**Research in the Curriculum Department of Natural Sciences**

Research in the curriculum in the Department of Natl. Sc. at LaGuardia CC, is understood as the practice where research activities or projects, embedded in the curriculum and incorporated into the classroom, are designed to move students from observers of science to science practitioners, promoting critical thinking, contributing new information to the body of scientific knowledge, building communities both within and outside the classroom, sparking curiosity and understanding of the interrelationship between science and society.

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| **Course** | **Research Project** | **Nature**  **of Activities** | **Description** | **Semester(s) Implemented** | **# of sections** | **Faculty developing/**  **implementing** | **Larger Initiative/Other notes or comments** | **Core Competency/ability** |
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| Biology  SCB 201 | Effect of  Newtown Creek water on *Drosophila* viability |  | Project work outside regular lab |  |  | Dr. Charles Keller  Dr. Na Xu |  |  |
| Biology  SCB 201 | Water Quality  East River/Oyster Bay  East River/Oyster Bay Metagenomics | Laboratory  based  analysis  Semester-long Research Project | Modification of 9 labs,  flipped class -course, objectives not modified. Students learn concepts and apply different techniques to discover physical, chemical and biological characteristics, of water samples (results of experiments are unknown to them or their instructors) | Fall 2017  Spring 2018 | 4  1 | Dr. Maria Entezari  Dr. Lucía Fuentes |  | Inquiry and Problem Solving  Integrative  digital/oral  <https://www.tandfonline.com/doi/full/10.1080/20004508.2020.1716542>  [http://academicworks.cuny.edu/lg\_oers/8](http://academicworks.cuny.edu/lg_oers/8/) |
| Cell Biology  SCB-255 | Molecular cell biology of reproduction and development | Lab and lectures | Project done over weeks 4-12 of the course | Ongoing, since 2012 | 1 or 2 sections/semester offered | Dr. Thomas Onorato | Was funded TRAIN Grant (just ended) | Inquiry and Problem Solving  Written communication |
| Micro  SCB-260 | 1. Soil microbiology  2. Microbes in Organic vs. non-organic produce  3. Isolation, ID of Microbes from money  4. Microbes in my kitchen sink    Newtown Creek Water Metagenomics | Laboratory  based  Analysis  Laboratory  based  Analysis | Alternative molecular methods of microbial identification are introduced in lab. Course objectives are modified slightly to encourage scientific research, & development of analytical and critical thinking skills during the identification of individual unknown project | Fall 2014  Fall 2015  Fall 2016  Spring 2017  Fall 2017 | 1  1  1  1    4 | Dr. Olga Calderón  Dr. Olga Calderón  Dr. Olga Calderón  Dr. Olga Calderón  Dr. Ingrid Veras  Dr. Joby Jacob Dr. Olga Calderón  Dr. Olga Calderón | CCURI | IPS - WID  IPS - WID  IPS - WID    IPS    IPS  IPS  IPS  IPS - WID |
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| Envi. Scie  Capstone  (SCG250) | Newtown Creek, Hudson River, Flushing Creek/Bay, other NYC waterways | Laboratory based analysis | Students collect weekly water samples and test them for metals and polyatomic ions in lab every week as independent, semester-long, research projects. | Every Spring semester since 2012 (course runs only in Spring) | 1 (only 1 section currently offered) | Dr. Holly Porter-Morgan |  |  |
| GIS (SCG150) | New York City Environmental Hazard | Lab-based (GIS is a computer skill, so…) | Students collect online data on environmental hazards (TRIs, brownfields, csos) map it and do spatial analysis to determine who lives near it and if there is an environmental justice issue. Expanding to include field component with air pollution data collection this fall with Keller and Alberts. | Either Fall I or II since 2012 | 1 or 2 sections. | Dr. Holly Porter-Morgan |  |  |
| Chemistry  SCC-201 | Chemistry of  Newtown Creek water | Laboratory based analysis | Modification of 3 labs | Fall 2017 | 2? | (Dr. Jennifer Vance)  Dr. Kevin Mark | CCURI? | Inquiry and Problem Solving Written |
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Research initiatives “out of classroom”

CRSP

NIH-Bridges

CCURI