

RESEARCH AREAS

The Department of Biology has a dynamic research environment that fosters leading-edge, collaborative research in many domains of inquiry across the biological sciences. Our faculty, and their research teams of post-doctoral fellows, graduate and undergraduate students, are actively engaged in programs that address wide-ranging questions at both the fundamental and applied levels; from mathematical modeling of predator-prey interactions to dissection of the molecular events of cellular aging. Queen's Biology offers an outstanding research environment for students to launch their scientific careers through challenging course work and intensive field and laboratory training. If you have any questions about joining our graduate programs, please email our Graduate Program Assistant at surettej@queensu.ca or call 613-533-6344.



ANIMAL PHYSIOLOGY

Our Animal Physiology research group has broad interests in neural, visual, muscular, cardiovascular and reproductive physiology. We emphasize an integrative approach to physiological questions, incorporating molecular, cellular and whole animal analyses where appropriate. Common themes in our research include the physiological impact of environmental stress and the evolution of physiology.

CELL & MOLECULAR BIOLOGY

The Cell and Molecular Biology group focuses on eukaryotic and prokaryotic organisms with an interest in developmental and biochemical problems. Model systems offer powerful molecular genetic methodology and genomics tools to study fundamental cellular functions. In addition, studies on model organisms like *Drosophila* and *Caenorhabditis* concentrate on the regulation of gene expression during development using leading-edge molecular techniques.

ECOLOGY, EVOLUTION & BEHAVIOUR

The Ecology, Evolution & Behaviour group encompasses a broad range of research spanning molecular ecology, population genetics and phylogenetics, behaviour, the evolution of animal and plant reproductive systems, sexual and natural selection, mathematical biology and ecosystem ecology.

ENVIRONMENTAL STUDIES

The multifaceted, interdisciplinary programs with Environmental Studies span research topics such as climate change, lake acidification and recovery, ecotoxicology, conservation genetics, and ecosystem rehabilitation. These research programs aim to understand and help develop solutions to challenging environmental problems at both the local and global scale.

FISHERIES & AQUATICS

The members of our Queen's University Freshwater Fisheries and Aquatic Sciences Research Group conduct an exciting array of research including zooplankton ecology, population biology, ecotoxicology, paleolimnology, invasive species, fish physiology, and reproductive biology. In addition to extensive field work, we also conduct our studies in a sophisticated aquatic facility in the Biosciences Complex offering opportunities for a breadth of lab-based studies.

PEARL

The Paleoeological Environmental Assessment and Research Laboratory (PEARL) is comprised of about 35 professors, post-doctoral fellows, graduate students, and other research dedicated to using paleolimnological techniques to provide historical perspectives on environmental change, such as water pollution and climate change. We use such data to define natural environmental variability, to generate and test hypotheses, and to evaluate computer models that aid in the evaluation of global environmental change.

PLANT SCIENCES

We have for decades been a centre of excellence in the Plant Sciences. Many of the major advances in plant biology were developed or enhanced by the research of Queen's plant biologists past and present. The current research group employs leading-edge approaches to answer some of the most pressing questions in plant biology. These approaches range from new physiological techniques that now form the foundations of plant biotechnology companies.

MATHEMATICAL BIOLOGY

Mathematic problems underlie the patterns and behaviours we encounter every day in nature. The Queen's Mathematical Biology Group comprises faculty, postdocs, and graduate students interested in the derivation of mathematical equations and their application in various biological contexts. Our research programs are multidisciplinary and help bridge the gaps between biological theory and practice.

GRADUATE SUPERVISORS

ANIMAL
PHYSIOLOGYCELL &
MOLECULAR
BIOLOGYECOLOGY,
EVOLUTION
& BEHAVIOURENVIRO.
STUDIESFISHERIES &
AQUATICS

PEARL

PLANT
SCIENCESMATHEMATICAL
BIOLOGY

LONNIE AARSEN
aarssenl@queensu.ca

- Plant Ecology and Evolution



SHELLEY ARNOTT
arnotts@queensu.ca

- Aquatic Ecology



WILLIAM BENDENA
bendenaw@queensu.ca

- Insect Biology and Biochemistry



FRAN BONIER
bonierf@queensu.ca

- Behavioural Endocrinology,
Environmental Physiology



IAN CHIN-SANG
chinsang@queensu.ca

- Process of Morphogenesis



ADAM CHIPPINDALE
chippind@queensu.ca

- Evolutionary Genetics



ROB COLAUTTI
robert.colautti@queensu.ca

- Evolutionary Ecology & Ecological Genomics



BRIAN CUMMING
cummingb@queensu.ca

- Aquatic Ecology and Paleolimnology



GEORGE DICENZO
george.dicenzo@queensu.ca

- Prokaryotic Gene Function and Metabolism



CHRIS ECKERT
chris.eckert@queensu.ca

- Plant Evolution & Population Genetics



JANNICE FRIEDMAN
jannice.friedman@queensu.ca

- Plant Evolution & Ecological Genetics



VICKI FRIESEN
vlf@queensu.ca

- Molecular Ecology and Evolution



PAUL GROGAN
groganp@queensu.ca

- Plant & Ecosystem Ecology



KEN KO
kok@queensu.ca

- Rhomboid Proteins, Protein Transplant,
and Functional Proteomics



DAN LEFEBVRE
lefebvre@queensu.ca

- Bioremediation and Contaminant
Bioconversion



STEVE LOUGHEED
steve.lougheed@queensu.ca

- Evolution & Conservation of Vertebrates



PAUL MARTIN
pm45@queensu.ca

- Conservation Biology & Evolutionary Ecology



JACQUELINE MONAGHAN
jacqueline.monaghan@queensu.ca

- Signal Transduction and Plant Genetics



BOB MONTGOMERIE
mont@queensu.ca

- Reproductive Strategies



CHRIS MOYES
chris.moyes@queensu.ca

- Molecular Physiology of Fish



BILL NELSON
nelsonw@queensu.ca

- Evolutionary Ecology of Aquatic Systems



DIANE ORIHEL
diane.orihel@queensu.ca

- Aquatic Ecotoxicology



BILL PLAXTON
plaxton@queensu.ca

- Plant Biochemistry, Proteomics, and
Molecular Biology



SHARON REGAN
sharon.regan@queensu.ca

- Molecular Control of Plant Development



MEL ROBERTSON
robertrm@queensu.ca

- Integrative Neurobiology & the
Neural Control of Insect Flight



LAURENT SEROUDE
seroudel@queensu.ca

- Molecular Genetics of Aging



JOHN SMOL
smolj@queensu.ca

- Limnology & Paleolimnology



WAYNE SNEDDEN
sneddenw@queensu.ca

- Plant Molecular Biology &
Signal Transduction



BRUCE TUFTS
tuftsb@queensu.ca

- Fish Physiology



VIRGINIA WALKER
walkervk@queensu.ca

- Genetics & Molecular Biology of
Insect Development



YUXIANG WANG
yuxiangw@queensu.ca

- Environmental Physiology



SARAH YAKIMOWSKI
sarah.yakimowski@queensu.ca

- Plant Evolutionary Ecology



PAUL YOUNG
paul.young@queensu.ca

- Cell Cycle Genetics & Molecular Biology

