research activities: designed for advanced undergraduate students. May be repeated for credit. (P/NP grading only.)—F, W, S. (F, W, S.)

191. Introduction to Research for Advanced Undergraduates (1)
Seminar—1 hour. Prerequisite: Biological Sciences 2A or equivalent. Restricted to upper division standing. Discussion of faculty research focusing on the biochemistry, genetics, and cell biology of microorganisms, along with ways undergraduates can participate in research projects of faculty members. May be repeated three times for credit. (P/NP grading only.) GE credit: SE.—S. (S.) Hunter

192. Internship (1-12)
Internship—3.36 hours. Technical and/or professional experience on or off campus. Supervised by a member of the Microbiology Section faculty. (P/NP grading only.)

194H. Microbiology Honors Research (2)
Independent study—6 hours. Prerequisite: senior standing, eligibility for college honors; completion of six units of 199 in microbiology consent of section. Continuation of an individual microbiological research project culminating in writing of a senior thesis under a faculty director. (P/NP grading only.)—F, W, S. (F, W, S.)

197T. Tutoring in Microbiology (1-12)
Prerequisite: upper division standing and consent of instructor. Assisting the instructor in the instruction of a section of regular courses by tutoring individual or small groups of students in the laboratory, in voluntary discussion groups, or other voluntary course activities. May be repeated for credit. (P/NP grading only.)—F, W, S. (F, W, S.)

198. Directed Group Study (1-5)
Prerequisite: consent of instructor. (P/NP grading only.)

199. Special Study for Advanced Undergraduates (1-5)
Prerequisite: consent of instructor. (P/NP grading only.)—F, W, S. (F, W, S.)

Graduate

200B. Advanced Bacteriology (3)
Lecture—3 hours. Prerequisite: course 200A. Intended for first-year graduate students in microbiology and closely related fields. Advanced topics in phylogeny, physiology, and diversity of bacteria. Offered irregularly.—Dawson, 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 biochemistry, biology, and genetics, emphasizing molecular cloning techniques, choice of vectors, preparation of insert DNA, and selection procedures. (F) 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 replication, expression and replication, and effects on host cells and organisms. Offered in alternate years.—W. Luciw

263. Principles of Protein–Nucleic Acid Interactions (2)
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 processes for both non-specific and sequence-specific nucleic acid binding proteins. Emphasis on concepts and principles that represent paradigms in protein–nucleic acid interactions. 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.) Offered irregularly.—Kowalczykowski

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.)—W. S. (F, S.) Heyer

276. Advanced Concepts in DNA Metabolism (3)
Lecture—3 hours. Prerequisite: Molecular and Cellular Biology 221C or Genetics 201C or equivalent course recommended. DNA damage checkpoints, homologous recombination, and meiotic recombination. An advanced treatment of the biochemistry and current literature to discuss emerging principles and current models in these research areas. Offered in alternate years.—W. S. Heyer

290C. Advanced Research Conference (1)
Discussion/conference—1 hour. Prerequisite: graduate standing and consent of instructor. Presentation and critical discussion of staff research activities. Designed for advanced graduate students. May be repeated for credit. (S/U grading only.)—F, W, S. (F, W, S.)

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.)—F, W, S. (F, W, S.)

292. Seminar in Bacterial Physiology 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.)—F, W, S. (F, W, S.)

298. Group Study (1-5)
Prerequisite: consent of instructor. (S/U grading only.)—F, W, S. (F, W, S.)

299. Research (1-12)
Professional—1 hour. (S/U grading only.)—F, W, S. (F, W, S.)

Professional

296. Teaching Assistant Training Practicum (1-4)
Prerequisite: graduate standing. May be repeated for credit. (S/U grading only.)—F, W, S. (F, W, S.)

Microbiology (A Graduate Group)

Renée M. Tsolis, Ph.D., Chairperson of the Group

Group Office. 3143 Tupper Hall (Medical: Microbiology and Immunology) 530-752-0262

Faculty

David Asmuth, M.D., Ph.D., Associate Professor (UCDHS: Infectious Diseases, Div. of) Shota Atsumi, Ph.D., Associate Professor (Chemistry) Enoch P. Baldwin, Ph.D., Associate Professor (Molecular and Cellular Biology) Nicole Baumgarth, D.V.M., Ph.D., Professor (Center for Comparative Medicine) Andreas Baumler, Ph.D., Professor (Medical Microbiology and Immunology)

Alison M. Berry, Ph.D., Professor (Plant Sciences)
Charles L. Revis, 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)
Kim Ho, Ph.D., Associate Professor (Surgery and Pediatric Regenerative Medicine) Gitta Coaker, Ph.D., Associate Professor (Plant Pathology)
Sean R. Collins, Ph.D., Assistant Professor (Microbiology & Molecular Genetics) Patricia A. Conrad, Ph.D., Professor (Pathology, Microbiology, and Immunology)
Sateya Dandekar, Ph.D., Professor (Medical Microbiology and Immunology) Scott Dawson, Ph.D., Associate Professor (Microbiology & Molecular Genetics) Jonathan Eisen, Ph.D., Professor (Evolution & Ecological Microbiology & Immunology) Bryce Falk, Ph.D., Professor (Plant Pathology)
Juli Fei, Ph.D., Associate Professor (Biological & Agricultural Engineering) Melanie Gareau, Ph.D., Assistant Professor (Anatomy, Physiology & Cell Biology) Angela Gelli, Ph.D., Assistant Professor (Pharmacology and Toxicology) Dennis Hartigan-O’Connor, M.D., Ph.D., Assistant Professor (Medical Microbiology & Medical Genetics) Volkmar Heinrich, Ph.D., Associate Professor (Biomedical Engineering) Matthias Hess, Ph.D., Assistant Professor (Animal Science)
Wolf-Dietrich Heyer, Ph.D., Professor (Microbiology & Molecular Genetics) Neil Hunter, Ph.D., Professor (Microbiology & Molecular Genetics) Michelle M. Igo, Ph.D., Professor (Microbiology & Molecular Genetics) Stephen C. Kowalczykowski, Ph.D., Professor (Microbiology & Molecular Genetics) Johan Leveau, Ph.D., Associate Professor (Plant Pathology) Su-Ju Lin, Ph.D., Professor (Microbiology & Molecular Genetics) Bo Liu, Ph.D., Professor (Plant Biology) Frank Lorge, Ph.D., Professor (Civil and Environmental Engineering) Paul Lucic, Ph.D., Professor (Medical Pathology) Shelley Luckhart, Ph.D., Professor (Medical Microbiology and Immunology) Maria Marco, Ph.D., Associate Professor (Food Science & Technology) Stephen J. McSorley, Ph.D., Professor (Anatomy, Physiology & Cell Biology) John C. Meeks, Ph.D., Professor Emeritus (Microbiology & Molecular Genetics) Christopher J. Miller, Ph.D., Professor (Pathology, Microbiology, and Immunology) David A. Mills, Ph.D., Professor (Viticulture and Enology) Lorena Navarro, Ph.D., Assistant Professor (Microbiology & Molecular Genetics) Douglas C. Nelson, Ph.D., Professor Emeritus (Microbiology & Molecular Genetics) Rebecca E. Parales, Ph.D., Professor (Microbiology & Molecular Genetics) Niels C. Pedersen, Ph.D., Professor (Medicine and Epidemiology) Martin L. Privalsky, Ph.D., Professor (Microbiology & Molecular Genetics) Katherine S. Ralston, Ph.D., Assistant Professor (Medical Microbiology & Immunology) Jorge Rodrigues, Assistant Professor (Land, Air and Water Resources) Pamela Ronald, Ph.D., Professor (Plant Pathology) John R. Roth, Ph.D., Professor (Microbiology & Molecular Genetics) Jeroen Saeij, Ph.D., Associate Professor (Pathology, Microbiology and Immunology)

Microbiology (A Graduate Group) 459

Fall 2011 and on Revised General Education (GE) AA=Arts and Humanities; SS=Science and Engineering; SS=Social Sciences, ACGH=American Culture; DD=Dominant Diversity; DL=Oral Skills, QL=Quantitative, SL=Scientific, VS=Visual, WC=World Cultures, WE=Writing Experience Pre-Fall 2011 General Education (GE): Arthum=Arts and Humanities; Scieng=Science and Engineering; Socsci=Social Sciences; Div=Domestic Diversity; Wrt=Writing Experience Quarter Offered: F=Fall, W=Winter, S=Spring, Su=Summer; 2011-2018 offering in parentheses
Middle East/South Asia Studies

Michael A. Savageau, Ph.D., Professor
(Chemical and Biomolecular Engineering)
Lark Schneider, Ph.D., Assistant Professor
(Pathology, Microbiology & Immunology)
Barbara L. Shacklett, Ph.D., Professor
(Medical Microbiology and Immunology)
Mitchell H. Simon, Ph.D., Professor
(Pathology, Microbiology & Molecular Genetics)
Jay V. Solnick, M.D., Ph.D., Professor
(Internal Medicine)
Esteban Sato-Martinez, Ph.D., Assistant Professor
(Veterinary Medicine & Epidemiology)
Jeffrey L. Stolt, Ph.D., Professor
(Pathology, Microbiology, and Immunology)
Dawn Sumner, Ph.D., Professor
(Earth and Planetary Sciences)
Ilia Tagkapoulos, Ph.D., Assistant Professor
(Computer Science)
George Thompson, M.D., Assistant Professor
(Medical Microbiology & Immunology)
Jase V. Torres, Ph.D., Professor
(Medical Microbiology and Immunology)
Renée M. Tsolis, Ph.D., Professor
(Medical Microbiology and Immunology)
Bart Weiner, Ph.D., Professor
(Population Health & Reproduction)
Stefan Wurz, Ph.D., Professor
(Civil and Environmental Engineering)
Lifeng Xu, Ph.D., Assistant Professor
(Microbiology & Molecular Genetics)
Tilahun D. Yilma, Ph.D., Professor
(Pathology, Microbiology, and Immunology)
Glenn M. Young, Ph.D., Professor
(Food Science and Technology)
Huaqiu Zhou, Ph.D., Associate Professor
(Animal Science)

Affiliated Faculty
Kathryn DeKemer, Ph.D., MPH, Adjunct Associate Professor
(Pathology, Microbiology & Immunology)
Patrick S. C. Leung, Ph.D., Adjunct Professor
(Internal Medicine)
Ellen E. Sparger, D.V.M., Ph.D., Associate Adjunct Professor
(Veterinary Medicine and Epidemiology)

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 microbiology, microbial genomics and genetics, microbial physiology and development, microbial ecology and environmental microbiology, cancer biology, and biotechnology. Information on the graduate study and undergraduate preparation for the program contact a graduate adviser or the Chairperson of the Group.

Graduate Advisers. S. C. Dawson (Microbiology & Molecular Genetics), L.F. Bisson (Viticulture and Enology), R.E. Parales (Microbiology & Molecular Genetics), E.E. Sparger (Veterinary Medicine), R. Tzolis (Medical Microbiology & Immunology), B. Weiner (Veterinary Medicine & Epidemiology)

Courses in Microbiology (MBI)

Graduate

200A. Microbiological Biology (3)
Lecture—3 hours. Prerequisite: course Microbiology 102 or equivalent, permission in Microbiology. Designed to provide an overview of various aspects of microbiology and microbial processes. Topics will include microbial genetics and genomics, microbial metabolism, signaling, and adaptations. — F. [F] Weiner

2011. Advanced Microbiology Laboratory Rotations (5)
Laboratory—15 hours. Two-week assignments in microbial research laboratories. Individual research problems with emphasis on methodological/procedural experience and experimental design. May be repeated twice for credit. — F, W, S. [F, W, S]

210. Microbial Interactions (2)
Lecture—2 hours. Prerequisite: course 200A or consent of instructor. Analysis of the molecular level of interactions of microbes with the environment, microbes with other microbes, and microbes in symbiotic and/or pathogenic associations with eukaryotic hosts. Topics discussed will vary. May be repeated for credit. — F, W, S. [F, W, S]

290C. Advanced Research Conference (1)
Discussion/conference—1 hour. Prerequisite: graduate standing and/or consent of instructor. Presentation and critical discussion of staff research activities. Designed for advanced graduate students. May be repeated for credit. [S/U grading only]— F, W, S. [F, W, S]

299. Research (1-12)
Research under the guidance of dissertation committee. [S/U grading only]

Middle East/South Asia Studies

[College of Letters and Science]
Smriti Srinivas, Ph.D., Program Director
Program Office. 1272 Social Science & Humanities 530754-4926; http://mesa.ucdavis.edu

Committee in Charge
Ali Anooshahr, Ph.D. (History)
Flagg Miller, Ph.D. (Religious Studies)
Jocelyn Sharlet, Ph.D. (Comparative Literature)
Naha Radwan, Ph.D. (Comparative Literature)
Smriti Srinivas, Ph.D. (Anthropology)
Suad Joseph, Ph.D. (Anthropology, Women and Gender Studies)
Sudipta Sen, Ph.D. (History)
Susan Miller, Ph.D. (History)

The Major Program
A study of the Middle East and South Asia as a whole allows students to explore a unique set of issues of both historical and contemporary importance. In order to guide students in comparative analysis, faculty members keep their inquiries through coursework on ancient, medieval, and early modern empires and political systems. Given the dynamism of modern cultural contexts, majors are invited to choose from a wide range of variables including the evolution of states along with new understandings of citizenship, the rise and development of nationalist movements, political conflicts informed by religious majorities, the nuclearization of India and Pakistan, the growth of information societies and computer industries, the production of oil and its social and cultural legacies, labor migrations, urbanization, the appearance of sizeable middle classes, transnational literary movements using sophisticated media technologies, the expansion and intrusion of global security regimes into everyday life, and peace offers and deals that shape struggles for justice across the world. Our program’s focus on both the Middle East and South Asia is a pioneering achievement in the United States rivaled by only four other colleges or universities. By the end of their studies, majors will have acquired an in-depth understanding of the common historical experience shared by many peoples in these regions, and of the legacies of culture, social exchange, power and empowerment across diverse settings. Students are also required to complete at least two years of training in a language appropriate to their area of expertise.

The major in Middle East/South Asia Studies at UC Davis offers a unique approach to exploring an area of study by offering courses, exchange programs, and seminars in a variety of fields, including history, culture, literature and film, religion, family structures, gender relations, media, anthropology and interna-
tional relations, development, diasporas, and urbanism. Students who complete our major will be well suited to embark on careers in non-governmental organizations, journalism and media industries, education and research, governmental service and diplomacy, and business.

Programs, Internships, and Career Alternatives. Many internship opportunities are available for the Middle East/South Asia Studies major and minor, consult with your adviser.

Middle East/South Asia Studies Abroad Program. University of California Education Abroad Program. More information can be found at http://eap.ucop.edu/ and http://summer-abroad.ucdavis.edu/.

A.B. Major Program Requirements:

Preparatory Subject Matter………………8-38

History 6, 8………………….…………………8
Two years (or the equivalent) of Arabic, Hebrew, or Hindi/Urdu (other Middle East/South Asia Studies regional languages accepted with petition). Arabic 1, 2, 3, 21, 22, 23; Hebrew 1, 2, 3, 21, 22, 23; Hindi/Urdu 1, 2, 3, 21, 22, 23…………………30

Depth Subject Matter…………………40-42
Middle East/South Asia Studies 100………4
Middle East/South Asia Studies 180………4
Two courses from: Anthropology 142; Comparative Literature 166; History 113, 190A, 190B, 190C, 193A, 193E, Political Science 135, 136; Religion Studies 160, 162; Women’s Studies 178A, 184 ………8 ………8
Two courses from: Anthropology 145; History 102Q, 196A, 196B, Religious Studies 170; Women’s Studies 178A ………8 ………8
Additional Electives from Core Course List (below)…………………16-18

Total Units for Major ……………………48-80

Core Course List:
Anthropology 142, 145; Arabic 1, 2, 3, 21, 22, 23; Art History 1E, 155; Asian American Studies 150F, 188F; Classics 1; Comparative Literature 53B, 53C, 166; Hebrew 1, 2, 3, 21, 22, 23; Hindi/Urdu 1, 2, 3, 21, 22, 23; History 102Q, 102R, 111, 190A, 190B, 190C, 193A, 193E, 196A, 196B; Middle East/South Asia Studies 92, 98, 99, 180, 192, 198, 199; Music 129B, 148; Political Science 135, 136; Religious Studies 21, 23, 60, 65C, 68, 160, 161, 162, 170; Women’s Studies 178A, 178B, 184.

Note: With prior consultation with an adviser, students can petition in the Program Committee in advance to accept other elective courses toward the major program, including language courses.

Note: While some courses are identified as fulfilling more than one requirement, a given course can only fulfill one such requirement.

Restriction: No more than six units of MSA 92, 98, 99, 192, 198, 199 may be offered in satisfaction of the major requirements. However, students must have completed at least 40 units of upper division coursework in satisfaction of the major requirements.

Major adviser. Consult the Middle East/South Asia Studies Program in 155 Kerr Hall 530-754-4926 or the Middle East/South Asia Studies website at http://mesa.ucdavis.edu.