CSB447H1S – LIVING WITHOUT OXYGEN: MICROBES TO MAMMALS

18L, 18S

Lecturer:

Prof. L. Buck [les.buck@utoronto.ca](mailto:les.buck@utoronto.ca)

**Prerequisite:** (BIO270H1, 271H1)/(PSL300H1, 301H1)

**Exclusion:** CSB347H1, NUS348H0

**Recommended preparation:** BCH210H1

This is an in-depth examination of the unique cellular adaptations of different organisms and tissues to survival in low oxygen environments. Cellular, physiological and biochemical strategies, and systemic and whole organism responses will be investigated to uncover broad-ranging common strategies employed by diverse organisms to live without oxygen and in other stressful environments.

**Required Readings:**

Readings will be posted on Quercus at the beginning of the course.

**Course Work & Grading:**

Midterm Writing Assignment (News & Views style) 30%

Journal Club Presentation 30%

In-class participation 10%

Final Term Test 30%

**Schedule:**

*Lectures:* Examples of cellular, physiological and biochemical strategies employed by diverse organisms to live without oxygen and in other stressful environments to uncover common strategies.

*Seminar:* in pairs, students will present a Journal Club based upon their choice of a provided list of appropriate papers.

*Midterm Writing Assignment:* students will choose an appropriate paper and compose a News and Views (as appears in the Journal Nature) style article.

The topics will be subdivided into 3 sections:

1. Control of Energy Metabolism
2. Biochemical Adaptations to Stressful Environments
3. Cellular Oxygen Sensing