Microbiology and Molecular Genetics

Formerly Microbiology (College of Biological Sciences)

Wolf-Dietrich Heyer, Ph.D., Chairperson of the Department

Department Office, 357 Briggs Hall
530-752-2626; http://microbiology.ucdavis.edu

Faculty

Primary Department Members
Scott C. Dawson, Ph.D., Associate Professor
Wolf-Dietrich Heyer, Ph.D., Professor
Neil Hunter, Ph.D., Professor Emeritus
Michele M. Igo, Ph.D., Professor
Stephen C. Kowalczykowski, Ph.D., Distinguished Professor
Su-Ju Lin, Ph.D., Associate Professor
John C. Meeks, Ph.D., Research Professor
Lorena Navarro, Ph.D., Assistant Professor
Douglas C. Nelson, Ph.D., Professor
Rebecca Parales, Ph.D., Professor
Martin L. Privalsky, Ph.D., Distinguished Professor
John R. Roth, Ph.D., Distinguished Professor
Kazuhiro Shizaki, Ph.D., Adjunct Professor
Mitchell H. Singer, Ph.D., Professor
Valley J. Stewart, Ph.D., Professor
Lileng Xu, Ph.D., Assistant Professor

Secondary Department Members
Sean Burgess, Ph.D., Professor
Jodi Nummi, Ph.D., Professor
Ted Powers, Ph.D., Professor

Emeriti Faculty
Stanley W. Arntz, Ph.D., Professor Emeritus
Paul Baumann, Ph.D., Professor Emeritus
John L. Ingraham, Ph.D., Professor Emeritus
JaKeue S. Manning, Ph.D., Professor Emeritus
David Pratt, Ph.D., Professor Emeritus
Chester W. Price, Ph.D., Research Professor
Merna R. Villarejo, Ph.D., Professor Emerita
Mark L. Wheelis, Ph.D., Senior Lecturer Emeritus

Scientific Grants Office

Clinical Faculty

Catherine A. Arrand, M.D., Professor
Andrew J. Blum, M.D., Associate Professor
Steven R. Borenstein, M.D., Professor
J. Craig Danna, Ph.D., Professor
Jonathan D. Eisen, Ph.D., Professor
Saul H. Edelstein, M.D., Professor
Pamela C. Emberton, M.D., Associate Professor
Nicole A. Granger, Ph.D., Associate Professor
Dane R. Goldenberg, M.D., Professor
Michelle C. Graham, Ph.D., Associate Professor
Jason W. King, M.D., Ph.D., Associate Professor
Haiyun Liu, M.D., Associate Professor
John J. Macher, M.D., Professor
M. Christine Metz, M.D., Associate Professor
Seth W. M. Noyes, M.D., Ph.D., Associate Professor
Ronald A. Quay, M.D., Professor
Eugene A. Spano, M.D., Professor
Hiromi Ueki, M.D., Associate Professor

Nursing Faculty

Evelyn I. Ackerman, M.S., R.N., Professor
Johanna J. M. Aronoff, M.S., R.N., Assistant Professor
Carol A. Bailey, M.S., R.N., Assistant Professor
Linda H. Barlow, M.S., R.N., Assistant Professor
Pamela J. Beneski, M.S., R.N., Assistant Professor
Sue B. Berenblit, M.S., R.N., Assistant Professor
Linda L. Bianchi, M.S., R.N., Assistant Professor
Sandra L. Brown, M.S., R.N., Assistant Professor
Susan C. Bunton, M.S., R.N., Assistant Professor
Sharon F. Callahan, M.S., R.N., Assistant Professor
Marcia L. Clancy, M.S., R.N., Assistant Professor
Mary J. Conway, M.S., R.N., Assistant Professor
Linda A. Dillabough, M.S., R.N., Assistant Professor
Linda B. Engeler, M.S., R.N., Assistant Professor
Marilyn E. Fossum, M.S., R.N., Assistant Professor
Margaret L. Galligher, M.S., R.N., Assistant Professor
Linda H. Gump, M.S., R.N., Assistant Professor
Mary Jo Hemenway, M.S., R.N., Assistant Professor
R. Mary Jones, M.S., R.N., Assistant Professor
Helen A. Knezevic, M.S., R.N., Assistant Professor
Barbara L. Kuehn, M.S., R.N., Assistant Professor
Linda L. LaFaro, M.S., R.N., Assistant Professor
Judith L. Leary, M.S., R.N., Assistant Professor
Ruth E. Linkswiler, M.S., R.N., Assistant Professor
Cindy A. Martin, M.S., R.N., Assistant Professor
Linda A. Montgomery, M.S., R.N., Assistant Professor
Nancy P. Novak, M.S., R.N., Assistant Professor
Sandy L. Peterson, M.S., R.N., Assistant Professor
Barbara A. Philbin, M.S., R.N., Assistant Professor
Sandra J. Podolak, M.S., R.N., Assistant Professor
Jennifer A. Pringle, M.S., R.N., Assistant Professor
Barbara J. Quattrocki, M.S., R.N., Assistant Professor
Sandra A. Rahm, M.S., R.N., Assistant Professor
Elizabeth H. Ricker, M.S., R.N., Assistant Professor
Linda A. Smith, M.S., R.N., Assistant Professor
Katherine A. Spence, M.S., R.N., Assistant Professor
Barbara J. Stablein, M.S., R.N., Assistant Professor
Andrea L. Staudhammer, M.S., R.N., Assistant Professor
Linda L. Turtel, M.S., R.N., Assistant Professor
Sharon M. Turo, M.S., R.N., Assistant Professor
Lois C. Tracy, M.S., R.N., Assistant Professor
Gail K. Uehlinger, M.S., R.N., Assistant Professor
Gwen E. Veith, M.S., R.N., Assistant Professor
Joan R. Walsh, M.S., R.N., Assistant Professor
Barbara J. Watts, M.S., R.N., Assistant Professor

Microbiology

See Microbiology and Molecular Genetics, on page 423; Medical Microbiology (MMI), on page 410; Microbiology (A Graduate Group), on page 423; and Pathology, Microbiology, and Immunology (PMI), on page 540.

Meteorology

See Atmospheric Science, on page 173.

Mexican-American (Chicano) Studies

See Chicana/Chicano Studies, on page 192.

Quarter Offered: I-Fall, II-Winter, III-Spring, IV-Summer; 2015-2016 offering in parentheses.

Pre-Fall 2011 General Education (GE): ArtHum=Arts and Humanities; SciEng=Science and Engineering; SocSci=Social Sciences; AMGH=American Cultures; DD=Dominant Diversity; Wrt=Writing Experience

Fall 2011 and Revised General Education (GE): ArtHum=Arts and Humanities; SciEng=Science and Engineering; SocSci=Social Sciences; AMGH=American Cultures; DD=Dominant Diversity; OL=Oral Skills; QL=Quantitative; SL=Scientific; Vl=Visual; WC=World Cultures; Wrt=Writing Experience
104. General Microbiology (4)
Lecture—4 hours. Prerequisite: Biological Sciences 101; 103 or 105. Designed for students continuing in microbiology or using microorganisms as tools for the study of genetics and biochemistry. Biology of microorganisms, including viruses, archaea, bacteria, and eukaryotic microbes. Topics include microbial structure, growth, antibiotics, pathogenesis, immunology, and epidemiology. Only two units of credit for students who have taken course 101. Not open for credit to students who have completed course 102. GE credit: SciEng | QL, SE — I. (I.) Stewart

105. Microbial Diversity (3)
Lecture—3 hours. Prerequisite: course 102 or 104; Biological Sciences 103 or 105. Survey of microbial diversity in the three domains of Life: Bacteria, Archaea, and microbial eukaryotes. Emphasizes microbial evolution and phylogeny, physiology and metabolism, global biogeochemical cycles, environmental adaptations, and genomic methods for analyzing eukaryotic-independent microbial diversity and microbial communities. GE credit: SciEng | SE — II. (II.) Dawson, Parales

115. Recombinant DNA Cloning and Analysis (3)
Lecture—3 hours. Prerequisite: Biological Sciences 101 or equivalent. Cloning and analysis of recombinant DNA, with emphasis on Escherichia coli host-vector systems. DNA-modifying enzymes; vectors and their use, manipulation and expression of insert DNA; polymerase chain reaction; and sequence annotation. Graduate students see course 199. GE credit: SciEng | SE — I. (I.) Xu

120. Microbial Ecology (3)
Lecture—3 hours. Prerequisite: course 105, Biological Sciences 102 or 105. Interactions between non-pathogenic microorganisms and their environment, emphasizing physiological and metabolic characteristics of various groups and their adaptation to and modification of specific environments. GE credit: SciEng | SE — Nelson

140. Bacterial Physiology (3)
Lecture—3 hours. Prerequisite: Biological Sciences 101, 102, 103 (103 may be taken concurrently), or Biological Sciences 101, 105. Microbiology 102 recommended. Fundamentals of bacterial growth and bacterial responses to environmental stresses. Topics will include carbon and nitrogen regulation, growth rate control, exponential growth, and physiology and chemotaxis. Not open for credit to students who have completed course 130A. Offered irregularly. GE credit: SciEng | SE.
199. Special Study for Advanced Undergraduates (1-5)
Prerequisite: consent of instructor. [P/NP grading only]—I, II, III
Graduate

2008. Advanced Bacteriology (3)
Lecture—3 hours. Prerequisite: course 200A. Intended for first year graduate students in microbiology and closely related fields. Advanced topics in phylageny, physiology, and diversity of bacteria. Offered irregularly.—I, II, Parales

215. Recombinant DNA (3)
Lecture—3 hours. Prerequisite: Biological Sciences 101, 102, 103 or equivalent. Application of recombinant DNA technology to modern problems in biology, biochemistry, and genetics, emphasizing molecular cloning strategies, choice of vectors, preparation of insert DNA, and selection procedures. —I. (8) Privalsky

262. Advanced General and Molecular Virology (3)
Lecture—3 hours. Prerequisite: graduate standing. Advanced integrated presentation of animal, bacterial, and plant viruses, including their structure, modes of regulation, expression and replication, and effects on host cells and organisms. Offered in alternate years.—II. Luciw

263. Principles of Protein-Nucleic Acid Interactions (3)
Lecture—3 hours. Prerequisite: advanced graduate standing and completion of one year of basic graduate course work in biochemistry, biophysics, chemistry, genetics, microbiology, or molecular biology. Physical basis of protein-nucleic acid interaction. Topics include nucleic acid recognition by proteins, thermodynamics of protein-nucleic acid stability, and kinetics of binding process for both non-specific and sequence-specific nucleic acid binding proteins. Emphasis on systems that represent paradigms in protein-nucleic acid interactions. Offered irregularly. Offered irregularly.—Kowalczykowski

274. Seminar in Genetic Recombination (1)
Seminar—1 hour. Prerequisite: graduate standing, consent of instructor. Biochemical and genetic aspects of genetic recombination in prokaryotes and eukaryotes. Mechanisms of recombination and biochemical and genetic characteristics of recombination proteins. Proteins include DNA strand exchange, DNA helicases, and Holliday junction resolving proteins. May be repeated for credit. [S/U grading only]—I, II, III

275. Seminar in DNA Repair and Recombination (1)
Seminar—1 hour. Prerequisite: consent of instructor; graduate standing in microbiology or closely related field. Review and discussion of current research and literature in DNA repair and recombination with presentations by individual students and invited speakers. May be repeated for credit. [S/U grading only]—II, III

276. Advanced Concepts in DNA Metabolism (3)
Lecture—3 hours. Prerequisite: Molecular and Cellular Biology 221C or Genetics 201C or equivalent. Advanced introduction to genetic concepts in chemical and molecular biology. Topics may be repeated for credit. [S/U grading only]—I, II, III

291. Selected Topics in Microbiology (1)
Seminar—1 hour. Prerequisite: graduate standing and consent of instructor. Current progress in microbiology and cellular and molecular biology. May be repeated for credit. [S/U grading only]—I, II, III

292. Seminar in Bacterial Phyiology and Genetics (1)
Seminar—1 hour. Prerequisite: consent of instructor, graduate standing in microbiology or closely related field. Review and discussion of current research and literature in bacterial physiology and genetics, with presentations by individual students. [S/U grading only]—II, III

298. Group Study (1-5)
Prerequisite: consent of instructor. [S/U grading only]—I, II, III

299. Research (1-12)
[S/U grading only]—II, III

Professional

399. Teaching Assistant Training Practicum (1-4)
Prerequisite: graduate standing. May be repeated for credit. [S/U grading only]—I, II, III

Microbiology
(A Graduate Group)

Glenn Young Ph.D., Chairperson of the Group

Group Office, 2143 Tupper Hall (Medical: Microbiology and Immunology Dept.) 530-752-0262

Faculty

David Asmuth, M.D., Ph.D., Assistant Professor (UCDHS: Infectious Diseases, Div. of)
Shota Atsumi, Ph.D., Assistant Professor (Chemistry)
Enoch P. Baldwin, Ph.D., Associate Professor (Molecular and Cellular Biology)
Nicole Baumgartner, D.V.M., Ph.D., Professor (Center for Comparative Medicine)
Andrew Baumbler, Ph.D., Professor (Medical Microbiology and Immunology)
Charles L. Bevins, Ph.D., Professor (Medical Microbiology and Immunology)
Linda F. Bisson, Ph.D., Professor (Viticulture and Enology)
Barbara A. Byrne, D.V.M., Ph.D., Associate Professor (Pathology, Microbiology, and Immunology)
R. Holland Cheng, Ph.D., Professor (Molecular and Cellular Biology)
Satya Dankar, Ph.D., Professor (Medical Microbiology and Immunology)
Scott Dawson, Ph.D., Professor (Microbiology)
Katherine DeKiemer, Ph.D., M.P.H., Associate Professor (Medical Microbiology and Immunology)
Jonathan Eisen, Ph.D., Professor (Evolution & Ecology and Medical Microbiology & Immunology)
Julia Fan, Ph.D., Assistant Professor (Biological & Agricultural Engineering)
Heather Fritz, D.V.M., Ph.D., Lecturer, Assistant Research Scientist (Pathology, Microbiology & Immunology)
Angela Gelli, Ph.D., Associate Professor (Pharmacology and Toxicology)
Volkmair Heinrich, Ph.D., Associate Professor (Biomedical Engineering)
Wolf-Dietrich Heyer, Ph.D., Professor (Microbiology)
Kathryn DeRiemer, Ph.D., MPH, Adjunct Associate Professor (Medical Microbiology & Immunology)
Patrick S. C. Leung, Ph.D., Adjunct Professor (Internal Medicine)
Woutrina Miller, Ph.D., Assistant Adjunct Professor (Medical Microbiology and Immunology)

Graduate Study. The Graduate Group in Microbiology offers study and research leading to the M.S. and Ph.D. degrees. Strong preference is given to doctoral applicants. The group offers study in modern molecular approaches to microbiological problems. Areas of research span fundamental, applied, and pathogenic microbiology, including bacterial and viral pathogenesis, microbial ecology, microbial genetics and genetics, microbial physiological and developmental, microbial ecology and environmental microbiology, cancer biology, and bioengineering and bioremediation. For information on the graduate study and undergraduate research offerings, please see the Graduate Group office.

Affiliated Faculty

Kathryn DeRiemer, Ph.D., MPH, Adjunct Associate Professor (Medical Microbiology & Immunology)
Patrick S. C. Leung, Ph.D., Adjunct Professor (Internal Medicine)

Fall 2011 and on Revised General Education (GE): AH—Arts and Humanities; SE—Science and Engineering; SS—Social Sciences; AC—American Cultures; DD—Domestic Diversity; VL—Visual; WC—World Cultures; WE—Writing Experience