**New York City College of Technology**

**Interdisciplinary Committee**

**Course Review Form**

**DATE:** 10/16/23

**REVIEWER:** Dr. Gwen Cohen Brown

**COURSE TITLE & NUMBER:** Interdisciplinary course IS 901 section IS01: Exploring Biodiversity at Newtown Creek through DNA Barcoding

**PROPOSED BY:** Allison Mayle and Arden Feil, Submitted by Pam Brown Provost

**CREDIT HOURS:** 3 hrs/week

**PREREQUISITES:** Pre/Co requisite Bio 1101or equivalent

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

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

**DEPARTMENT HOUSED IN:** Chemistry or Biological Sciences

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

**CREDIT DISTRIBUTION** (if co-taught): 50% each instructor, unknown for Peter Spellane

**CATALOG DESCRIPTION:** Students in this interdisciplinary (ID), independent study course will learn cutting-edge methodologies to 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 through gathering the specimens at the Newtown Creek. Students will apply these skills to conduct a group 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 collaborate and present posters of their findings. Students will work independently 3 hours per week.

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

This course is currently proposed to be taught by two biology professors with guest lecturer from chemistry. Currently it is 50% from each of the biology professors with out information regarding Dr. Spellane’s participation. At this point in time it is not an interdisciplinary course.

This course is designed to Identify and apply the basic principles of mathematics, physics, biology, chemistry, and engineering as they relate to the environment at an introductory level. Students 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. The students will be required to visit Newtown Creek and do a barcode Analysis of plant and animal specimens. I believe that this course has great potential for increasing student’s knowledge and the ability to think creatively and with purpose however at this time does not currently fit the criteria for an interdisciplinary course.

**DESCRIBE & EVALUATE THE INTERDISCIPLINARY STRUCTURE?**

The course is being taught by two biologists from the DNA Learning Center with Peter Spellane listed as a guest lecturer but in an unknown capacity as currently it is being taught 50% by each of the biologists. The biologists are not CityTech faculty. At this time the course as written does not meet the criteria for an Interdisciplinary course at the college

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

**STRENGTHS:** This is a relevant and timely course which will focus on a exploring the biodiversity at Newtown Creek through DNA Barcoding while exposing students to ground breaking science and new technology. The potential for serious collaboration between chemistry and biology in an in-depth study of the biodiversity in a superfund pollution Newton Creek and the pollutants known to be present could change how we approach superfund sites in the future.

**WEAKNESSES:** The role of Dr. Spellane is not clear, will he be lecturing? Running laboratory sessions? Being in the field with the students? There is a lack of information regarding protocols for specific assignments in the Course/Weekly Outline as well as how the projects will be assessed. With the information provided on the syllabus, this is not interdisciplinary in its proposal nor does it meet the ID team-teaching requirement.