**CSB491H1S - Team-Based Research: Research in Cell and Molecular Biology**

48P, 12T

**This course has a lab fee of $50.**

**Lab coat and safety glasses are required and the approximate cost is $25. Students are responsible for purchasing these items.**

NOTE: This is a balloted course. You must apply to the Department of Cell and Systems Biology for admission. Please go to [**http://www.csb.utoronto.ca/undergraduate-studies/forms**](http://www.csb.utoronto.ca/undergraduate-studies/forms) for a ballot form.

**Lecturers:**

TBA

Prof. D. Christendat dinesh.christendat@utoronto.ca

Prof. E. Nambara eiji.nambara@utoronto.ca

**Coordinator:**

Prof. W. Moeder wolfgang.moeder@utoronto.ca

**Prerequisite:** CSB350H1 or CSB330H1 with a minimum grade of 77%

**Recommended Preparation:** BIO251H1 or higher level plant biology course; BCH311H1/CSB 349H1/MGY 311Y1 taken concurrently.

This is an advanced laboratory course and assumes a strong background in molecular genetics and some prior laboratory experience. Students will develop the laboratory and team-work skills needed to succeed in the workplace, particularly the multi-disciplinary environment that integrates modern biological approaches.

The course will focus on molecular plant biology from DNA to RNA to protein. Since CSB491H1 is a team-based research course students will have to conduct their experiments semi-independently. This course consists of 2 parts. In the first half students will learn a variety of techniques. Based on this knowledge students will develop a research project which they will conduct in the second half of the course.

Some of the techniques covered in the course will include genotyping of mutants and transgenic plants, gene expression analysis by RT and Q-RT-PCR, protein expression by Western Blotting, and fluorescent microscopy. Furthermore, students will learn to apply basic genetic principles for mutant characterization. The goal of the course is to gain an understanding how to plan and conduct a research project as a team. l

The course also includes a tutorial session, where the different concepts relevant to the course will be discussed.

**Required Text:** No required textbook.

**Evaluation:** Four quizzes (10%), two lab reports (50%), two presentations (20%), lab performance (20%).