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.