

350 / Programs and Courses

MUS 201. Proseminar in the Analysis of Western Music (4)

Seminar, 3 hours; individual guided research, 3 hours. Prerequisite(s): graduate standing. Analysis of selected musical works from various periods exploring different music-theory models.

MUS 206. Proseminar in Musicology (4) Lecture, 3 hours; consultation, 1 hour. Prerequisite(s): MUS 200. Study of significant issues and recent developments in musicology and criticism. Study and practice of expository writing about music.

MUS 207. Proseminar in Ethnomusicology (4) Lecture, 3 hours; outside research, 3 hours. Prerequisite(s): graduate standing. Explores ethnomusicology as a discipline, focusing on the relationships between ethnomusicology and musicology, and on ethnomusicology as an interdisciplinary field drawing on performance studies, ethnopoetics, postmodernism, translational theories, and postcolonialism.

MUS 250 (E-Z). Seminar in Music Theory (4) Seminar, 3 hours; research, 3 hours. Prerequisite(s): MUS 200 and MUS 201 or consent of instructor. Historical study of the theory of western music. F. History of Theory; G. Neo-Classicism; H. Twentieth Century Theorists. I-Z: topics to be announced.

MUS 251. Music in Computer Gaming (4) Seminar, 3 hours; outside research, 3 hours. Prerequisite(s): graduate standing or consent of instructor. Introduces students to the history and theory of music use in computer games, including the development of classical commercial gaming and game design and the related use of dramatic music. Topics cover adventure game history, narrative underscoring, commercial computer game genres, and contemporary issues related to interactivity, performance, and reception.

MUS 253. Seminar in Advanced Music Theory (4)

Seminar, 3 hours; written work, 3 hours. Prerequisite(s): graduate standing or consent of instructor. Presents a survey of serial techniques developed in the twentieth and twenty-first centuries for use both in the composition of new works and analysis of existing repertoire. May be taken Satisfactory (S) or No Credit (NC) with consent of instructor and graduate advisor.

MUS 254. Seminar in Music and Technology (4)

Seminar, 3 hours; outside research, 3 hours. Prerequisite(s): graduate standing or consent of instructor. Explores the use of technology in real-time performance and in the making of electronic music, studio music, computer music, and performance art. Surveys musical technoculture and examines music technology from both creative and consumer points of view. Also investigates the students' interests in music technology.

MUS 255. Field Methods in Ethnomusicology (4)

Seminar, 3 hours; outside research, 1 hour; field, 2 hours. Prerequisite(s): graduate standing. A theoretical and practical introduction to fieldwork in music and performance. Each student focuses on a different performance group and documents its activities. Covers interviewing, audiotaping, videotaping, transcribing music and dance, and describing performance events.

MUS 256. Computer Music Composition (4) Seminar, 3 hours; laboratory, 3 hours. Prerequisite(s): graduate standing or consent of instructor; MATH 004 or equivalent is recommended. Students learn classic computer music techniques for sound processing in the context of the development of an original piece. Topics include computer music history, digital audio theory and processing, and electronic and computer music composition, including synthesis techniques and real-time instrument design.

MUS 258. Seminar in Free Composition (4) Seminar, 3 hours; consultation, 1 hour. Prerequisite(s): graduate standing or consent of instructor. Individual projects and issues in musical composition. Course is repeatable to a maximum of 12 units.

MUS 259. Musical Semiotics: Approaches to Meaning and Form (4) Seminar, 3 hours; extra reading, 3 hours. Prerequisite(s): graduate standing or consent of instructor. Study of musical semiotics focusing on recent theories and related areas such as cybernetics, cognitive science, and theory of systems. Examines questions of meaning and form in the domains of aesthetics, musical theory, analysis, composition, performance, and new approaches of digital media and music.

MUS 261. Seminar in Performance Practice (4)

Seminar, 3 hours; consultation, 1 hour. Prerequisite(s): MUS 200 and MUS 201, or consent of instructor. Investigations into the historically accurate performance styles of music based on information contemporary with the music. Topics and content will vary each quarter depending on student interest. May be repeated for up to 8 units.

MUS 262 (E-Z). Seminar in Western Music History (4)

Seminar, 3 hours; individual study, 3 hours. Prerequisite(s): MUS 206, graduate standing; or consent of instructor. Selected issues in the history of music in the context of social, political, religious and intellectual culture of the West during different periods.

MUS 263 (E-Z). Seminar in Special Topics in Musicology (4)

Seminar, 3 hours; individual guided research, 3 hours. Prerequisite(s): MUS 206, graduate standing; or consent of instructor. Addresses such topics as Music and Culture, Music and Poetry, Nationalism, Gender and Sexuality in Music, Individual Genres and Composers. Course is repeatable.

MUS 264. Music in Fantasy and Science Fiction (4)

Seminar, 3 hours; written work, 3 hours. Prerequisite(s): graduate standing or consent of instructor. A survey of the use of music in science fiction and fantasy. Covers Tales of Hoffman and Anlara to Star Trek and Solaris. Examines music's textural, sonic, and political roles in terms of traditional functions, as well as those associated with the exploitation of the synthetic and fantastic. **Labor**

MUS 270. Special Topics in Ethnomusicology (4)

Seminar, 3 hours; outside research, 3 hours. Prerequisite(s): MUS 207, graduate standing; or consent of instructor. Focuses on current scholarship in ethnomusicology and related fields. Theme varies, but emphasis is usually on theory and methodology or the study of particular regions or performance traditions. For further information, see Department. Course is repeatable to a maximum of 8 units.

MUS 271. Area Studies Research in Music (4)

Seminar, 3 hours; extra reading, 2 hours; listening, 1 hour. Prerequisite(s): graduate standing or consent of instructor. Focuses on historical and ethnographic literature of particular geographical areas. Discusses scholarly literature on music (and expressive culture generally, including dance, theater, and ritual) of a particular geocultural region. Course is repeatable as topics change to a maximum of 8 units.

MUS 290. Directed Studies (1-6) Graded Satisfactory (S) or No Credit (NC). Course is repeatable.

MUS 291. Individual Study in Coordinated Areas (1-6)

Individual study, 6-25 hours. Prerequisite(s): graduate standing; consent of instructor and graduate advisor. A program of study designed to assist graduate candidates who are preparing for M.A. comprehensive or

Ph.D. qualifying examinations. Graded Satisfactory (S) or No Credit (NC). Course is repeatable to a maximum of 12 units.

MUS 292. Concurrent Analytical Studies in Music (1-4)

Prerequisite(s): graduate standing; approval of instructor and graduate advisor. Each 292 course will be taken concurrently with some 100-series course but on an individual basis. It will be devoted to research, criticism, and written work of a graduate order commensurate with the number of units elected. Graded Satisfactory (S) or No Credit (NC). May be repeated for credit.

MUS 297. Directed Research (1-6)

Prerequisite(s): graduate status and consent of instructor and graduate advisor. Individual graduate student research under the sponsorship of specific faculty members, on topics and selected problems in theoretical and historical research in music not directly related to student's thesis. Graded Satisfactory (S) or No Credit (NC).

MUS 299. Research for Thesis or Dissertation (1-12)

Graded Satisfactory (S) or No Credit (NC). Course is repeatable.

Professional Courses

MUS 301. Directed Studies in the Teaching of Music (3)

Seminar, 2 hours; consultation, 1 hour. Prerequisite(s): graduate standing. A program of weekly meetings and individual formative evaluation required of new Music teaching assistants. Covers instructional methods and classroom/section activities. Conducted by department faculty. Graded Satisfactory (S) or No Credit (NC).

MUS 302. Teaching Practicum (1-4)

Clinic, 1 hour; practicum, 1 hour; lecture, 2 hours. Prerequisite(s): appointment as a teaching assistant in Music; graduate standing. Supervised teaching in undergraduate Music courses. Required of all Music teaching assistants. Graded Satisfactory (S) or No Credit (NC). Course is repeatable to a maximum of 4 units.

Natural and Agricultural Sciences

Subject abbreviation: NASC

College of Natural and Agricultural Sciences

Lower-Division Courses

NASC 091. Freshman Advising Seminar in the Natural and Agricultural Sciences (1)

Seminar, 1 hour. Prerequisite(s): first-year freshman standing in the College of Natural and Agricultural Sciences (CNAS). Introduction to UCR for students in the sciences.

Includes selection of majors, curriculum planning, career options and goals in the sciences, opportunities for undergraduate research, development of learning and study skills, ethics in research and education, and an introduction to the faculty in CNAS. Graded Satisfactory (S) or No Credit (NC). Credit is awarded for only one of BCH 095, NASC 091, or NASC 093.

NASC 092. First-Year Seminar in the Natural and Agricultural Sciences (1)

Seminar, 10-15 hours per quarter. Prerequisite(s): Freshman standing. Enrollment priority is given to freshmen, but sophomores may enroll on a space-available basis with consent of instructor. Introduction to one of the many areas of study explored by the faculty of natural and

agricultural sciences in a small-group, highly interactive format. Graded Satisfactory (S) or No Credit (NC). Course is repeatable as topics change to a maximum of 3 units of any combination of ENGR 092, HASS 092, and NASC 092; students may enroll in only 1 unit of ENGR 092, HASS 092, or NASC 092 per quarter.

NASC 093. Freshman Advising Seminar in the Natural and Agricultural Sciences (2) Seminar, 1 hour; discussion, 1 hour. Prerequisite(s): first-year freshman standing in the College of Natural and Agricultural Sciences (CNAS). Introduction to UCR for students in the sciences. Includes selection of majors, curriculum planning, career options and goals in the sciences, opportunities for undergraduate research, development of learning and study skills, ethics in research and education, and an introduction to the faculty and professional academic advisors in CNAS. Graded Satisfactory (S) or No Credit (NC). Credit is awarded for only one of BCH 095, NASC 091, or NASC 093.

Upper-Division Courses

NASC 191S. Seminar in Sacramento (4) Seminar, 3 hours; outside research, 3 hours. Prerequisite(s): upper-division standing or consent of instructor; admission to the UCR Center at Sacramento Program. Examines aspects of the Sacramento area, including cultural, political, and governmental institutions and the sciences, arts, and media. Requires a substantial research paper or project, the result of guided independent work drawing on the unique aspects of Sacramento. Required of participants in the UCR Center at Sacramento Program. Cross-listed with ENGR 191S and HASS 191S.

NASC 191W. Seminar in Washington, D.C. (4) Seminar, 3 hours; outside research, 3 hours. Prerequisite(s): upper-division standing or consent of instructor; admission to the UCR Washington Center Program. Examines aspects of the Washington, D.C., area, including cultural, political, and governmental institutions as well as the sciences, arts, and media. Requires a substantial research paper or project, the result of guided independent work drawing on the unique aspects of Washington, D.C. Required of participants in the UCR Washington, D.C., Center Program. Cross-listed with ENGR 191W and HASS 191W.

NASC 192. Careers in Science and Mathematics Education (1) Seminar, 1 hour. Prerequisite(s): upper-division standing or consent of instructor; consent of instructor is required for students repeating the course. Covers preparation for a career in mathematics and science teaching. Includes job search strategies. Graded Satisfactory (S) or No Credit (NC). Course is repeatable to a maximum of 2 units.

NASC 198-I. Individual Internship in the Natural and Agricultural Sciences (1-12) Internship, 2-24 hours; written work, 1-12 hours. Prerequisite(s): upper-division standing in the College of Natural and Agricultural Sciences (CNAS); consent of instructor. An internship to provide CNAS students with on-the-job experience in government, industry, or clinical laboratories. Each individual project must be approved by the CNAS associate dean and the laboratory director where the internship is to be carried out. Requires a written report. Graded Satisfactory (S) or No Credit (NC). Course is repeatable to a maximum of 12 units.

Nematology

Subject abbreviation: NEM
College of Natural and Agricultural Sciences

James G. Baldwin, Ph.D., Chair
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(951) 827-2583
www.nematology.ucr.edu

Professors

James G. Baldwin, Ph.D.
Edward G. Platzer, Ph.D. (Nematology/Biology)
Philip A. Roberts, Ph.D.

Professors Emeriti

Reinhold Mankau, Ph.D.
Seymour D. Van Gundy, Ph.D.
(Nematology/Plant Pathology)

Associate Professors

Paul De Ley, Ph.D.
Isgouhi Kaloshian, Ph.D.
**

Lecturers

J. Ole Becker, Ph.D.
Michael V. McKenry, Ph.D.
Antoon T. Ploeg, Ph.D.

Affiliated Faculty

John D. Radewald, Ph.D. (Agronomist Emeritus)

Cooperating Faculty

Bradley C. Hyman, Ph.D. (Biology)
Morris F. Maduro, Ph.D. (Biology)

Nematology is the study of roundworms, the most genetically diverse invertebrate phylum that occurs worldwide in virtually every environment. Only about 3 percent of all species have been studied or identified, and these include significant parasites of humans, animals, and plants. A primary mission of the Department of Nematology is to develop environmentally sound approaches to manage nematodes that worldwide cause nearly \$100 billion annual damage to crops. Other objectives are to use nematodes that benefit agriculture and the environment as agents of nutrient cycling and soil fertility and for biological control of some insect pests. Additional objectives focus on nematodes as fundamental models for addressing basic biological questions in genetics, development, and molecular biology. The department offers graduate and postgraduate opportunities in biocontrol, ecology, genetics, molecular biology, physiology, and systematics. It offers specific expertise in applied nematode problems of subtropical and desert agriculture.

A graduate program in Nematology is offered within a broad biological context. Students are enrolled in a more general department or interdepartmental program that provides a core of graduate courses. The general departments may include Biology, Botany and Plant Sciences, Entomology, Plant Pathology and Microbiology, and Environmental Sciences as well as a wide range of interdepartmental programs. Dissertation research opportunities, major research professor, curriculum advisor, and specific courses are provided by the Department of Nematology to complement requirements of the more general department or program.

Upper-Division Courses

NEM 120. Soil Ecology (3) Lecture, 3 hours. Prerequisite(s): BIOL 002 or both BIOL 005A and BIOL 05LA; both CHEM 001C and CHEM 011C or both CHEM 01HC and CHEM 1HLC. Examination of soil biota and their relationships with plants and the soil environment. Emphasis is on soil biotic interactions that influence soil fertility, plant disease, and plant growth. Examines the importance of the different microbial and faunal groups from the rhizosphere to the ecosystem level. Cross-listed with ENSC 120 and SWSC 120. **Crowley, Deley**

NEM 159. Biology of Nematodes (3) W Lecture, 2 hours; discussion and demonstration, 1 hour. Prerequisite(s): BIOL 005A, BIOL 005B, BIOL 005C, CHEM 001C or CHEM 01HC, CHEM 112C, MATH 009B or MATH 09HB, PHYS 002C, PHYS 02LC, BCH 100 or BCH 110A, one course in statistics. An introduction to the biology of nematodes. Topics include the morphology, physiology, development, genetics, behavior, and ecology of nematodes from parasitic and free-living habitats. In the discussion and demonstration section, students observe the comparative morphology and biology of nematodes and give oral presentations on selected nematode life histories. Cross-listed with BIOL 159. **Baldwin**

NEM 190. Special Studies (1-4) Individual study, 3-12 hours. Prerequisite(s): consent of instructor and Department Chair. Individual study, directed by a faculty member, to meet special curricular needs. A written report is required. Course is repeatable.

NEM 197. Research for Undergraduates (1-4) Laboratory, 3-12 hours. Prerequisite(s): upper-division standing. Research in nematology with the guidance of a Nematology faculty member. A written report is required. Graded Satisfactory (S) or No Credit (NC). Course is repeatable.

NEM 199. Senior Research (2-4) F, W, S Laboratory, 6-12 hours. Prerequisite(s): senior standing, a grade of "B+" or better in an upper-division Biology course, a grade of "B+" or better in an upper-division Nematology course; or consent of instructor. Individual research on a problem relating to Nematology. A written proposal signed by the supervising faculty member must be approved by the major advisor and the department chair and a written report filed with the supervising faculty member. Course is repeatable to a maximum of 9 units.

Graduate Courses

NEM 205. Identification of Plant Parasitic Nematodes (1) Summer (one week only) Lecture, 5 hours; laboratory, 25 hours. Prerequisite(s): graduate standing or consent of instructor. Five-day lecture and laboratory course on morphological identification of economically important plant parasitic nematodes in *Tylenchida* and *Dorylaimida* using dissecting and bright field microscopy. Includes preparation of microscope slides, diagnosis of field samples, and use of diagnostic keys. Offered in summer only. **Baldwin**

NEM 206. Phytopathogens: Nematodes (2) S Lecture, 1 hour; laboratory, 3 hours. Prerequisite(s): graduate standing or consent of instructor. Recognition, diagnosis, biology, and control of major nematode diseases of plants. Laboratory covers identification techniques, soil sampling and processing techniques, and process of pathogenesis. Cross-listed with PLPA 206. **Roberts**