117. Plant Ecology (4)
Lecture—3 hours; fieldwork—3 hours. Prerequisite: Biological Sciences 1A, 1B, 1C, or 2A, 2B, 2C. Plant Biology and Environment. Normally offered alternate years. Special emphasis on California. Four full-day field trips and brief write-up of class project required. (Same course as Evolution and Ecology 117—I.) (I)

119. Population Biology of Invasive Plants and Weeds (3)
Lecture—2 hours; laboratory—3 hours. Prerequisite: Biological Sciences 1A, 1B, 1C, or 2A, 2B, 2C; introductory statistics recommended. Origin and evolution of invasive plant species and weeds, reproduction and dispersal, seed ecology, modeling of population dynamics, interactions between invasive species, native species, and crops, biological control. Laboratories emphasize design of competition experiments and identification of weedy species. (Same course as Evolution and Ecology 119.) GE credit: SciEng | SE—III. (Ill.) Rejmanek

123. Plant-Virus-Vector Interaction (3)
Lecture—3 hours. Prerequisite: Biological Sciences 2A, Biological Sciences 101; course 105, Plant Pathology 120, and Entomology 100 recommended. Analysis of interactions necessary for viruses to infect plants. Interactions among insect vectors and host plants involved in the plant-virus life cycle. Evolutionary aspects of the molecular components of viral infection and modern approaches to the study of plant-virus interactions. Course as Entomology 123 and Plant Pathology 123.) Offered in alternate years. GE credit: SE, SL, WE—II. (I.) Lucas, Gillbertson, Ullman

126. Plant Biochemistry (3)
Lecture—3 hours. Prerequisite: Biological Sciences 103 or 105. The biochemistry of important plant processes and metabolic pathways. Discussion of methods used to understand plant processes, including use of transgenic plants. (Same course as Molecular and Cellular Biology 126.) GE credit: SciEng | SE, SL—II. (II.) Callis, Tian

143. Evolution of Crop Plants (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Plant Sciences 2 or Biological Sciences 1C or 1C. Origins of crops and agriculture, including major evolutionary approaches, centers of crop biodiversity, dispersal of crops, genetic and physiological differences between crops and their wild progenitors, agriculture practiced by other organisms, and role and ownership of crop biodiversity. GE credit: SciEng or SocSci, Div, Wrt | SE or SS, SL, WE—III. (Ill.) Gepts

148. Introductory Mycology (4)
Lecture—2 hours; laboratory—6 hours. Prerequisite: Biological Sciences 1A, 1B, 1C, Systematics, ecology, evolution, and morphology of fungi. Importance of fungi to humans. (Same course as Plant Pathology 148B) GE credit: SE—I. MacDonald, Russo

189. Experiments in Plant Biology: Design and Execution (3)
Lecture/discussion—6 hours. Prerequisite: Biological Sciences 1A, 1B, 1C, or 2A, 2B, 2C, or the equivalent courses in Plant Sciences, and consent of the instructor. Provides an opportunity for undergraduate students to formulate experimental approaches to current questions in plant biology and to carry out their proposed experiments. May be repeated for credit for a total of 12 units. (P/NP grading only)—I, II, III. (I, II, III)

190C. Research Conference in Plant Biology (1)
Discussion—1 hour. Prerequisite: upper division standing in Plant Biology or related discipline; consent of instructor. Introduction to research methods in plant biology. Design of field or laboratory research projects, survey of appropriate literature, and discussion of research by faculty and students. May be repeated for credit. (P/NP grading only)—I, II, III. (I, II, III)

192. Internship (1-12)
Internship—3.6-36 hours. Prerequisite: completion of 84 units and consent of instructor. Technical and/or professional experience offered to students supervised by a member of the Plant Biology Department faculty. May be repeated for credit. (P/NP grading only)—I, II, III, IV. (I, II, III, IV)

194H. Special Study for Honors Students (1-5)
Prerequisite: open only to majors of senior standing on honors list. Independent study of selected topics under the direction of a member or members of the staff. Completion will include the writing of a senior thesis. (P/NP grading only.)

197T. Tutoring in Plant Biology (1-5)
Discussion—2-6 hours. Prerequisite: upper division standing and consent of instructor. Assisting the instructor by tutoring students in one of the Department's regular courses. May be repeated for credit. (P/NP grading only)—I, II, III, IV. (I, II, III)

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.)

Professional

396. Teaching Assistant Training Practicum (1-4)
Prerequisite: graduate standing; consent of instructor. Practical experience in acting as teaching assistant in Plant Biology courses. Learning activity: hands-on experience in preparing for and conducting discussions; laboratory work, and the formulation of questions and topics for examinations. May be repeated for credit. (S/U grading only)—I, II, III, IV. (I, II, III, IV)

Plant Biology

(Kentaro Inoue, Ph.D., Chairperson of the Group)

Group Office. 227A Life Sciences 530-752-2991; Fax 530-752-8822 http://biosci3.ucdavis.edu/GradGroups/PB/

Faculty

Diane Beckles, Ph.D., Associate Professor (Plant Sciences)
Alan Bennett, Ph.D., Professor (Plant Sciences)
Alison Berry, Ph.D., Professor (Plant Sciences)
Eduardo Blumwald, Ph.D., Professor (Plant Sciences)
Richard Bostock, Ph.D., Professor (Plant Pathology)
Kent Broadley, Ph.D., Professor (Plant Sciences)
Sibhsan Brady, Ph.D., Assistant Professor (Plant Biology)
Anne Brit, Ph.D., Professor (Plant Pathology)
Patrick Brown, Ph.D., Professor (Plant Sciences)
Judy Callis, Ph.D., Professor/Vice Chair (Molecular and Cellular Biology)
Gitta Coaker, Ph.D., Associate Professor (Plant Pathology)

Charles Gasser, Ph.D., Professor (Molecular and Cellular Biology)
Paul Gepts, Ph.D., Professor (Plant Sciences)
Edmund Gilbert, Ph.D., Assistant Professor (Plant Sciences)
David Gilchrist, Ph.D., Professor (Plant Pathology)
Sham Goyal, Ph.D., Agronomy Specialist (Plant Sciences)
Thomas Gradziel, Ph.D., Professor (Plant Sciences)
Andrew Graover, Ph.D., Assistant Professor (Plant Biology)
John Harada, Ph.D., Professor (Plant Biology)
Academic Senate Distinguished Teaching Award
Stacey Harmer, Ph.D., Professor (Plant Biology)
Kentaro Inoue, Ph.D., Professor (Plant Sciences)
Melanie Jasieniuk, Ph.D., Associate Professor (Plant Sciences)
Judy Jernstedt, Ph.D., Professor (Plant Sciences)
Daniel Klaenosten, Ph.D. Professor (Plant Sciences)
John Labavitch, Ph.D., Professor (Plant Sciences)
Clara Lagarias, Ph.D., Professor (Molecular and Cellular Biology)
J. Heiner Lieth, Ph.D., Professor (Plant Sciences)
Bo Liu, Ph.D., Professor (Plant Biology)
William Lucas, Ph.D., Professor/Chair (Plant Biology)
Julin Maloof, Ph.D., Professor (Plant Biology)
Mark Matthews, Ph.D., Professor (Wetland and Ecosystem)
Karen McDonald, Ph.D., Professor and Associate Dean (Chemical Engineering and Materials Science)
Richard Michelmore, Ph.D., Professor (Plant Sciences)
Terence Murphy, Ph.D., Professor (Plant Biology)
David Neale, Ph.D., Professor (Plant Sciences)
Sharan O'Neill, Ph.D., Professor (Plant Biology)
Kyma The Paw, Ph.D. (Land, Air and Water Resources)
Anne Powell, Ph.D., Associate Researcher (Plant Sciences)
Carlos Quirao, Ph.D., Professor (Plant Sciences)
Marcel Rejmanek, Ph.D., Professor (Evolution and Ecology)
Eliska Rejmankova, Ph.D., Professor (Environmental Science and Policy)
Pamela Ronald, Ph.D., Professor (Plant Pathology)
Alan Rose, Ph.D., Project Scientist (Molecular and Cellular Biology)
Jeffery Ross-Ibarra, Ph.D., Assistant Professor (Plant Sciences)
Ken Shackel, Ph.D., Professor (Plant Sciences)
Neelima Sriniv, Ph.D., Professor (Plant Biology)
Dina St. Clair, Ph.D., Professor (Plant Sciences)
Venkatesan Sundaresan, Ph.D., Professor (Plant Biology)
Thomas Tai, Ph.D., Associate in the Agricultural Experiment Station (Plant Scientist)
Steve Theg, Ph.D., Professor (Plant Biology)
Li Tran, Ph.D., Assistant Professor (Plant Sciences)
Allan Van Deynze, Ph.D., Professional Researcher (Plant Sciences)
M. Andrew Walker, Ph.D., Professor (Wetland and Ecosystem)
John Yogod, Ph.D., Professor (Plant Sciences)
Florence Zakharov, Ph.D., Assistant Professor (Plant Sciences)

Emeriti Faculty

Don Durzan, Ph.D., Professor (Plant Sciences)
David Gilchrist, Ph.D., Professor Emeritus (Plant Sciences)
Donald J. Nevin, Ph.D., Professor (Plant Sciences)
Donald Phillips, Ph.D., Professor (Plant Sciences)
Carlos Quirao, Ph.D., Professor Emeritus (Plant Sciences)
Michael Reid, Ph.D., Professor (Plant Sciences)
M W Silk, Ph.D., Professor Emeritus (Plant Sciences)

Affiliated Faculty

John Bowman, Ph.D., Professor (Plant Biology)
Graduate Study. The Graduate Group in Plant Biology offers programs of study and research leading to the M.S. and Ph.D. degrees. The program prepares students for careers in teaching and research at universities and colleges, government and industrial laboratories, or careers in plant biology, biochemistry, and genetics; and systems and evolutionary biology. These areas of specialization permit individual study and research into diverse aspects of plant biology, including anatomy, biochemistry, cell biology, ecology, genetics, genomics, molecular biology, morphology, paleo-botany, physiology, population biology, systems biology, and weed science. The graduate adviser, the major professor, and the student will design a program of advanced courses to meet individual academic needs within one of the specializations.

Preparation. For both the M.S. and Ph.D. programs, a level of scholastic development equivalent to a Bachelor’s degree in biological sciences from a recognized college or university is required. Courses in the following areas are considered to be prerequisite to the advanced degrees in Plant Biology: biology, inorganic chemistry, organic chemistry, introductory physics, genetics, plant development and structure, introductory plant physiology, calculus, introductory statistics, ecology/systems/evolution, and cell/molecular biology. Limited deficiencies can be made up after admission.

Graduate Adviser. Contact the Group office.

Courses in Plant Biology (PBI)

Graduate

200A. PBGG Core Course Series—Fall quarter (5)
Lecture—2 hours; discussion—2 hours. Prerequisite: graduate standing; a broad background of undergraduate-level coursework in Plant Biology is recommended. The first of three PBGG core graduate courses. Coverage includes (1) plant development, (2) cytokineton and vesicle trafficking, (3) cell walls, (4) cell growth, (5) secondary metabolism, (6) plastids and (7) senescence. I. (I) Potter

200B. PBGG Core Course Series—Winter quarter (5)
Lecture—3 hours; discussion—2 hours. Prerequisite: course 200A. The second of three PBGG graduate core courses. Coverage includes (1) embryonic development, (2) cellular and long distance transport processes, (3) mineral nutrition, (4) environmental impacts on growth and development, (5) stress perception and responses, (6) canopy processes, and (7) plant interactions with other organisms. III. (III) Blumwald, Silk

200N. Biology of the Plant Cell (4)
Lecture—3 hours; laboratory—2 hours. Prerequisite: Plant Biology 111 or Biological Sciences 104, or the equivalent. Recent progresses in plant cell biology. Intracellular motility in plant cells. Common techniques associated with the progress of plant cell biology. Open to senior undergraduate students in Plant Biology major. Offered in alternate years. (S/U grading only.)

210. Plant Ecophysiology (3)
Lecture—3 hours. Prerequisite: Plant Biology 111, 112, 117. Study of the mechanisms of physiological adaptation of plants to their environment. Offered in alternate years. (II)

212. Physiology of Herbical Action (3)
Lecture—3 hours. Prerequisite: Plant Biology 112, 122. Study of the fundamental processes involved in the physiological action of herbicides. Detailed consideration of the fate of herbicides in plants. Offered in alternate years. (II)

214. Higher Plant Cell Walls (3)
Lecture—2 hours; discussion—1 hour. Prerequisite: Plant Biology 112, and a course in biochemistry. Lectures focus on the structure, analysis, synthesis, and development of plant cell walls. Discussions center on analysis of scientific papers related to lecture topics. Offered in alternate years. I. Labavitch

220. Plant Developmental Biology (4)
Lecture—3 hours; discussion—1 hour; term paper. Prerequisite: plant anatomy, physiology, and biochemistry. A survey of the concepts of plant development and organization. Examines plant cells, tissues, and organs with an emphasis on understanding development; evidence for mechanisms regulating developmental processes. Offered in alternate years. Sinha

223. Special Topics in Scientific Method (2)
Discussion—2 hours. Examine the historical and philosophical background of the scientific method. Analyze the rational, perceptual, causal, creative and social aspects of scientific knowledge. Clarify the roles of reason, experimentation and creativity in scientific research. (S/U grading only.) I, II, III (I, II, III)

227. Plant Molecular Biology (4)
Lecture/discussion—4 hours. Prerequisite: Molecular and Cellular Biology 121 or 161. Molecular aspects of higher plant biology with emphasis on gene expression. Plant nuclear and organelle genome organization, gene structure, mechanisms of gene regulation, gene transfer, and special topics related to development and response to biological and environmental stimuli. Offered in alternate years. Brit, Sinha

229. Molecular Biology of Plant Reproduction (3)
Lecture—3 hours. Molecular genetic basis of plant reproduction. Understanding developmentally regulated gene expression as it relates to the major changes that occur during plant reproduction and on the genetic control of flowering. Offered in alternate years. O’Neill

290A. Faculty Seminar (1)
Discussion—1 hour. Discussion of research area of seminar speakers in Plant Biology Graduate Group. Seminar Series. Restricted to Plant Biology graduate students (PBGG). May be repeated six times for credit. (S/U grading only.)—I, II, III, (I, II, III)

290B. Seminar (1)
Seminar—1 hour. Seminars presented by visiting scientists on research topics of current interest. (S/U grading only.)—I, II, III, (I, II, III)

290C. Research Conference in Botany (1)
Discussion—1 hour. Prerequisite: graduate standing and/or consent of instructor. Presentations and discussion by faculty and graduate students on research projects in botany. May be repeated for credit. (S/U grading only.)—I, II, III, (I, II, III)

291. Graduate Student Seminar in Plant Biology (1)
Seminar—1 hour. Prerequisite: graduate student standing. Students given seminars on topics in plant biology, with critiques by instructor and peers. How to give a seminar, including preparation of visual and other teaching aids. Topic determined by instructor in charge. May be repeated for credit. (S/U grading only.)—I, II, III, (I, II, III)

292. Seminars in Plant Biology (1)
Seminar—1 hour. Prerequisite: consent of instructor. Review of current literature in botanical disciplines. Disciplines and special subjects to be announced quarterly. Students present and analyze assigned topics. May be repeated for credit. (S/U grading only.)—I, II, III, (I, II, III)

293. Seminar in Postharvest Biology (1)
Discussion—1 hour. Prerequisite: consent of instructor; open to advanced undergraduates. Intensive study of selected topics in the postharvest biology of fruits, vegetables, and flowers. May be repeated for credit. (S/U grading only.)—I, II, III, (I, II, III)

297. Tutoring in Plant Biology (1-5)
Tutorial—3-15 hours. Offers graduate students, particularly those not serving as teaching assistants, the opportunity to gain teaching experience. (S/U grading only.)

298. Group Study (1-5)
May be repeated up to four times for credit. (S/U grading only.)

299. Research (1-12)
Prerequisite: graduate standing. (S/U grading only.)

Professional

390. The Teaching of Plant Biology (2)
Discussion—2 hours. Prerequisite: graduate standing; concurrent appointment as a teaching assistant in Plant Biology. Consideration of the problems of teaching botany; especially of preparing for and conducting discussions, guiding student laboratory work, and the formulation of questions and topics for examinations. (S/U grading only.)—I, II, III, (I, II, III)

Plant Pathology

(College of Agricultural and Environmental Sciences)

Department Office. 354 Hutchison Hall
530-752-0300; http://plantpathology.ucdavis.edu/course/index.htm

Faculty

Richard M. Bostock, Ph.D., Professor
Gitta Cooker, Ph.D. Associate Professor
Douglas R. Cook, Ph.D., Professor
Michael David, Ph.D., Professor
Lynn Epstein, Ph.D., Professor
Bryce W. Falk, Ph.D., Professor
Robert L. Gilbertson, Ph.D., Professor
Thomas R. Gordon, Ph.D., Professor
Bruce Kirkpatrick, Ph.D., Professor
Johan Leveque, Ph.D., Associate Professor
James D. MacDonald, Ph.D., Professor
Neil McRoberts, Ph.D., Assistant Professor
David Rizzo, Ph.D., Professor
Pamela C. Ronald, Ph.D., Professor
Ioannis Stergiopoulos, Ph.D., Assistant Professor
Neal K. van Alfen, Ph.D.
Valerie Williamson, Ph.D., Professor

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

Pre-Fall 2011 General Education (GE): Arts & Humanities; Sciences & Engineering; Social Sciences; Divvies; World Cultures; Writing Experience

Fall 2011 and on Revised General Education (GE): AH-Arts and Humanities; SE-Science and Engineering; SS-Social Sciences; ACM-American Cultures; DD-Domestic Diversity; Wrt-Writing Experience