

MICROBIOLOGY (GRADUATE FIELD)

Program Website (<https://cals.cornell.edu/education/degrees-programs/graduate-field-microbiology/>)

Field Description

Research areas include genetics, physiology, biochemistry, molecular biology, systematic and environmental microbiology, microbial ecology, and virology. Most of the laboratories used by the field have been recently built or renovated, and a broad range of instrumentation is available for work in all aspects of microbiology and molecular biology. One semester of teaching is required for Ph.D. degree candidates.

Data and Statistics

- Doctoral Program Statistics (<https://gradschool.cornell.edu/about/program-metrics-assessments-and-outcomes/doctoral-program-statistics/?SelectGradField=53>)

Field Manual

- Manual (<https://cals.cornell.edu/microbiology/academics/graduate/>)

Subject and Degrees

Microbiology

- Microbiology (PhD) (<https://catalog.cornell.edu/programs/microbiology-phd/>)

Concentrations by Subject

Microbiology

- microbiology

Faculty

Beth A Ahner (<http://cals.cornell.edu/beth-ahner/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** detoxification mechanisms in aquatic microorganisms; phytoremediation of trace metal contaminants

Craig Altier (<http://www2.vet.cornell.edu/research/faculty/craig-altier-dvm-phd/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** Bacterial Genetics, Salmonella, 5

Esther R Angert (<http://cals.cornell.edu/esther-r-angert/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** microbial ecology; evolution of a novel bacterial development system; microbial phylogeny

Carl A Batt (<http://www.bme.cornell.edu/faculty-directory/carl-batt/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** biotechnology

Adam Bogdanove (<http://cals.cornell.edu/adam-j-bogdanove/>)

- **Campus:** Ithaca - (Divisional Member)
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** Interactions of rice with pathovars of the bacterial pathogen *Xanthomonas oryzae* and on TAL effector DNA targeting and its applications

Ilana Lauren Brito (<http://www.bme.cornell.edu/faculty-directory/ilana-lauren-brito/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** human microbiome; horizontal gene transfer and antibiotic resistance

Nicolas S Buchon (<http://cals.cornell.edu/nicolas-buchon/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** Using *Drosophila melanogaster* to study the host response to indigenous and pathogenic microbes using genomics, functional genetics and systems-level approaches

Daniel H Buckley (<http://cals.cornell.edu/daniel-h-buckley/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** environmental genomics and microbial ecology of soils; ecological significance of microbial community structure and microbial diversity in soils

Aisha Burton (<http://cals.cornell.edu/aisha-burton/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** bacterial stress response; small proteins

Sarah Caddy (<http://www.vet.cornell.edu/departments-centers-and-institutes/baker-institute/our-research/meet-our-faculty/sarah-caddy-ma-vetmb-phd-dacvm-mrcvs/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** Virus-Antibody Interactions

Pamela V. Chang (<http://www.pamchanglab.com/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** The overall theme of our research is to understand how the host immune system is regulated by the gut microbiota through their secretion of small molecule metabolites. Our research focuses primarily on two areas: (1) the identification of metabolites produced by the gut microbiota that regulate the host immune system and, building on these discoveries, (2) the development of chemical tools to modulate the immune response. We employ biological and chemical approaches including the tools of molecular and cellular immunology, microbiology, chemical

biology, chemistry, biochemistry, and cell biology to elucidate key communication pathways between the gut microbiota and the host immune system. Our ultimate goal is to understand how immune homeostasis is maintained in the intestines, as such discoveries would have broad implications for the development of therapeutics and prophylactics for many inflammatory diseases.

Nate James Cira (<http://www.bme.cornell.edu/faculty-directory/nate-cira/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** Devices and techniques to understand complex microbial systems

Ruth N Collins (<http://www2.vet.cornell.edu/research-departments/faculty/ruth-collins-phd/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** microbiology

Matthew P DeLisa (<http://www.engineering.cornell.edu/faculty-directory/matthew-delisa/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** biotechnology; biomolecular engineering of cellular machinery

Tobias Doerr (<http://cals.cornell.edu/tobias-doerr/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** bacterial stress pathways; peptidoglycan remodeling in *Vibrio cholerae*

Katie Anne Edwards (<http://cals.cornell.edu/katie-edwards/>)

- **Campus:** Ithaca - (Minor Member)
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** Environmental Toxicology

Heather Ann Feaga (<http://cals.cornell.edu/heather-feaga/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** Molecular mechanisms of pathogenesis

Cedric Feschotte (<http://cals.cornell.edu/cedric-feschotte/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** Molecular Biology & Genetics

Kelley Ann Gallagher (<http://cals.cornell.edu/kelley-gallagher/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** regulation of sporulation; c-di-GMP signaling; molecular evolution

Amandine Gamble (<http://amandinegamble.github.io/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** Animal ecology, infectious disease ecology, wildlife epidemiology

Patrick Gibney (<http://cals.cornell.edu/patrick-gibney/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** microbiology, genetics, genomics, molecular biology, wine microbiologist

Andrea Giometto (<http://www.cee.cornell.edu/faculty-directory/andrea-giometto/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** ecological and evolutionary

Laura Goodman (<http://www2.vet.cornell.edu/research/faculty/laura-goodman-phd/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** microbiology

April Gu (<http://sites.coecis.cornell.edu/gugroup/about-professor-gu/>)

- **Campus:** Ithaca - (Minor Member)
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** water systems, biotechnology, molecular biotechnology, health systems, environmental processes

Anthony G Hay (<http://cals.cornell.edu/anthony-hay/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** environmental microbiology and toxicology; metabolism of xenobiotics

John D Helmann (<http://cals.cornell.edu/microbiology/research/active-research-labs/helmann-lab/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** transcription factors

Tory Hendry (<http://cals.cornell.edu/tory-hendry/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** host-microbe interactions, bacterial genomic evolution, ecology of microbiomes

Ian Hewson (<http://cals.cornell.edu/ian-hewson/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** marine microbial ecology; marine biology and ecology; biological oceanography; marine sediment microbial ecology

Lori Huberman (<http://blogs.cornell.edu/huberman/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** Molecular Genetics & Genomics

Elizabeth Lauren Johnson (<http://www.human.cornell.edu/people/elj54/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** genomic, lipidomic and molecular biology

Satoshi Kimura (<http://www.vet.cornell.edu/satoshi-kimura-phd/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** Translation control, RNA modification, Bacterial pathogenesis, Host-microbial interactions

Yuxin Mao (<http://cals.cornell.edu/yuxin-mao/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology

Lisa-Marie Nisbett (<http://cals.cornell.edu/lisa-marie-nisbett/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** nontuberculous mycobacteria, biofilm formation, bacterial signal transduction

Teresa Pawlowska (<http://cals.cornell.edu/teresa-e-pawlowska/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** fungal biology; plant-microbe interactions; evolution

Joseph E Peters (<http://cals.cornell.edu/joseph-e-peters/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** chromosome integrity (transposition: DNA replication, recombination, and repair); functional genomics

Angela C. Poole (<http://www.human.cornell.edu/people/acp234/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** microbiota, host-microbe interactions

Ruth E Richardson (<http://www.cee.cornell.edu/rer26/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** bioenvironmental engineering; application of molecular techniques to assess biodegradation processes; communication and cooperation in microbial communities

David G Russell (<http://www2.vet.cornell.edu/research/faculty/david-russell-phd/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology

- **Research Interests:** interaction between intracellular pathogens and their host cell; biology of microbe/host interplay

Luis M. Schang (<http://www2.vet.cornell.edu/research/faculty/luis-m-schang-mv-phd/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** I am a molecular virologist interested in the interactions between viruses and cells, interactions which determine the outcomes of the infection, and, consequently, pathogenicity.

Marian Louise Schmidt (<http://cals.cornell.edu/marian-schmidt/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** Aquatic environmental Microbiology

Kenneth William Simpson (<http://www.vet.cornell.edu/research/faculty/kenneth-w-simpson-bvms-phd/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** host bacterial interactions and intestinal inflammation

Jeongmin Song (<http://www.vet.cornell.edu/research/faculty/jeongmin-song-phd/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** defining the function of typhoid toxin a key virulence factor of salmonella typhi to better understand the pathogenesis mechanism of salmonella typhi infection

Barbara Gillian Turgeon (<http://cals.cornell.edu/barbara-gillian-turgeon/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** Fungal biology- pathogenicity and mating

Brian C. VanderVen (<http://www2.vet.cornell.edu/research/faculty/brian-vandervan-phd/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** intracellular M. Tuberculosis

Gary R Whittaker (<http://www2.vet.cornell.edu/research/faculty/gary-whittaker-phd/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** viral pathogenesis; virus-bacteria co-infection

Martin Wiedmann (<http://cals.cornell.edu/martin-wiedmann/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** food microbiology; dairy science; food science

Stephen C Winans (<http://cals.cornell.edu/stephen-winans/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** biotechnology; microbial genetics; phytobacteriology

Randy W Worobo (<http://cals.cornell.edu/randy-w-worobo/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** antimicrobial proteins and peptides; bacteriocins with a broad spectrum of activity by a single organism

Rong Yang (<http://www.cheme.cornell.edu/faculty-directory/rong-yang/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** Infectious disease treatment; bacteria-material interactions; anti-biofouling materials

Joseph B Yavitt (<http://cals.cornell.edu/joseph-b-yavitt/>)

- **Campus:** Ithaca
- **Concentrations:** *Microbiology*: microbiology
- **Research Interests:** ecology; microbial ecology; biogeochemistry; wetlands