COLLEGE OF BIOLOGICAL SCIENCE
Department of Molecular and Cellular Biology

ANNOUNCEMENT: Interested members of the University Community are invited to attend the Final Oral Examination for the Degree of **Master of Science** of

Nathaniel Secord

of the Department of Molecular and Cellular Biology
on Thursday, January 12, 2017 at 1:00 p.m. in SSC 1511

Thesis Title: **Exploring the potential of AtENOD93 and *A. thaliana* as a model system to study ENOD93-like proteins**

Examination Committee: Dr. K. Yankulov, Dept. of Molecular and Cellular Biology (Chair)
Dr. S. Rothstein, Dept. of Molecular and Cellular Biology
Dr. T. Akhtar, Dept. of Molecular and Cellular Biology
Dr. I. Tetlow, Dept. of Molecular and Cellular Biology

ABSTRACT
Nathaniel Secord B.Sc. (Hons.) **Advisor: Dr. Steven Rothstein**

The human population has increased substantially in recent years and is expected to increase further. To feed this population, it is important to develop an agricultural system that is efficient in terms of resource use. Nitrogen is a prominent nutrient for crop productivity and application of nitrogenous fertilizers has allowed for the current population expansion at the expense of damage to the environment. An avenue for developing efficient agriculture may be through the study and generation of crops that utilize nitrogen efficiently, reducing the need for fertilizers. The *OsENOD93-1* gene in rice was found to improve yields under nitrogen-limiting conditions, but other ENOD93 genes exist and warrant further study. In this study, the phenotype of a mutant with the expression of the only Arabidopsis ENOD93 gene knocked-out was characterized and this gene was implicated in the control of the GABA shunt's activity.

CURRICULUM VITAE:
Nathan obtained his Bachelor of Science (Hons.) in Biochemistry - Biotechnology Specialization from the University of Waterloo. He later began his M.Sc. in the lab of Dr. Steven Rothstein in 2014.

Awards:

Canada Graduate Scholarship-Masters (NSERC): 2014-2015; Ontario Graduate Scholarship: 2015-2016