Dr. James Girard Summer Undergraduate Research Program
Faculty Mentor – Project Application

Due Date: ***January 17, 2020 by 5pm***

Faculty Name: Jerry Kavouras

Department: Biology

Research Project Title: *Competition and prevalence of infection in a planktonic disease system*

Research Project Abstract (Please provide an overview of your project -- this will be shared with students as a project description; maximum 250 words):

The complex web of ecological interactions in which hosts and their parasites are embedded has the potential to substantially alter patterns of infection. Mesocosms provide a manageable method for isolating and examining the effects of multiple species, in order to explore the importance of direct and indirect effects for parasite transmission in a multi-species planktonic system. The objective of this project is to test hypotheses related to possible indirect effects of *Dreissena* on the host-parasite relationship between *Daphnia* and *Metschnikowia*. The presence of *Dreissena* may alter disease dynamics in *Daphnia* through competition with *Daphnia* for algal resources. The specific aims for this summer project are: (a) to eliminate the competitive effect between *Daphnia* and *Dreissena* by providing an overabundance of algal resources and (b) to eliminate the increase in prevalence of infection in the host-parasite relationship between *Daphnia* and *Metschnikowia* in the presence of the competitor *Dreissena*. Mesocosm experiments will be conducted to confirm the role of *Dreissena's* competitive effects on the *Daphnia-Metschnikowia* host-parasite relationship and test the hypothesis that additional algal resources will eliminate *Dreissena's* indirect effects in this disease system.