

Robert H. Weiss, M.D., Associate Professor

(Nephrology)

Jean Wiedeman, Associate Professor (Pediatrics)

Reen Wu, Ph.D., Professor

(Anatomy, Physiology and Cell Biology)

Heike Wulff, Ph.D., Assistant Professor

(Pharmacology)

Tilahun D. Yilma, D.V.M., Ph.D., Director and

Distinguished Professor of Virology

(Medical Microbiology and Immunology and Pathology, Microbiology, and Immunology)

Graduate Study. The Graduate Group in Immunology is a multidisciplinary group offering programs of study leading to the M.S. and Ph.D. degrees in various aspects of immunology. Possible areas of specialization include molecular immunology, immunochemistry, immunogenetics, cellular immunology, clinical immunology, tumor and developmental immunology, arthritis and inflammation, auto-immunity and virology.

Preparation. Applicants for candidacy to these programs should have completed undergraduate preparation in mathematics, physics, chemistry, biochemistry, molecular and cellular biology or related biological and medical sciences.

For work leading to the Ph.D. degree, the requirements include cell biology, chemical immunology, cellular immunology, immunohematology, and advanced immunology. In addition to these general requirements, more specialized preparation in at least one of the following is required: (a) microbiological specialties (bacteriology, virology, parasitology, medical microbiology); (b) zoological specialties (cell biology, endocrinology, embryology, proto-zoology, histology, cytology, physiology); (c) medical specialties (pathology, anatomy, pharmacology, clinical pathology, reproduction, hematology, epidemiology); (d) biochemistry/biophysics specialties (biologically active molecules, control mechanisms); (e) genetic specialties (developmental genetics, population genetics, cytogenetics, molecular genetics).

Graduate Adviser. Contact the Group office.

Courses in Immunology (IMM)

Additional courses are available and listed under the individual sponsoring departments. Contact the Group office for information.

Lower Division Course

94. Introduction to Undergraduate Research (1)

Seminar—1 hour. Prerequisite: course 9, consent of instructor and completion of 45 units with a minimum GPA of 3.500; limited to sophomores who participated in the Integrated Studies Honors Program during their freshman year and other students by consent of instructor. The nature of research at the undergraduate level. Limited enrollment. (P/NP grading only.)—II. (II.)

Graduate Courses

201. Introductory Immunology (4)

Lecture—4 hours. Prerequisite: graduate standing. Comprehensive introduction to the principles of immunology. Limited enrollment.—I. (I.) Miller

201L. Advanced Immunology Laboratory Rotations (5)

Lecture/discussion—15 hours. Two five-week assignments in immunology research laboratories. Individual research problems with emphasis on methodological/procedural experience and experimental design. May be repeated two times for credit. (S/U grading only.)—I, II. (I, II.) Baumler

292. Immunotoxicology Seminar (2)

Seminar—2 hours. Prerequisite: graduate standing in Pharmacology/Toxicology, Immunology, Physiology, or Biochemistry. Seminar presentations dealing with principles of xenobiotic effects on immune system functions and specific examples of drugs and environmental chemicals exerting toxic effects on the immune system. Offered in alternate years. (S/U grading only.)—I. Golub

293. Current Concepts in Immunology (4)

Lecture/discussion—4 hours. Prerequisite: Pathology, Microbiology, and Immunology 126 or consent of instructor. Innate and acquired immunity as defense mechanisms against disease. Mechanisms regulating the distinct cell types driving these responses and current concepts in the literature.—II. Baumgarth

294. Comparative Clinical Immunology (4)

Lecture/discussion—4 hours. Prerequisite: Pathology, Microbiology, and Immunology 126 or consent of instructor. Clinical immunology in animals and man. Pathogenesis of representative infectious diseases, hypersensitive reactions, and autoimmunity. Emphasis on specific and nonspecific immune effector mechanisms to combat infections or mediate pathology. Not open for credit to students who have completed course 294A. Offered in alternate years.—Gershwin, Van de Water

295. Cytokines (3)

Lecture—2 hours; discussion—1 hour. Prerequisite: course 293 or consent of instructor. Cytokines and their involvement in human and animal physiology/disease, molecular mechanisms and receptor signaling. Immune and non-immune actions. Overlapping/redundant functions (referred to as the "cytokine network").—III. Luckhart

296. Advanced Topics in Immunology (2)

Seminar—2 hours. Prerequisite: graduate standing or consent of instructor. Presentation, discussion, and analysis of faculty research topics in immunology. Required for Immunology Graduate Students every year until they have passed their qualifying exam. May be repeated for credit. (S/U grading only.)—I. (I.) Maverakis

297. Mucosal Immunology (2)

Lecture—1 hour; discussion—1 hour; term paper. Prerequisite: course 201 or equivalent. Basic concepts and current research topics in the field of mucosal immunology, with an emphasis on human immunology. Major emphases include innate and adaptive mucosal immunity, the gastrointestinal tract, the lung, lymphocyte trafficking, and mucosal vaccination. Not offered every year.—II. Shacklett

Independent Study Program

Information. Chairperson, Committee on Courses of Instruction, c/o Academic Senate Office (530) 752-2231

The Independent Study Program provides an opportunity for upper division students to design and pursue a full quarter (12-15 units) of individual study in an area of special interest.

A program qualifying as Independent Study will consist of one or more courses in the 190–199 series. While the theme of such a program may be reasonably broad, a recognizable common thread should unite all the academic work you undertake during an independent study quarter. Regularly offered formal courses will only be acceptable as a part of such a program if they clearly fit its theme and contribute something essential toward the realization of its objectives. The program is not to be considered a way to take more variable-unit courses than normally permitted.

The procedure for enrolling in an Independent Study Program is as follows:

- (1) Develop, in general terms, a plan of study;
- (2) Locate a faculty sponsor or panel of sponsors and with their help and approval develop a detailed plan;
- (3) Complete a project proposal form (obtained from the Academic Senate office) and submit it to the Academic Senate Committee on Courses of Instruction.

The deadline for applications is the tenth day of instruction of the term before; see the [Academic Calendar, on page 1](#), for specific dates.

You must report the completion or termination of the project to the Committee on Courses of Instruction.

Individual Major

(College of Agricultural and Environmental Sciences, College of Biological Sciences, and College of Letters and Science)

The Major Program

The Individual Major, an integrated program composed of courses from two or more disciplines, is designed by the student and is subject to approval by faculty advisers and appropriate college committees. This major enables a student to pursue a specific interest that cannot be accommodated within the framework of an existing major. It must clearly and specifically meet the student's educational goals as well as meet university and college academic standards.

College of Agricultural and Environmental Sciences

Program Office. 150 Mrak Hall (530) 752-0108

<http://caes.ucdavis.edu/StudInfo/Advising/undergraduate-advising>

Student Proposal. An Individual Major may be organized by a student having a specific academic interest not represented by an established major. Each student wishing an Individual Major should submit a proposal to the Dean's Office, prior to reaching 120 units, for review by the Student Actions and Individual Major Subcommittee. This proposal must include (1) an essay describing the special educational aims of the student, including a statement indicating why the educational objectives cannot be met by existing majors; (2) a list of planned courses; and (3) faculty adviser recommendations. It is critical that students contact a college counselor in the Dean's Office for consultation and development of the proposal.

UNITS

English Composition requirement4-8

See College requirement.

Preparatory Subject Matter (variable)

Lower division courses basic to the program or needed to satisfy prerequisites for upper division requirements.

Breadth/General Education 18-24

Satisfaction of General Education requirement

Depth Subject Matter 45-54

Upper division course work must include: (a) interrelated courses of 45 upper division units from two or more areas of study; (b) at least one of the two or more areas of study must be within the College of Agricultural and Environmental Sciences; (c) at least 30 of the 45 upper division units that are required in the program must be taken from courses provided by the College of Agricultural and Environmental Sciences.

Unrestricted Electives (variable)

Total Units for the Degree 180

Master Adviser. Thomas Gordon, Ph.D. (Plant Pathology)

College of Biological Sciences

Program Office. 202 Life Sciences (530) 752-0410

Student Proposal. A student who wishes to propose an individual major must submit the proposal to the Committee on Undergraduate Student Petitions prior to reaching 120 units. It is important for the student to make arrangements to speak with a coun-

selor in the college early in the development of his/her major as no individual major will be approved after a student has completed 120 units.

A.B. and B.S. Major Requirements: UNITS

Preparatory Subject Matter(variable)

Lower division courses basic to the program or needed to satisfy prerequisites for upper division requirements as determined by the Committee on Undergraduate Student Petitions.

Depth Subject Matter45 units minimum

Upper division course work must include:
(a) at least 30 units from courses offered by departments in the College of Biological Sciences;
(b) additional requirements as determined by the Committee on Undergraduate Student Petitions. See the Dean's Office for details.
(c) for the B.A. degree, a maximum of 80 units toward the major; for the B.S. degree, a maximum of 110 units toward the major.

All University, General Education, and College of Biological Sciences Bachelor's degree requirements(variable)

Total Units for the Degree 180

Principal Adviser (selected by student).

A faculty member in a department or program in the College of Biological Sciences.

College of Letters and Science

Program Office. 200 Social Sciences and Humanities Building (Dean's office)
<http://www.ls.ucdavis.edu/students>

Committee in Charge

Karen L. Bales, Ph.D., Chairperson (*Psychology*)
Patricia C. Boeshaar, Ph.D. (*Physics*)
Richard A. Levin, Ph.D. (*English*)

Student Proposal. A student who wishes to propose an individual major must submit the proposal to the Faculty Committee on Individual Majors in the College of Letters and Science prior to reaching 120 units. The proposal must be submitted by the end of the fourth week of the quarter. This proposal will consist of (1) an essay, identifying the specific educational and professional objectives, including an indication of why the objectives cannot be met within existing majors, (2) a list of courses planned to complete the major, and (3) faculty adviser recommendations. The proposal will be reviewed and a decision provided the quarter of submittal. It is important for you to make arrangements to speak with a counselor in the college early in the development of your major.

A.B. and B.S. Major Requirements: UNITS

Preparatory Subject Matter(variable)

Lower division courses basic to the program or needed to satisfy prerequisites for upper division requirements.

Depth Subject Matter 45-54

Upper division units must include:
(a) interrelated and complementary courses from two or more departments which provide a unified pattern and focus;
(b) at least 30 units from Letters and Science teaching departments or programs;
(c) no more than 10 units in courses numbered 194H, 198 and 199;
(d) for the A.B. degree, a maximum of 80 units toward the major; for the B.S. degree, a maximum of 110 units toward the major.

Total Units for Degree 180

Major Advisers (selected by student).

Principal Adviser: a faculty member in a teaching department or program in the College of Letters and Science in major field of emphasis. Secondary

Adviser: a faculty member from secondary area of interest.

Honors Program. By the fourth week of the last quarter of the junior year, students potentially eligible for high or highest honors at graduation (see College section), may petition the Individual Majors Committee for tentative acceptance into an honors program.

Final admission will depend upon the Committee's approval of a senior thesis prospectus that has been agreed upon by the student and faculty adviser. The prospectus must be presented to the Committee by the end of the fourth full week of instruction of the first quarter of the senior year. Graduation with high or highest honors will be conditional upon both the maintenance of the required grade point average and the completion of the senior thesis project. Students who anticipate doing a senior honors thesis should allow up to 3 units of independent study in the program during each of two quarters in the senior year as course options.

Integrated Pest Management (A Graduate Group)

Howard Ferris, Ph.D., Chairperson of the Group

Group Office. 367 Briggs Hall (530) 752-0475

Faculty. Includes faculty members from the Colleges of Agricultural and Environmental Sciences and Letters and Science.

Graduate Study. The Graduate Group in Integrated Pest Management offers programs of study and research leading to the M.S. degree. Students may conduct independent research or participate in on-going projects on integrated crop management and sustainable agriculture. Weeds, insects, plant pathogens, nematodes, rodents, and other pests are treated as parts of complex ecosystems and not as isolated problems. Courses include concepts and systems of plant protection and pest management, diagnosis and control of plant pest problems, toxicology and legal ramifications, and equipment for pest control operations. Detailed information can be obtained from the Group Chairperson and the application for Graduate Admission and Fellowship.

Graduate Adviser. Jay Rosenheim (*Entomology*)

Courses in Integrated Pest Management (IPM)

Graduate Courses

201. Concepts and Systems of Plant Protection and Pest Management (4)

Lecture—2 hours; discussion—1 hour; laboratory—2 hours. Prerequisite: Agricultural Systems and Environment 120, Entomology 110, Plant Pathology 120, Plant Biology 120 (may be taken concurrently), Nematology 100; Plant Biology 117 or Evolution and Ecology 101 recommended. Ecological perspectives of agricultural systems, the role of pests and pest management in these systems, and the monitoring and modeling of the systems. Offered in alternate years.—(II.)

202A-202B. Diagnosis of Plant Pest Problems and the Control of Causal Agents (4-4)

Discussion—1 hour; fieldwork—9 hours. Prerequisite: Entomology 110, Plant Pathology 120, Plant Biology 120, Nematology 100 (may be taken concurrently). Problems and assessment of losses caused by insects, pathogens, weeds, nematodes, and other pests. Methods of determining infestation levels and establishing economic thresholds, and control of these pests with emphasis on integration of available management practices into programs.—I-III. (III.) Rosenheim

290. Seminar (1-2)

(S/U grading only.)

298. Group Study (1-5)

299. Research (1-12)

(S/U grading only.)

Integrated Studies Honors Program

James F. Shackelford, Ph.D., Program Director

Program Office. 162 Everson Hall
(530) 752-9760;
<http://integratedstudies.ucdavis.edu>

Faculty

David Biale, Ph.D., Professor (*History*)
John Boe, Ph.D., Lecturer
(*University Writing Program*)
Simone Clay, Ph.D., Lecturer (*French & Italian*)
Evan Fletcher, Ph.D., Lecturer
(*Center for Neuroscience*)
Robin Hill, B.F.A., Associate Professor
(*Art and Art History*)
Naomi Janowitz, Ph.D., Professor (*Religious Studies*)
Alessa Johns, Ph.D., Associate Professor (*English*)
Winder McConnell, Ph.D., Professor
(*German and Russian*)
Sally McKee, Ph.D., Associate Professor (*History*)
Jay Mechling, Ph.D., Professor (*American Studies*)
Marco Molinaro, Ph.D., Lecturer
(*Center for Biophotonics*)
Terence Murphy, Ph.D., Professor (*Plant Biology*)
Martina Newell-McGoughlin, D.Sc., Lecturer
(*UC Systemwide Biotechnology Research and Education Program*)
Pablo Ortiz, D.M.A., Professor (*Music*)
Hearne Pardee, M.F.A., Assistant Professor
(*Art and Art History*)
Eric Rauchway, Ph.D., Professor (*History*)
Christopher A. Reynolds, Ph.D., Professor
(*Music*)
Eric J. Schroeder, Ph.D., Lecturer
(*University Writing Program*)
Kenneth A. Shackel, Ph.D., Professor (*Pomology*)
Keith Watenpaugh, Ph.D., Associate Professor
(*Religious Studies*)
Gina Werfel, M.F.A., Professor (*Art and Art History*)

The Program of Study

The Integrated Studies Honors Program is an invitational, first-year, residential honors program. Course offerings oriented toward undergraduate research opportunities are also offered beyond the freshman year. Established in 1969, the program aims to help high-achieving students integrate knowledge gained from their study of the humanities, natural sciences, and social sciences and expand their learning experiences through interdisciplinary or multidisciplinary courses. Enrollment is limited to 25 students per class, and program membership is limited to the top 3% of the entering class.

Freshmen enroll in three Integrated Studies Honors Program courses and two seminars during the year. Students not admitted to the Program may not register for Integrated Studies Honors Program courses or seminars. Sophomores and Regents Scholars who receive that award as a junior enroll in three seminars during the year (IST 90, IST 94, and IST 190). Juniors and Seniors enroll in IST 194HA, HB and IST 190.

Courses in Integrated Studies (IST)

Lower Division Courses

8. Colloquium (1)

Discussion—1 hour. Lectures, films, and readings on the interrelation between the arts and sciences. May be repeated for credit. (P/NP grading only.)—I, II. (I, II.)