MCS 185. Imagining the Nation: Film and Media in Latin America (4) Lecture, 3 hours; screening, 3 hours. Prerequisite(s): MCS 202 or upper-division standing or consent of instructor. Study of the role of media and film in creating a national imaginary in Latin America. Focus is on one region or nation—such as the Andes, the Caribbean, Mexico, Argentina, or Chile—relating local history to the global context. Course is repeatable as topics change to a maximum of 8 units. Cross-listed with LNST 105 and SPN 185. Fulfills the Humanities requirement for the College of Humanities, Arts, and Social Sciences.

MCS 186. Media and Journalism: Film, Video, Photography, and the Visual Arts (4) Lecture, 3 hours; screening, 3 hours. Prerequisite(s): AHS 017C or upper-division standing or consent of instructor. Focuses on key cultural movements or developments in Europe and the United States over the past century. Provides a thematic history of the avant-grade and experimental arts, including painting, sculpture, photography, video, film, performance, installation, and new media art. Cross-listed with AHS 186. Fulfills the Humanities requirement for the College of Humanities, Arts, and Social Sciences.

MCS 187. Visual Culture and Art History (4) Lecture, 3 hours; individual study, 3 hours. Prerequisite(s): AHS 017A or AHS 017B or AHS 017C or AHS 021/URST 021 or upper-division standing or consent of instructor. Examines the broader concept of visual culture as it relates to the history of the visual arts. Focuses on four conceptual areas: visibility, identity, media culture, and politics/ethics. Cross-listed with AHS 187. Fulfills the Humanities requirement for the College of Humanities, Arts, and Social Sciences.

MCS 190. Special Studies (1-5) Consultation, 1 hour; individual study, 3-12 hours; term paper or project, 1-3 hours. Prerequisite(s): upper-division standing; consent of instructor and program chair. Faculty-driven individual study to meet special curricular needs. Requires a final paper or creative project. Course is repeatable to a maximum of 15 units. See the Student Affairs Office in the College of Humanities, Arts, and Social Sciences for breadth requirement information.

MCS 198-I. Individual Internship in Media and Cultural Studies (1-4) Consultation, 1 hour; internship, 2-8 hours; individual study, 1-3 hours; term paper, 1-3 hours. Prerequisite(s): upper-division standing; consent of instructor and the Film and Visual Culture Chair. An internship in a professional organization or with an individual to gain skills and experience for a career in the visual media. Requires a final paper or a creative project. Course is repeatable to a maximum of 12 units. Fulfills the Humanities requirement for the College of Humanities, Arts, and Social Sciences.

Graduate Courses

MCS 290. Directed Studies (1-6) Outside research, 3-18 hours. Prerequisite(s): graduate standing; consent of instructor and department chair. A directed studies course designed to address special curricular problems. Normally graded Satisfactory (S) or No Credit (NC), but students may petition the instructor for a letter grade if specialized topics are studied. Course is repeatable.

MCS 292. Concurrent Analytical Studies in Media and Cultural Studies (1-4) Outside research, 3-12 hours. Prerequisite(s): graduate standing; consent of instructor and graduate advisor. To be taken concurrently with a 100-series course, but on an individual basis. Limited to research, criticism, and written work. Normally graded Satisfactory (S) or No Credit (NC), but students may petition the instructor for a letter grade if specialized topics are studied. Course is repeatable.

Microbiology

Subject abbreviation: MCBL

College of Natural and Agricultural Sciences

Program Office, 1140 Batchelor Hall (800) 735-0717 or (951) 827-5913 microbiology.ucr.edu

The Microbiology Graduate Program is not currently accepting new students. For more information, contact the Biological Sciences Graduate Student Affairs Center, 1140 Batchelor Hall, (800) 735-0717.

Professors

James E. Adaskaveg, Ph.D. Biology, Epidemiology, and Ecology of Plant Pathogenic Fungi (Plant Pathology)

Michael Allen, Ph.D. Biology and Ecology Microbial-Plant-Surface Interactions (Plant Pathology)

Nancy E. Beckage, Ph.D. Molecular Host-Parasite/Pathogen Interactions (Entomology/Cell Biology and Neuroscience)

Katherine A. Borkovich, Ph.D. Fungal Cell and Molecular Biology (Plant Pathology)

James G. Borneman, Ph.D. Microbial Ecology of Soil-borne Plant Pathogens (Plant Pathology)

Wilfred Chen, Ph.D. President’s Chair; Microbial Engineering (Chemical and Environmental Engineering)

Michael D. Coffey, Ph.D. Phytophthora Taxonomy and Genetics (Plant Pathology)

Donald A. Cooksey, Ph.D. Bacterial Copper Resistance (Plant Pathology)

David E. Crowley, Ph.D. Rhizosphere Microbiology, Bioremediation (Environmental Sciences)

Marc A. Deshusses, Ph.D. Biodegradation, Biofiltration and Bioremediation of Pollutants (Chemical and Environmental Engineering)

Shou-Wei Ding, Ph.D. Molecular Biology of Plant Viruses and Gene Silencing (Plant Pathology)

J. Allen Dodds, Ph.D. Molecular Virus-Host Interactions (Plant Pathology)

Brian A. Federici, Ph.D. Molecular Biology of Insect Pathogens (Entomology)

William T. Frankenberger, Ph.D. Microbial Transformation of Metals and Metalloids (Environmental Sciences)

Barjeet S. Gill, Ph.D. Bacterial Toxic Action (Cell Biology and Neuroscience)

Howard S. Judelson, Ph.D. Molecular Genetics of Fungi (Plant Pathology)

Ashok Malchandani, Ph.D. Microbial Engineering, Biosensors, and Biodetoxification (Chemical and Environmental Engineering)

Edward G. Platter, Ph.D. Host-Parasite Interactions (Nematology/Biology)

A.L.N. Rao, Ph.D. Molecular Plant-Virus Interactions (Plant Pathology)

Neal L. Schiller, Ph.D. Human Host-Bacterial Pathogen Interactions (Biomedical Sciences)

Michael Stanghellini, Ph.D. Ecology, Epidemiology, and Control of Soil-borne Pathogens (Plant Pathology)

Marylynn V. Yates, Ph.D. Water and Wastewater Microbiology (Environmental Sciences)

Professor Emeritus

Dennis D. Focht, Ph.D. (Plant Pathology)
properties, molecular and genetic characteristics, and modes of replication. Cross-listed with BIOL 123 and PLPA 123. Ding, Rao

MCBL 124. Pathogenic Microbiology (4) S Lecture, 3 hours; discussion, 1 hour. Prerequisite(s): BIOL 121/MCBL 121 with a grade of "C" or better or consent of instructor. Introduction to nonpathogenic microorganisms in the environment. Topics include an introduction to the fundamental physiology and molecular biology of bacteria and viruses. Covers research strategies for examining microbial pathogenic mechanisms. Cross-listed with BIOL 124. Cooksey, Gill

MCBL 133. Environmental Microbiology (4) Lecture, 3 hours; discussion, 1 hour. Prerequisite(s): BIOL 005A, BIOL 05LA, BIOL 005B, BIOL 005C; or consent of instructor. Introduction to nonpathogenic microorganisms in the environment. Topics include an introduction to microbial ecology and microbial and metabolic genetic diversity; methods; symbiotic interactions; biofilms; and genomics. Explores life in extreme environments and the effects of the physical and chemical environment on microbes. Cross-listed with ENSC 133 and SWSC 133. Lanoll

MCBL 141. Public Health Microbiology (4) Lecture, 4 hours. Prerequisite(s): BIOL 002 or both BIOL 005A and BIOL 05LA; BIOL 003 or BIOL 005B; upper-division standing; or consent of instructor. Introduction to transmission of human pathogenic microorganisms through environmental media, including drinking water, wastewater, and air. Topics include characterization of environmentally transmitted pathogens, microbial risk assessment, sampling and detection methods for microorganisms in environmental samples, waterborne disease outbreaks, recycling or reuse of wastewater, microbial regulations and standards, and indoor air microbiology. Cross-listed with ENSC 141 and SWSC 141. Yates

MCBL 188. Microbiology Diagnostics (4) Lecture, 2 hours; laboratory, 6 hours. Prerequisite(s): BIOL 121/MCBL 121, BIOL 121L/MCBL 121L. Covers microscopic and molecular diagnostic procedures used in a clinical/forensics microbiology laboratory. Utilizes in a research lab setting selected live microbial material (including bacteria and fungi). Addresses techniques employed in the processing and identification of pathogenic microbes, including safe laboratory practices for working with biohazards. Coffey

MCBL 197. Research for Undergraduates (1-4) directed research, 3-12 hours. Prerequisite(s): consent of instructor; upper-division standing. Individual research in microbiology performed under the guidance of the staff or faculty. Letter grades are assigned to students presenting a research paper; other students are graded Satisfactory (S) or No Credit (NC). Course is repeatable to a maximum of 9 units.

Graduate Courses

MCBL 201. Functional Diversity of Prokaryotes (3) W Lecture, 3 hours. Prerequisite(s): BCH 110A, BCH 110B, BIOL 121/MCBL 121, or equivalents; or consent of instructor. In-depth coverage of bacterial and archaeal bioenergetics, cell structure, diversity of metabolism, regulation of metabolism, growth, and biosynthesis, and cell-cell interactions between prokaryotes and eukaryotes. Project involves analysis of metabolic pathways from complete, annotated, prokaryotic genome sequences. Cross-listed with ENSC 205 and PLPA 205. Stein

MCBL 205. Signal Transduction Pathways in Microbes and Plants (4) Lecture, 3 hours; discussion, 1 hour. Prerequisite(s): graduate standing in the biological sciences, BIOL 107A or BIOL 113 or BIOL 114 or CBNS 101; or consent of instructor. Advanced topics in signal transduction pathways that regulate growth and development in plants and prokaryotic and eukaryotic microbes. Areas covered include two-component regulatory systems; quorum sensing; signaling via small and heterotrimeric G proteins; mitogen-activated protein kinase cascades; cAMP signaling; photoreceptors; plant hormone signaling; responses to low-oxygen stress; calcium signaling; and plant pathogenesis. Cross-listed with BCH 205, BPS 205, CBMD 205, GEN 205, and PLPA 205. Borkovich

MCBL 206. Gene Silencing (3) Lecture, 2 hours; discussion, 1 hour. Prerequisite(s): graduate standing, BIOL 107A or CBMS 101; or consent of instructor. An in-depth coverage of mechanisms, functions, and applications of RNAi and related gene regulatory pathways guided by small RNAs such as siRNAs and miRNAs in plants and animals. Cross-listed with CBMD 206 and GEN 206. Lynett

MCBL 210. Molecular Biology of Human Disease Vectors (3) Lecture, 2 hours; seminar, 1 hour. Prerequisite(s): consent of instructor. Covers the molecular aspects of vectors transmitting most dangerous human diseases. Involves lectures and student presentations about current issues in molecular biology and genomics of vector insects and pathogens they transmit. May be taken Satisfactory (S) or No Credit (NC) with consent of instructor and graduate advisor. Cross-listed with CBMD 210 and ENTM 210. Borkovich

MCBL 211. Microbial Ecology (3) S, Odd Years Lecture, 3 hours. Prerequisite(s): graduate standing or consent of instructor. Application of ecological principles to microbial communities. Emphasizes methods for analysis of diversity and community structure and statistical methods relating genetic and biochemical fingerprints to functional properties. Case studies explore applications for agriculture, disease biocontrol, and bioremediation of environmental contaminants. Cross-listed with SWSC 211. Borneman, Crowley, Lanoll

MCBL 221. Microbial Genetics (4) W Lecture, 3 hours; discussion, 1 hour. Prerequisite(s): BCH 110C or BIOL 107A; BIOL 102. In-depth coverage of the genetics of microbes with emphasis on the primary data and the foundation of modern techniques using Escherichia coli and other prokaryotic systems. Includes genome organization, plasmids, restriction-modification systems, mutation, transposable elements, regulation of gene expression, viruses, recombination, repair, and responses to stress. Cross-listed with BIOL 221 and PLPA 226. Borkovich

MCBL 241. Special Topics (2) Lecture, 2 hours. Prerequisite(s): graduate standing or consent of instructor. Oral presentations and intensive small-group discussion of selected topics in each faculty member’s area of specialization. Course content emphasizes recent advances in the special topic area and varies accordingly. Graded Satisfactory (S) or No Credit (NC). Course is repeatable. Cross-listed with PLPA 241. Lynett

MCBL 250. Seminar in Microbiology (1) S Seminar, 1 hour. Prerequisite(s): graduate standing. Formal seminars by graduate students, faculty, and invited scholars on selected topics in microbiology. Graded Satisfactory (S) or No Credit (NC). Course is repeatable. Lynett

MCBL 262. Seminar in Molecular Biology and Genomics of Disease Vectors (1) Seminar, 1 hour. Prerequisite(s): graduate standing or consent of instructor. Seminar series, sponsored by the Center for Disease-Vector Research at the Institute for Integrative Genome Biology, provides an opportunity for graduate students to discuss current issues of molecular biolo-