



# Plant, Soil, & Insect Sciences

## Undergraduate Research Opportunities

### Faculty Research Interests

**Lynn Adler, Assistant Professor**

545-1060 209E Fernald Hall [lsadler@ent.umass.edu](mailto:lsadler@ent.umass.edu)

**Plant-Herbivore Interactions**

Research interests include the ecology of plant interactions with herbivores and pollinators in natural and agricultural systems.

**Allen V. Barker, Professor**

545-4733 202 Bowditch Hall [barker@pssci.umass.edu](mailto:barker@pssci.umass.edu)

**Plant and Soil Sciences / Plant Nutrition**

Research interests include plant nutrition, soil fertility, and organic farming. Some current projects are improving establishment of forest trees by enhancing their nutrition before outplanting, improving the nutritional value of foods by plant nutrition, evaluations of organic fertilizers and improving their effectiveness in crop production and plant nutrition, and management of vegetation by organic procedures.

**Lyle Craker, Professor**

545-2347 12A Stockbridge Hall [craker@pssci.umass.edu](mailto:craker@pssci.umass.edu)

**Medicinal and Aromatic Plants**

Join a group of fellow students, graduate students, and post-doctorates to investigate the culture, chemistry, and biological activity medicinal and aromatic plants. Study the effect of the environment and growth regulators on plant growth and essential oil production. Explore working with tissue cultures and whole plants.

**Michelle DaCosta, Assistant Professor**

5-2547 11 Stockbridge Hall [mdacosta@psis.umass.edu](mailto:mdacosta@psis.umass.edu)

**Plant Stress Physiology**

Research interests in plant stress physiology. We specifically evaluate responses of grass species to environmental stresses, including drought, freezing, and high temperature stresses. Unique opportunity for students to gain experience working in both laboratory and field environments.

**J. Scott Ebdon, Associate Professor**

545-2506 12F Stockbridge Hall [sebdon@pssci.umass.edu](mailto:sebdon@pssci.umass.edu)

**Turfgrass Science**

web site: <http://www.people.umass.edu/sebdon/>

The University of Massachusetts Amherst is proud of its national ranked Undergraduate Turfgrass Management Program. My research program combines laboratory and field related activities. Undergraduate students are encouraged to contact me by phone or email to arrange for Independent Study credits. Research areas include traffic (wear) tolerance mechanisms and low temperature hardiness in cool-season turfgrass.

**Ruth Hazzard, Extension Specialist**

545-3696 301 Ag Engineering [rhazzard@umext.umass.edu](mailto:rhazzard@umext.umass.edu)

**Sustainable Vegetable Production**

My projects include evaluation of cold-hardy greens for late fall and early spring production (with Dr. Robert Bernatzky), flea beetle management in Brassicas including perimeter trap cropping, biological control of European corn borer in sweet corn and peppers, *Phytophthora capsici* management in cucurbits, and student production of organic vegetable crops for sale on campus.

**Geunhwa Jung, Assistant Professor**

545-2243 206 French Hall [jung@psis.umass.edu](mailto:jung@psis.umass.edu)

**Plant Pathology & Molecular Genetics**

Molecular genetics of disease resistance in turfgrass using functionally associated molecular markers such as EST-SSR (Expressed Sequence Tag) and SNP (Single Nucleotide Polymorphism) and comparative genome approaches. Population genetics of plant pathogenic sterile fungi using *Sclerotinia homoeocarpa*, causal agent of dollar spot on turfgrass, as a model fungus. Special focus is on understanding of fungicide resistance mechanisms. Molecular understanding of mechanisms of anti-microbial activity of Nano-sized metal particles/ions in plant pathogenic fungi.

**William J. Manning, Professor**

545-2289 207 Fernald Hall [wmanning@microbio.umass.edu](mailto:wmanning@microbio.umass.edu)

**Plant Pathology & Air Pollution Biology**

Website: [www.bio.umass.edu/plantbio/faculty/manning.html](http://www.bio.umass.edu/plantbio/faculty/manning.html)

Research interests span the following topics:

1. Ozone effects on plant growth, development and interactions with fungi
2. Tree responses to air pollutants in the city of Springfield, MA  
Air quality monitoring, growth analyses, foliar analyses

**Benjamin Normark, Associate Professor**

577-3780 204B Fernald Hall [bnormark@ent.umass.edu](mailto:bnormark@ent.umass.edu)

**Entomology and Molecular Biology**

Molecular phylogenetics and systematics of scale insects and their endosymbiotic bacteria  
Curating and databasing the UMass Insect Collection

**Om Parkash, Assistant Professor**

545-0062 202 French Hall [parkash@psis.umass.edu](mailto:parkash@psis.umass.edu)

**Plant Biotechnology**

Research interests include engineering plants for:

- 1) Phytoremediation of toxic pollutants
- 2) blocking uptake of toxic pollutants in food crops
- 3) bioenergy – enhancing biomass and bio-diesel production

**Baoshan Xing, Associate Professor**

545-5212 12B Stockbridge Hall [bx@pssci.umass.edu](mailto:bx@pssci.umass.edu)

**Environmental Soil Chemistry**

Research interests includes

- 1) Fate and behavior of organic contaminants in soils and sediments
- 2) Natural organic matter chemistry
- 3) Environmental fate and implication of nanotechnology
- 4) Interaction of clays and organic matter with engineered nanomaterials