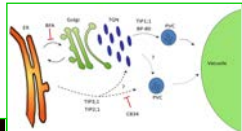


Plant Biology at NC State

<http://www.cals.ncsu.edu/pmb/>

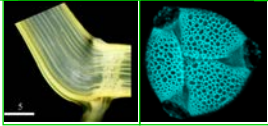
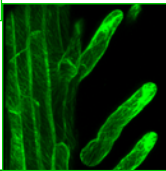
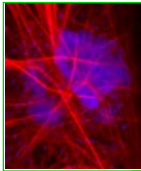


Diverse Research Projects and Interdisciplinary Programs

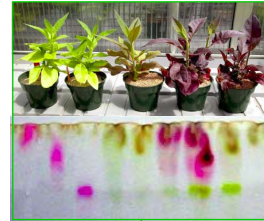


Cell and Molecular Biology

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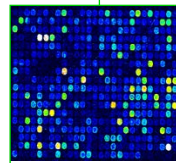
Ethnobotany and Phytochemistry



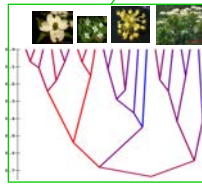
Community, Aquatic, and Physiological Ecology



Species Biology and Rare Plant Conservation



Genomics and Systems Biology



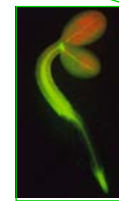
Molecular Systematics



Paleobotany



Plant Biotechnology



Departmental Faculty Programs

Plant cell and molecular biology

Jose Alonso: Plant hormone biology and functional genomics.
Larry Blanton: Undergraduate training opportunities in cell biology; cellular slime molds
Margaret Daub: Plant-fungal interactions
Robert Franks: Transcriptional regulatory hierarchies during plant development
Candace Haigler: Cellulose synthesis, cell wall biology, cotton fiber development
Tzung-Fu Hsieh: Genomic imprinting, epigenetic regulation of plant reproduction
Sirius Li: Phenylpropanoid metabolism and plant growth
Terri Long: Molecular biology of plant nutritional homeostasis
Imara Perera: Plant signaling, stress responses
Marcela Rojas-Pierce: Protein trafficking and chemical genetics
Heike Sederoff: Plant sensory genomics, regulatory genomic networks
Rosangela Sozzani: Plant stem cells, functional genomics and stem cell biology
Anna Stepanova: Hormone interactions, inter-tissue growth coordination
William Thompson: Transgene regulation and silencing, DNA replication_
Deyu Xie: Phytochemistry, metabolic engineering

Biotechnology

Susan Carson: Biotechnology education, summer undergraduate research opportunities
Margaret Daub: Engineering plants for disease resistance
Robert Franks: Molecular genetics of seed pod development
Candace Haigler: Functional genomics of fiber crops
Tzung-Fu Hsieh: Functional genomics and epigenetic regulation of endosperm and seed
Sirius Li: Plant metabolic engineering for human health, biofuel feedstock improvement
Terri Long: Increasing plant nutritional content and tolerance to nutrient stress
Imara Perera: Plant responses to abiotic and biotic stress
Marcela Rojas-Pierce: Chemical inhibitors of plant growth
Rosangela Sozzani: Genetic engineering of stem cells for plant growth
Heike Sederoff: Genetic engineering and synthetic biology for biofuels
William Thompson: Transgene regulation and silencing
Jenny Xiang: Evolutionary developmental genetics of inflorescences
Deyu Xie: Phytochemistry, metabolic engineering

Biochemistry

Sirius Li: metabolomics, genetics, and genomics of plant secondary metabolism
Terri Long: Protein-protein and protein-DNA interactions, iron metabolism
Imara Perera: Inositol phosphate metabolism and phosphate homeostasis
Marcela Rojas-Pierce: Trafficking of membrane transporters
Heike Sederoff: Carbon and nitrogen metabolism and transport
Deyu Xie: Phytochemistry, metabolic engineering

Ecology

JoAnn Burkholder: Aquatic ecosystems including impacts of global warming
William Hoffmann: Tropical ecology, physiological ecology, global change
Alexander Krings: Ecology of New World climbing plants
James Mickle: Paleobiogeography
Thomas Wentworth: Plant community ecology
Jillian De Gezelle: Ethnoecology, tropical plant ecology, plant defenses

Systematics

JoAnn Burkholder: Algae, aquatic vascular plants
Alexander Krings: Systematics of New World plants and invasive weeds
James Mickle: Paleobotany, plant morphology
Jenny Xiang: Molecular phylogenetics

Evolutionary biology

William Hoffmann: Evolutionary and comparative ecology
James Mickle: Paleobotany
Jenny Xiang: Comparative phylogeography, molecular evolution, ev-devo of inflorescence

Conservation/reproductive biology

JoAnn Burkholder: Aquatic conservation biology, invasive aquatic species, harmful algae
William Hoffmann: Fire ecology, plant population biology
Alexander Krings: Application of systematics to conservation, natural area phytoinventory
Thomas Wentworth: Inventory of natural communities, population biology
Jenny Xiang: Conservation genetics of rare and endangered species

Ethnobotany

Jenny Xiang: Study abroad program in China: Plant Resources, Ecology, and Culture
Deyu Xie: Medicinal plants
Jillian De Gezelle: Medicinal plants, traditional medical systems, wild food plants

Interdisciplinary research

JoAnn Burkholder, Heike Sederoff (with College of Engineering): Algae oils to jetfuels
Jillian De Gezelle: Ethnobiology, biocultural diversity conservation
Robert Franks: Developmental molecular genetic analysis of plant meristems
Candace Haigler Lignocellulose structure: nanobioengineering and computational modeling
Tzung-Fu Hsieh: Genomics, epigenetics, bioinformatics
Alexander Krings: Specimen-based bioinformatics, weed science
Sirius Li: Metabolomics, genetic genomics, biofuels and biomaterials
Terri Long: Systems biology, plant physiology, transcriptional regulatory networks
Marcela Rojas-Pierce: Chemical genetics
Heike Sederoff: Systems biology, computational biology and bioinformatics, RNA biology
Rosangela Sozzani: Plant systems biology, modelling of stem cell population dynamics
Thomas Wentworth: Multivariate analysis, ecoinformatics
Jenny Xiang: evolutionary and ecological genomics of local adaptation of flowering dogwood

For additional information contact:

Margaret E. Daub, Department Head
Chad Jordan, Undergraduate Coordinator
Richard L. Blanton, Director of Graduate Programs
or individual faculty members through links at
<http://www.cals.ncsu.edu/plantbiology/faculty.html>