The graduate program in **Plant and Microbial Biosciences** provides training in the use of prokaryotes, eukaryotic microbes, mosses, and vascular plants as experimental organisms to address fundamental and applied biological questions. Contemporary research on plant and microbial systems adds to our knowledge of basic biology, informs our understanding of the natural world, and leads to innovations in biomedicine, agriculture, and energy production.

Washington University graduate students have unparalleled opportunities to pursue multidisciplinary training in genetics, biochemistry, cell biology, development, molecular evolution, and physiology, capitalizing on current interest and investment in biological research, and fueled by experimental resources found at Washington University.

**Research Environment**

The faculty in the program investigate fundamental and applied biological problems.

**Research areas include:**

- Molecular mechanisms governing responses of microbes and plants to their environment
- Assembly and regulation of membrane-associated complexes
- Cytoskeleton organization and its role in morphology and cell division
- Structural biology and biochemistry
- Molecular mechanisms underlying cell and organelle size
- Plant-microbe interactions
- Metabolic engineering of natural products, biomaterials, and biofuels
- Microbial ecology and evolution
- Biogeochemical cycles and earth history
- Systems biology
- Astrobiology
# Plant & Microbial Biosciences

## Required Courses
- Current Approaches in Plant and Microbial Research
- Nucleic Acids & Protein Biosynthesis*
- Experimental Design & Analysis in Biological Research
- Ethics & Research Science
- Seminar in Plant & Microbial Biology
- One additional Journal Club
- Graduate Research Fundamentals

*can substitute Fundamentals of Molecular Cell Biology

## Advanced Electives
- Advanced Genetics
- How Plants Work: Plant Physiology, Growth & Metabolism
- Developmental Biology
- Fundamentals of Molecular Cell Biology
- Bioenergy
- Genomics
- Mass Spectrometry
- Biotech Industry Innovators
- Statistics
- Computational Molecular Biology

## Program Benefits & Support
- Full tuition funding and benefits*, including: generous stipend | travel funds for scientific meetings | health, life, and disability insurance coverage
- Opportunities to obtain nationally competitive fellowships, awards, and grants
- Free Metro U-Pass to travel in and around the St. Louis area
- Access to all university educational, entertainment, and recreational resources

*guaranteed, provided that satisfactory progress towards completion of degree requirements is met

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**DBBS celebrates diversity in all of its forms.**

We invite all students to apply, especially those from backgrounds historically underrepresented in the sciences, such as African, Latin, and Native Americans, those with disabilities, and individuals from low-income backgrounds.

To learn more about DBBS’ diversity initiatives, visit: [https://tinyurl.com/dbbsdiversity](https://tinyurl.com/dbbsdiversity)

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**EXPLOR & APPLY:**
[https://tinyurl.com/dbbstour](https://tinyurl.com/dbbstour)

For more information about the PLANT & MICROBIAL BIOSCIENCES program and faculty research:
[https://tinyurl.com/dbbs-pmbfaculty](https://tinyurl.com/dbbs-pmbfaculty)

**APPLICATION DEADLINE:**
[DECEMBER 1](https://tinyurl.com/dbbstour)