph.D., Professor
(Plant Pathology)

Alan B. Rose, Ph.D., Associate Research Biochemist
(Molecular and Cellular Biology)

Lesilee Rose, Ph.D., Associate Professor
(Molecular and Cellular Biology)

Dewey D. Ryu, Ph.D., Professor
(Biochemical Engineering)

Earl Sawai, Ph.D., Associate Adjunct Professor
(Pathology)

Jonathan M. Scholey, Ph.D., Professor
(Molecular and Cellular Biology)

David Segal, Ph.D., Assistant Professor
(Medical Pharmacology and Toxicology)

Irwin H. Segel, Ph.D., Professor
(Molecular and Cellular Biology)

Kazuhiro Shiozaki, Ph.D., Associate Professor
(Microbiology)

Mitchell Singer, Ph.D., Professor
(Microbiology)

Henning Stahlberg, Ph.D., Associate Professor
(Molecular and Cellular Biology)

Dan Starr, Ph.D., Assistant Professor
(Molecular and Cellular Biology)

Valley J. Stewart, Ph.D., Professor (Microbiology)

Colleen Sweeney, Ph.D., Associate Professor
(Cancer Center UCDMC)

Fern Tablin, Ph.D., Professor
(Anatomy, Physiology and Cell Biology)

Yoshikazu Takada, Ph.D., Professor (Dermatology)

Steven M. Theg, Ph.D., Professor (Plant Biology)

James Trimmer, Ph.D., Professor
(Neurobiology, Physiology, and Behavior)

Andrew T. Vaughan, Ph.D. Professor
(Radiation Oncology)

Ana Vazquez, Ph.D., Assistant Adjunct Professor
(Otolaryngology)

John V. Voss, Ph.D., Associate Professor
(Biochemistry and Molecular Medicine)

P. Richard Vulliet, Ph.D., D.V.M., Professor
(Molecular Biosciences)

Robert H. Weiss, M.D., Professor
(Internal Medicine, Nephrology)

David Wilson, Ph.D., Professor
(Molecular and Cellular Biology)

Matthew Wood, Ph.D., Assistant Professor
(Environmental Toxicology)

Michael Wright, Ph.D., Assistant Professor
(Medical Pharmacology and Toxicology)

Reen Wu, Ph.D., Professor (Internal Medicine)

John I. Yoder, Ph.D., Professor (Plant Sciences)

Yohei Yokobayashi, Ph.D., Assistant Professor
(Biomedical Engineering)

Glenn Young, Ph.D., Professor
(Food Science and Technology)

Vincent A. Ziboh, Ph.D., Professor (Dermatology)

Karen Zito, Ph.D., Assistant Professor
(Neurobiology, Physiology, and Behavior)

Graduate Study. The Graduate Group in Biochemistry and Molecular Biology offers programs of

study and research leading to the M.S. and Ph.D. degrees. Strong preference is given to Ph.D. applicants. Graduate work involves a broad overview of biochemistry and molecular biology in addition to specialization in one or more areas. Examples of areas of emphasis include gene expression, molecular basis of development, protein structure, molecular virology, protein synthesis, enzymology, signal transduction, membrane transport and structural biology. For more information contact the chairperson of the group.

Graduate Advisers. R. Fairclough (Neurology), T. Powers (Molecular and Cellular Biology), L. Rose (Molecular and Cellular Biology), M. Singer (Microbiology)

Courses in Biochemistry and Molecular Biology (BMB)

Graduate Courses

290. Seminar (1)

Seminar—1 hour. Prerequisite: consent of instructor. (S/U grading only.)—I, II, III. (I, II, III.)

299. Research (1-12)

(S/U grading only.)

Biological Chemistry

See **Medicine, School of**, on page 367.

Biological and Agricultural Engineering

(College of Agricultural and Environmental Sciences)

Michael J. Delwiche, Ph.D., Chairperson of the Department

Department Office. 2030 Bainer Hall; (530) 752-0102;

<http://www.engr.ucdavis.edu/~bae>

Faculty

Michael J. Delwiche, Ph.D., Professor

Julia Fan, Ph.D., Assistant Professor

Fadi A. Fathallah, Ph.D., Associate Professor

D. Ken Giles, Ph.D., Professor

Mark E. Grismer, Ph.D., Professor
(Land, Air, and Water Resources)

Bruce R. Hartsough, Ph.D., Professor

Bryan M. Jenkins, Ph.D., Professor

John M. Krochta, Ph.D., Professor
(Food Science and Technology)

Miguel A. Mariño, Ph.D., Professor
(Land, Air, and Water Resources)

Kathryn McCarthy, Ph.D., Professor
(Food Science and Technology)

Michael J. McCarthy, Ph.D., Professor
(Food Science and Technology)

Ning Pan, Ph.D., Professor (Textiles and Clothing)

Raul H. Piedrahita, Ph.D., Professor

Richard E. Plant, Ph.D., Professor (Plant Sciences)

Uriel A. Rosa, Ph.D., Assistant Professor

R. Paul Singh, Ph.D., Professor

David C. Slaughter, Ph.D., Professor

Shrinivasa K. Upadhyaya, Ph.D., Professor

Jean S. VanderGheynst, Ph.D., Associate Professor

Wesley W. Wallender, Ph.D., Professor
(Land, Air, and Water Resources)

Ruihong Zhang, Ph.D., Professor

Emeriti Faculty

Norman B. Akesson, M.S., Professor Emeritus

Robert H. Burgy, M.S., Professor Emeritus

William J. Chancellor, Ph.D., Professor Emeritus

Pictiaw (Paul) Chen, Ph.D., Professor Emeritus

Roger E. Garrett, Ph.D., Professor Emeritus

John R. Goss, M.S., Professor Emeritus

S. Milton Henderson, M.S., Sc.D., Professor Emeritus

David J. Hills, Ph.D., Professor Emeritus

R. Larry Merson, Ph.D., Professor Emeritus

John A. Miles, Ph.D., Professor Emeritus

Stanton R. Morrison, Ph.D., Professor Emeritus

James W. Rumsey, M.S., Senior Lecturer Emeritus

Thomas R. Rumsey, Ph.D., Professor Emeritus

Verne H. Scott, Ph.D., Professor Emeritus

Henry E. Studer, M.S., Professor Emeritus

Wesley E. Yates, M.S., Professor Emeritus

Affiliated Faculty

Daniel Downey, Ph.D., Assistant Research Engineer

Dennis R. Heldman, Ph.D., Adjunct Professor

Zhongli Pan, Ph.D., Associate Adjunct Professor

Herbert B. Scher, Ph.D., Research Engineer

James F. Thompson, M.S., Specialist in Cooperative Extension

Major Programs and Graduate Study. For the Bachelor of Science program, see the major in [Engineering: Biological and Agricultural](#), on page 227; for graduate study, see also [Graduate Studies](#), on page 104.

Minor Programs. The Department of Biological and Agricultural Engineering offers two minors through the College of Agricultural and Environmental Sciences: Geographic Information Systems and Precision Agriculture.

The minor in Geographic Information Systems is open to all majors, including those in engineering. This minor is for students interested in information processing of spatial data related to remote sensing for geographical and environmental planning and related areas.

The minor in Precision Agriculture is open to all majors, including those in engineering, and acquaints students with recent developments and their applications to agriculture, in geographic information systems, global positioning systems, and variable rate technologies.

Courses. Courses are listed under Applied Biological Systems Technology, and Engineering: Biological and Agricultural ([Biological Systems Engineering](#)).

Biological Sciences

(College of Biological Sciences)

College of Biological Sciences, Dean's Office. 202 Life Sciences

(530) 752-0410; <http://www.biosci.ucdavis.edu>

Faculty

The Biological Science major and the Bodega Marine Laboratory Spring Quarter Program are offered jointly by the departments of the college. The faculty in the college are members of the Departments of Evolution and Ecology; Microbiology; Molecular and Cellular Biology; Neurobiology, Physiology, and Behavior; Plant Biology. See each department for a list of their faculty.

The Biological Sciences Major

(Departments of Evolution and Ecology; Microbiology; Molecular and Cellular Biology; Neurobiology, Physiology, and Behavior; and Plant Biology)

The Program. The Biological Sciences major is broad in concept, spanning the numerous core disciplines of biology. The Bachelor of Science program includes mathematics, general and organic chemistry, physics, and biology. While emphasizing breadth, the B.S. degree program also features an area of emphasis requirement that provides concentrated attention on one facet of biology at the upper division level. Each area of emphasis coincides with one of the departments of the college. The Bachelor of Arts program emphasizes biological diversity, evolution, and ecology, all built on a foundation of general and organic chemistry, physics and biology.