PLANT BIOLOGY (PBIO)

Courses

PBIO 004. SU: Intro to Botany. 0 or 4 Credits.
Structure, function, and reproduction of plants. Fundamental aspects of plant science with implications of botanical knowledge needed for applied plant sciences. Credit not given for both PBIO 004 and BIOL 001.

PBIO 006. SU: The Green World. 3 Credits.
Evaluation of the impact of plants on the aesthetic, cultural, social, medical, and religious lives of peoples of the world. Botany and Biological Science majors will not receive credit for PBIO 006 as part of program distribution requirements.

PBIO 090. Internship. 1-3 Credits.
On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

PBIO 092. Independent Study. 1-18 Credits.
A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

PBIO 095. Introductory Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

PBIO 104. Plant Physiology. 0 or 4 Credits.
Study of the plant as a whole, growth and development, water and mineral relations, environmental factors, and regulatory processes. Prerequisites: BCOR 011 and BCOR 012, or BIOL 001 and BIOL 002, or BCOR 021; and CHEM 031 and CHEM 032, or CHEM 023 and CHEM 026, or CHEM 031 and CHEM 026; or Instructor permission.

PBIO 108. Morph & Evo of Vascular Plants. 0 or 4 Credits.
Evolutionary relationships of vascular plants as inferred from plant structure, ecology, geography, and reproductive biology. Synthesis includes both fossil and extant groups. Prerequisites: PBIO 004 or BIOL 002 or BCOR 012 or BCOR 021 or Instructor permission. Alternate years.

PBIO 109. Plant Systematics. 0 or 4 Credits.
Collection and identification of ferns and flowering plants; survey of prominent Vermont plant families; plant nomenclature, classification, and phylogeny; species concepts and speciation; floral function. Prerequisites: PBIO 004 or BIOL 002 or BCOR 012 or BCOR 021 or Instructor permission.

PBIO 117. Plant Pathology. 0 or 4 Credits.
Introduction to the causes of plant disease including the relationship of the plant, pathogen, and environment in disease development and disease management. Prerequisites: PBIO 004, or BIOL 001 and BIOL 002, or BCOR 011 and BCOR 012, or BCOR 021, or Instructor permission. Cross-listed with: PSS 117. Alternate years.

PBIO 133. SU: How Plants Can Save World. 3 Credits.
The overarching course question is the following: How can plants be used to design sustainable solutions to problems resulting from existing, unsustainable practices in agriculture, energy, and health? Prerequisites: BIOL 001 and BIOL 002, or BCOR 011 and BCOR 012, or PBIO 004, or PBIO 006.

PBIO 151. Plant Anatomy. 3 Credits.
Introduction to the structural and developmental anatomy of roots, stems, and leaves, including basic tissue types, vascular anatomy, woody plant anatomy, and reproductive anatomy. Prerequisites: BIOL 001 or BCOR 011 or BCOR 021.

PBIO 177. Biology of Fungi. 4 Credits.
Collect, identify and study major fungal groups, especially basidiomycetes (mushrooms, rusts and smuts), ascomycetes (cup fungi, yeasts and mildews), and affiliated taxa. Extensive field and lab work, with thematic lectures. Prerequisite: PBIO 004 or BIOL 002 or BCOR 12 or BCOR 021 or Instructor permission.

PBIO 185. Introduction to Biochemistry. 3 Credits.
Exploring biological processes at the molecular level and how they are controlled. Topics include enzymes, gene expression, and metabolism of carbohydrates and lipids. Restricted to Nutrition and Food Sciences and Dietetics, Nutrition and Food Sciences majors; others by Instructor permission. Prerequisite: CHEM 042; or CHEM 141 and CHEM 142; or other acceptable coursework in organic chemistry. Cross-listed with: NFS 183.

PBIO 187. Intro to Biochemistry: Lab. 1 Credit.
Introduction to techniques used to explore fundamental biochemical concepts including enzyme kinetics, lipids, carbohydrate chemistry, and gene expression. Includes Includes spectrophotometry, gel electrophoresis, and mass spectrometry. Pre/co-requisite: PBIO 185, BIOC 201, or NFS 183. Cross-listed with: ASCI 187, NFS 187.

PBIO 190. Internship. 1-18 Credits.
On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

PBIO 191. Teaching Assistantship. 1-3 Credits.
Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

PBIO 192. Independent Study. 1-18 Credits.
A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

PBIO 195. Intermediate Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.
PBIO 198. Undergraduate Research. 1-18 Credits.
Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisites: Department permission.

PBIO 209. Biology of Ferns. 3 Credits.
Evolutionary biology; a survey of New England ferns and discussion of their phylogenetic relationships; current research emphasizing morphological, biogeographical, genetic, and phytochemical aspects of speciation. Prerequisite: PBIO 108 or PBIO 109 (BCOR 101 recommended). Alternate years.

PBIO 223. Fundamentals of Field Science. 3 Credits.
Pattern and process in natural systems. Weekly discussion of unifying questions in science. Field labs teach sampling and analysis of vegetation, soils, and animals. Prerequisite: Graduate standing or several university courses in earth sciences, life sciences, and chemistry.

PBIO 232. Plant Systematics in Costa Rica. 2 Credits.
Intensive field trip to Costa Rica with the goal of comparing the diversity of flowering plants and ferns in four distinct tropical American forests. Emphasis on field recognition of flowering-plant families, with an appreciation of the relationship between the Costa Rican people and their landscape. Prerequisites: PBIO 109; Instructor permission.

PBIO 241. Tropical Plant Systematics. 3 Credits.
Principles and methods of angiosperm phylogeny. Recent systematic and evolutionary research on flowering plants; survey of tropical flowering plant families. Student presentations on recent research. Prerequisite: PBIO 109. Alternate years.

PBIO 261. Plant Growth & Development. 3 Credits.

PBIO 281. Botany Seminar. 0 Credits.
Presentations of personal research by faculty, graduate students, and outside guest speakers. Attendance required of plant biology Graduate students and Seniors in botanical research programs. Without credit.

PBIO 282. Botany Seminar. 0 Credits.
Presentations of personal research by faculty, graduate students, and outside guest speakers. Attendance required of plant biology Graduate students and Seniors in botanical research programs. Without credit.

PBIO 288. The Evolution of Development. 3 Credits.
Highlights how the integration of key concepts from developmental biology has contributed to our understanding of the proximate causes of plant and animal diversification. Prerequisite: BCOR 102 or equivalent, BCOR 101 or equivalent.

PBIO 290. Internship. 1-18 Credits.
On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

PBIO 291. Teaching Assistantship. 1-3 Credits.
Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

PBIO 292. Independent Study. 1-18 Credits.
A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

PBIO 294. Ecological Modeling. 3 Credits.
Provide an introduction to the modeling of ecological processes and data, emphasizing likelihood and Bayesian approaches to data modeling and analytical and computational models of ecological process. Uses R, Python, and Wolfram programming languages. Prerequisite: BCOR 102 or Instructor permission.

PBIO 295. Advanced Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

PBIO 296. Undergraduate Research. 1-18 Credits.
Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Department permission.