

# Biology 4999E

## Potential Supervisors 2024-2025

Biology Department Website: <http://www.uwo.ca/biology/>

Check web sites for detailed information of research area

STUDENTS MUST BRING A COPY OF THEIR UNOFFICIAL TRANSCRIPT TO INTERVIEWS

Projects in Biology cover a wide range of options including Biochemistry, Development, Ecology, Evolution, Genetics, Molecular Biology, Physiology. Studies are performed with huge range of organisms from animals to plants, bacteria and fungi.

The potential supervisors are not restricted to this informal list. Please also check the Biology faculty webpage for options.

**Dr. Thomas DeFalco**, Ext. 81475, [tdefalc@uwo.ca](mailto:tdefalc@uwo.ca), NCB404

Research Area: Decoding the molecular signalling downstream of cell surface receptors in plants.

**Dr. Martin Duennwald**, Ext. 86874, [martin.duennwald@schulich.uwo.ca](mailto:martin.duennwald@schulich.uwo.ca), MSB4 1014

Research Area: Using yeast models to study neurodegenerative diseases, cellular protein quality control, protein-protein interactions and protein folding.

**Dr Kathleen A. Hill**, Ext 81337, [khill22@uwo.ca](mailto:khill22@uwo.ca), WSC333

Research Area: Genetics, Mutagenesis, Mutational Mechanisms, Mutational Signatures and Landscapes

Projects: New Mutations in Mouse Families: inherited and acquired mutations identified and characterized through whole genome sequencing with bioinformatics software used for variant detection and statistical software used for analyzing patterns in mutation spacing.

**Dr. Jim Karagiannis**, Ext. 80975, [jkaragia@uwo.ca](mailto:jkaragia@uwo.ca), BGS 3080

Research Area: Molecular genetic analysis of the regulatory networks governing cytokinesis

**Dr. Greg Kelly**, Ext. 83121, [gkelly@uwo.ca](mailto:gkelly@uwo.ca), WSC 359

Research Area: Cell signaling in vertebrate embryos

For further details, please check my website (<http://thekellylab.weebly.com>).

**Dr. Susanne Kohalmi**, Ext. 86485, [skohalmi@uwo.ca](mailto:skohalmi@uwo.ca), WSC 319

Research area: Gene families and their regulation using ADTs in *Arabidopsis thaliana* as a model system.

**Dr. Jeremy McNeil**, Ext. 83487, [jmcneil2@uwo.ca](mailto:jmcneil2@uwo.ca), BGS 3066

Research Area: Behavioural and chemical ecology of insects

**Dr. Paul Mensink**, Ext. 87563, paulmensink@uwo.ca, NCB 443

Research Area: Marine ecology and Educational Technology

Projects will be data related (no lab or field work) and able to be completed remotely and online. Projects will explore a long-term datasets in the abundance of marine species from systematic and haphazard surveys. Students will focus on elucidating the complex relationships between multiple species and across developmental life stages (e.g., juvenile stages versus adults). In addition, there will be an emphasis on examining how temporal variation in abiotic variables (e.g., temperature) determines the abundance and distribution of marine populations. Students will be responsible data quality control, data management, data visualization and data analysis and will be working primarily in R.

**Dr. Natasha Mhatre**, Ext. 84505, nmhatre@uwo.ca, BGS 3023/3027

Research Area: We study how different animals, particularly spiders and crickets, communicate using sound and vibration. Our work is interdisciplinary, combining biology, physics and includes experimental and simulation based approaches.

Further details are at <https://www.natashamhatre.net/>

**Dr. Amanda Moehring**, Ext. 55597, amoehrin@uwo.ca, WSC307

Research area: Behavioural genetics and neuroscience.

**Dr. Yolanda Morbey**, Ext. 80116, ymorbey@uwo.ca, BGS 2074

Research Area: Morbey Lab, Data analysis or modelling projects in avian migration ecology. Projects are geared towards students with an interest in quantitative methods and who are pursuing a module in Biodiversity & Conservation, Animal Behaviour, Biology (with an emphasis on ecology), or Environmental Science.

**Dr. Bryan Neff**, 519-850-2532, bneff@uwo.ca, Collip Bldg. CB 204

Research area: Molecular and behavioural ecology of fishes

**Dr. Anthony Percival-Smith**, Ext. 84015, aperciva@uwo.ca, WSC 305

Research Area: *Drosophila* developmental genetics

**Dr. Michael Pyne**, Ext.mpyne3@uwo.ca, 85802, BGS 2080

Research Area: Projects will be related to engineering brewer's yeast for the discovery and synthesis of plant natural product pharmaceuticals.

**Dr. Ben Rubin**, Ext. 87475, brubin2@uwo.ca, BGS 3072

Research Area: Forest Ecology. Field-based projects are available to study the ecology of forest canopy gaps. Data analysis projects are available to study patterns of tree mortality.

**Dr. Vera Tai**, Ext. 86209, vtai4@uwo.ca, BGS 2028

Research Area: Environmental microbiology and bioinformatics

**Dr. G. Taylor**, Ext. 81467, gtaylor8@uwo.ca, BGS 3072  
Research Area: Evolution and ecology of animal design (biomechanics)

**Dr. Raymond Thomas**, Ext.86470, rthoma2@uwo.ca, MSA 3203  
Research Area: Functional foods production, sensory perception, development, safety and preservation; use of nanotechnology to enhance plant performance or remediation in Boreal Ecosystem; lipid metabolism in environmental stress biology; Influences of gut microbiome on brain lipid metabolism and brain health; chemometrics and lipid modeling/lipid bioinformatics/foodomics/food metabolomics; Increase yield, nutritional and value-added production in control systems agriculture and alternative forage production systems; sustainable functional food production in hydroponics (sprouted fodder, herbs and vegetable production)

**Dr. R. Gregory Thorn**, Ext. 88647, rgthorn@uwo.ca, BGS 3047  
Research Area: Various projects in fungal systematics and ecology

**Dr. Graham Thompson**, Ext. 86570, gthomp6@uwo.ca, BGS 2060  
Research Area: Evolutionary biology, sociobiology, honey bees

**Dr. Liana Zanette**, Ext. 88317, lzanette@uwo.ca, CB 207  
Research Area: Predator-prey interactions and the 'Ecology of Fear' in wildlife: from birds to elephants. For more information on the research we do in my lab, please see my webpage: [lianazanette.com](http://lianazanette.com)

### **Agriculture and Agri-Food Canada Potential Supervisors [1391 Sandford St., London, ON N5V 4T3]**

**Dr. Sangeeta Dhaubhadel**, 519-953-6616, Sangeeta.Dhaubhadel@ agr.gc.ca  
Research Area: Phenylpropanoids in legumes.

Phenylpropanoid pathway produces a plethora of plant specialized metabolites with human health benefits. They play important roles in plant-environment interaction such as plant defense against biotic and abiotic stresses. We study the genes and their regulators (such as transcription factors) involved in the biosynthesis of a subset of these compounds such as isoflavonoids and proanthocyanidins. Knowledge of the pathway producing these compounds will allow us to tailor production to aid human health, nutrition and crop yield.

Prospective 4999 students can look forward to working with direct mentorship of a PhD candidate. During the course of the project the student will be exposed to a broad range of molecular biology, bioinformatics and genetics and analytical chemistry techniques and equipment. My research lab is situated at the Agriculture and Agri-Food Canada Research Station, which houses state of the art facilities and is located just 10 minutes from the University of Western Ontario campus.

**Dr. Abdelali Hannoufa**, 519-953-6621, Abdelali.Hannoufa@ agr.gc.ca  
Research Area: Molecular physiology of abiotic stress response in plants

**Dr. Frédéric Marsolais**, 226-234-3450, Frederic.Marsolais@agr.gc.ca

Research Area: Protein chemistry of pulse crops

We recently identified a gene expressed in the seed coat of common bean involved in the regulation of seed water uptake. This gene encodes an enzyme, pectin acetyltransferase, which hydrolyzes acetyl groups in the carbohydrate polymer, pectin. Removal of acetyl groups favors interactions with calcium ions, making the seed coat impermeable. The gene also affects physical dormancy resulting in delayed germination of older seed. Evidence indicates that the gene was selected for during the domestication of the crop. A prospective 4999 student will investigate synteny and functional conservation of this gene in related legume crops. While the initial stages of the project will involve bioinformatics, there may be opportunities to use molecular and biochemical techniques, including gene cloning, DNA sequencing, Western blotting and quantification of pectin acetylation in seed coat of different species.

**Dr. Rima Menassa**, 519-953-6636, rima.menassa@agr.gc.ca

Research Area: Producing virus-like particles in plants as vaccine candidates for animal diseases

**Dr. Ian Scott**, 226-378-1961, ian.scott2@agr.gc.ca

Research Area: projects would be in the area of plant-insect interactions, biopesticides or insecticide resistance.

**Dr. Aiming Wang**, 519 200-3786 aiming.wang@agr.gc.ca or awang45@uwo.ca

Research Area: Virus-induced immunity response and counteracting mechanism in plants; Molecular virus-plant interactions; Fruit tree biotechnology