**New York City College of Technology**

**Interdisciplinary Committee**

**Course Review Form**

**DATE:** November 15, 2024

**REVIEWER:** Olufemi Sodeinde

**COURSE TITLE & NUMBER:** IS 901, Exploring Biodiversity at Newtown Creek

**PROPOSED BY:** Submitted by Pam Brown on behalf of Peter Spellane and Anna Feitzinger

**CREDIT HOURS:** 3

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

**COURSE IS: X** 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 explore a cutting-edge methodology that has helped scientists all over the world identify and study biodiversity: DNA barcoding. Students will 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 propose a research project, collect samples from Newtown Creek, carry out experimental protocols, and present posters of their findings.

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

As described, this course will investigate the biodiversity of the Creek from field collections of biological samples. Biological samples will then be barcoded in lab to determine what they are. The research is to contribute to growing knowledge about how decades of pollution has impacted water quality, ecosystem health, and species richness (diversity). An interdisciplinary approach is best for investigating the relationship. There is a biologist and chemist participating so, as indicated in the proposal on paper it is interdisciplinary.

I note however, that the course schedule in its weekly outline, has no activity attributed to the chemist, Prof. Spellane even though the course is to be taught 50%/50%. In execution, the ID team-teaching requirement will not be met; the course will therefore not be interdisciplinary as only the biology-based activities are included in the semester’s weekly schedule.

**DESCRIBE & EVALUATE THE INTERDISCIPLINARY STRUCTURE?**

This course is designed to be co-taught by a DNA Learning Center biologist (also an adjunct instructor in the City Tech Biology Dept.) and Chemistry Dept. faculty, so, it is interdisciplinary in structure. However, investigation of water pollution, the purview of the chemist does not clearly feature in the schedule of activities.

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

Yes.

**STRENGTHS:** The corequestions on the impact of pollutants on biodiversity loss and as mutagens are best addressed through interdisciplinary approach or framework. The need to monitor the impact of pollutants on the biodiversity and vigor of species is as important as could ever be, and educating a wider pool of students about the tools that can be used to achieve this is important. The collaboration between the Biology and Chemistry departments is therefore a good and 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. It will be if the schedule is revised and the input of the chemist in the weekly activities is clearly included.