**New York City College of Technology**

**Interdisciplinary Committee**

**Course Review Form**

**DATE:** October 16, 2023

**REVIEWER:** Olufemi Sodeinde

**COURSE TITLE & NUMBER:** Independent Studies Course IS 901 D01: Exploring Biodiversity at Newtown Creek through DNA Barcoding

**PROPOSED BY:** Submitted by Pam Brown on behalf of Peter Spellane and Arden Feil

**CREDIT HOURS:** 3

**PREREQUISITES:** Pre/Corequisite BIO 1101 or equivalent

**COURSE IS:**  Existing X New In development

**PROPOSED COURSE DESIGNATION**: X College Option elective Capstone other:

**DEPARTMENT HOUSED IN:** Biology or Chemistry

**PROPOSED STRUCTURE (e.g., co-taught, guest lecture, LC, other):**  Co-taught

**CREDIT DISTRIBUTION** (if co-taught): Shared credits 50/50; 1.5 credits each

**CATALOG DESCRIPTION:** Students in this interdisciplinary (ID), independent study course (can it be both?) will learn cutting-edge methodologies that have helped scientists all over the world identify and study biodiversity: DNA barcoding. Students will also learn concepts in conservation biology and genetics and gain hands-on experience performing DNA extractions, PCR, gel electrophoresis, and bioinformatics analyses. Students will apply these skills to conduct an independent research project examining biodiversity in Newtown Creek, a designated Superfund site along the Brooklyn-Queens border. This research will contribute to a growing body of knowledge about how decades of pollution has impacted water quality, ecosystem health, and species richness. Students will select a research project, collect samples from Newtown Creek, carry out experimental protocols, and create and present posters of their findings. Students will work independently 6 hours per week.

The description is from the course outline and application. I am not sure that independent study courses have catalog description this specific.

**DESCRIBE & EVALUATE HOW COURSE MEETS INTERDISCIPLINARY CRITERIA?**

This course is proposed to address the relationship between changes in genetic composition and changes/loss of biodiversity in Newton Creek, New York City due to the impact of pollutants. An interdisciplinary approach is best for investigating the relationship.

However, the course application does not note how often the chemist will guest lecture, and since the co-instructors are from the same Biology discipline, then our ID team-teaching requirement is not met. This course proposal, as submitted, does not meet the team-teaching ID criteria.

**DESCRIBE & EVALUATE THE INTERDISCIPLINARY STRUCTURE?**

This course is designed to be team-taught between DNA Learning Center biologists (there are no City Tech Biology Dept. faculty listed) and Chemistry Dept. faculty. However, Prof. Spellane is listed as a guest lecturer on the syllabus not as a co-instructor.

The course will be co-taught by biologists Arden Feil and Allison Mayle of the DNA Learning Center with Prof. Spellane as guest lecturer. To my knowledge the two biologists are not adjuncts in the Biology Department. Again, because  the course does not note how often the chemist from the other discipline will guest lecture, our ID team-teaching requirement is not met. This course proposal, as submitted, does not meet the team-teaching ID criteria.

**DOES COURSE MEET THE REQUIREMENTS FOR GENERAL EDUCATION?**

Yes.

**STRENGTHS:** The corequestions on the impact of pollutants on biodiversity loss and or mutation are best addressed through interdisciplinary approach or framework. The need to track these relationships is as important as could ever be, and educating a wider pool about the tools that can be used to achieve this is important. The collaboration between the Biology and Chemistry departments is therefore an essential one.

**WEAKNESSES:** The syllabus has not adequately addressed the interdisciplinary nature/structure based on the proposed Course/Weekly Outline. Activities related to chemical sampling were not identified for any of the weeks, so it is not clear where Prof. Spellane or a chemist will feature. The role of the chemist is to oversee sampling of the creek for current pollutants (I assume) and documentation. No water sampling exercises feature on the syllabus nor lab analysis for pollutants.

With the information provided on the syllabus, this is not interdisciplinary in its proposed execution and does not meet the ID team-teaching requirement.