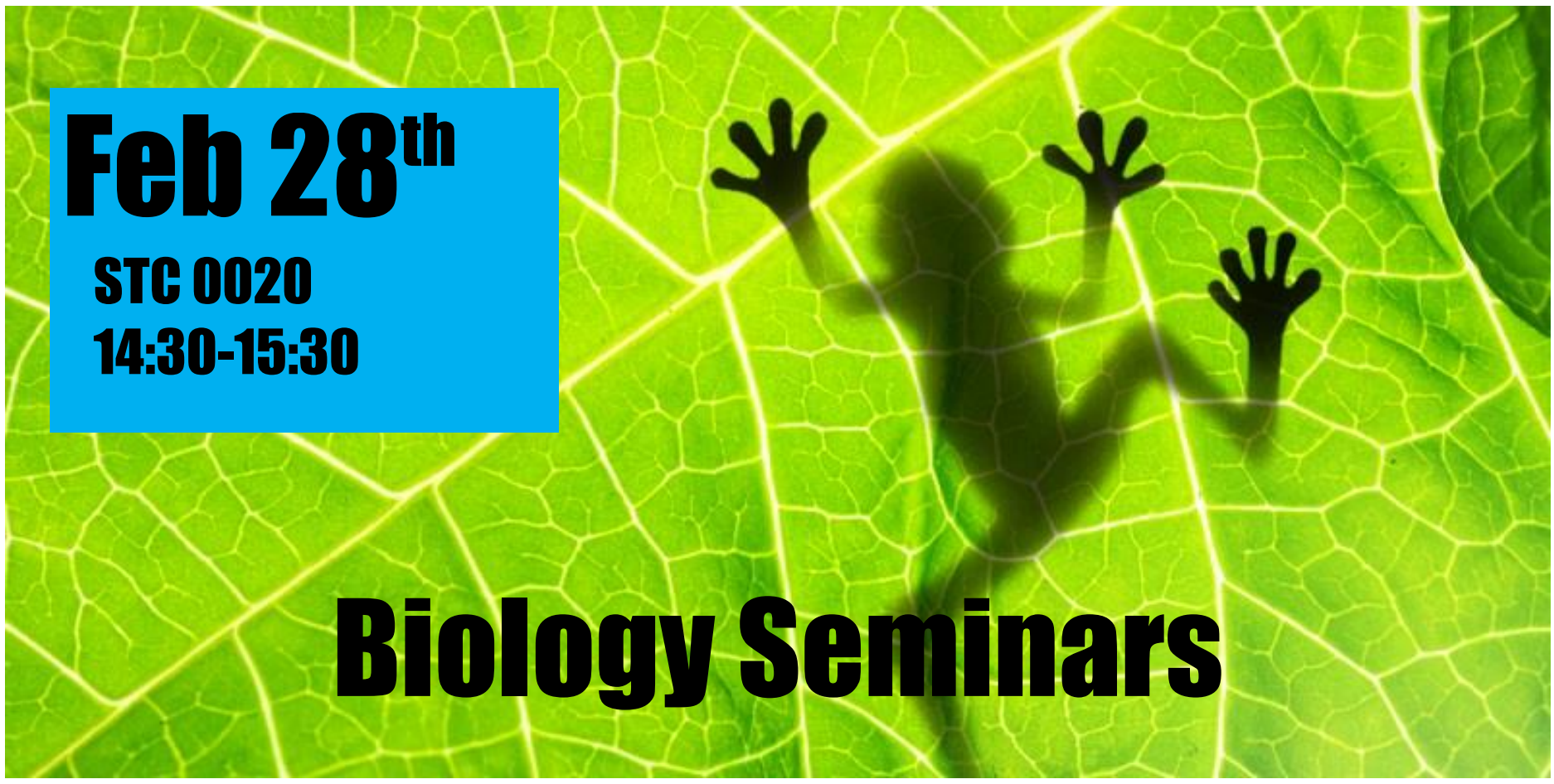

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Teleost metabolism and its disruption by environmental contaminants

Teleost fishes represent the largest group of living vertebrates, and several specific metabolic phenotypes have evolved in this diverse group. Rainbow trout, a widely introduced salmonid species constitutes not only an important comparative research model but is also of great economic importance in many parts of the world. The rainbow trout's 'glucose-intolerant' phenotype is an example of a specific metabolic phenotype, which has been studied to a great extent in order to understand limitation of glucose utilization in this species at the molecular and physiological level. Recent studies in my lab point to potential novel roles for molecular (hepatic microRNAs and gluconeogenic enzyme paralogues) and physiological (macronutrient interaction between amino acids and glucose metabolism) mechanisms to the glucose intolerant phenotype in this species, which will be discussed in this seminar.

In addition to understanding specific metabolic phenotypes, our lab is equally interested in determining how contaminant exposure can induce metabolic disruption in teleost fishes. Using zebrafish as a well-characterized model system relevant to (aquatic) toxicology, we have recently identified metabolic disrupting properties of the persistent pollutants and endocrine disrupting chemicals. Using the PFOS replacement contaminant F-53B, as well as the well-characterized endocrine disrupting chemical and plasticizer Bisphenol A as examples, I will provide organism- and molecular-level evidence for metabolic disruption particularly in early zebrafish life stages.

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