

Andy Chen

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Personal Statement

First-generation student with a BSc in Biology, 3 years of teaching experience, and 1 year of research experience. Broadly interested in ecotoxicology and disease ecology, I have studied the effects of microplastics, pesticides, and pharmaceuticals on plants and amphibians. Looking to use my background and research skills to pursue a PhD to expand my knowledge and conduct novel ecological research.

Education

Binghamton University, State University of New York

August 2018 - May 2022

- Bachelor of Science in Biology
- GPA: 3.95, *Summa Cum Laude*

Relevant Coursework

Ecology; Zoology; Ecology, Pollutants, and You; Mechanisms of Evolution; Genetics

Research Experience

Independent Undergraduate Researcher

August 2021 - Present

CURE Lab, Binghamton University, State University of New York (Currently Remote)

Mentor: Dr. Miranda Kearney, Former Lecturer & Director of Intro Bio CURE, Department of Biological Sciences, Binghamton University, State University of New York

Collaborative research project studying the effects of varying concentrations of microplastics in soil and naproxen-sodium contamination on lettuce growth and soil abiotic factors.

- Designed experimental setup and methodology
- Monitored and watered seedlings on a weekly basis to ensure proper growth and development
- Processed and dried lettuce seedlings and soil samples in ovens and collected data
- Ran statistical analyses on data using PAleontological STatistics (PAST) Software version 4.10
- Conducted literature searches and drafted manuscript for journal submission

Undergraduate Lab Assistant

January 2022 - May 2022

Hua Lab, Binghamton University, State University of New York

Mentors: Dr. Jessica Hua, Former Associate Professor & Director of Center for Integrated Watershed Studies, Department of Biological Sciences, Binghamton University, State University of New York; Dr. Bryon Tuthill II, Postdoctoral Researcher

National Science Foundation (NSF) funded research looking at the effects of carbaryl-induced intraspecific variation (constitutive vs plasticity) on predator-prey interactions and susceptibility to Ranavirus in wood frog tadpoles (Dr. Bryon Tuthill II)

- Split and maintained sufficient quantities of cell cultures to create plaque assays of Ranavirus to dose tadpoles accurately
- Performed serial dilutions of Ranavirus and Ranavirus plaque assays to quantify viral concentrations for infecting tadpoles
- Washed vessels in order to house and rear tadpoles safely

- Attended monthly lab meetings to update current progress and establish tasks, deadlines, and goals to ensure an orderly field season

Presentations

Chen A, Barroso PA, Tran J, Gance AK, Kearney MA. Effects of Polyester Microplastics and Naproxen-Sodium on *Lactuca sativa* Growth and Development and Soil Abiotic Conditions. Poster presented at: Annual Binghamton University Research Days. April 2022. Binghamton, NY.

Honors and Awards

Joseph I. Muscatine Scholarship, Binghamton University, Binghamton, NY	2021 - 2022
BU Completion Scholarship, Binghamton University, Binghamton,	2020 - 2021
Dean's List, Binghamton University, Binghamton, NY	2019 - 2020, 2022

Skills

Programs: PAleontological Statistics (PAST) Software, ImageJ, Microsoft Office, Google Suite, Plotly Chart Studio
Laboratory Skills: Cell Culture, Micropipettes and Serological Pipettes, Soil DNA Extraction, Dissections, Biosafety Cabinet (BSL-2), Plant and Animal Care
Research Skills: Experimental Design, Data Collection and Analysis, Manuscript Writing, Poster Building and Presentation

Teaching Experience

Park Naturalist	July 2022 - August 2022
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Prospect Park Audubon Center and Boathouse

- Set up various games and activities to teach about ecology and wildlife, such as tossing games to simulate bird collisions into windows
- Managed and supervised Park Youth Representatives to ensure productivity and efficiency
- Showcased live animals, such as turtles, snakes, and insects, to visitors to teach about local wildlife
- Fed animals and cleaned enclosures to ensure the health of the animals
- Led nature walks to teach children about forest ecosystems and to showcase local flora and fauna

Summer Camp Counselor	July 2022 - August 2022
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Home Sweet Home Tutoring

- Taught and prepared incoming 6th grade students for the upcoming school year in reading, writing, and math
- Designed lesson plans and activities for weekly science classes to teach middle school science (biology, physical sciences)
- Worked collaboratively with other counselors to create enrichment activities such as arts & crafts and baking
- Supervised students during field trips to parks, zoos, and movie theaters

NSF Biodiversity and Disease Outreach Event	May 2022
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Roberson Museum and Science Center in partnership with Binghamton University

Outreach event as part of a NSF funded research study looking at the effectiveness of art in science education and communication. Led by PhD Candidate Kyra Ricci of the Hua Lab

- Sorted live, native amphibians into appropriate containers
- Set up dissecting microscopes, dichotomous keys, and worksheets for incoming students
- Taught groups of third grade students how to identify different species of tadpoles
- Successfully guided students on identifying live animals at the Roberson Museum and Science Center

First Annual EcoBlitz

April 2022

Center for Integrated Watershed Studies (CIWS), Binghamton University Nature Preserve

- Tabled for the Hua lab and showcased live amphibians to teach the broader public about wetlands

Undergraduate Teaching Assistant

August 2020 - May 2022

Binghamton University

BIOL 324: Tissue Biology (formerly Animal Histology)

February 2021 - May 2022

- Supported lead laboratory instructor in facilitating students' learning of mammalian histology and optical microscopy
- Assisted laboratory instructor with proctoring quizzes and setting up microscopes and tissue slides
- Helped students with using microscopes and discerning different tissues

BIOL 115: Introductory Biology Lab

August 2020 - May 2022

- Supported graduate teaching assistant in facilitating students through novel CURE (Course-based Undergraduate Research Experience) studies looking at various anthropogenic pollutants (salt, face masks, pharmaceuticals, pesticides) on lettuce and tomato plants
- Set up and cleaned laboratory room and equipment for experiments
- Managed the collection of data from students to ensure an accurate class data set for subsequent analyses
- Used inquisitive teaching to guide students through laboratory exercises and assignments
- Held one office hour weekly to answer questions from students regarding assignments and programs e.g. Excel and PAST
- Graded lecture assignments and homework assignments
- Attended weekly meetings with lead professor and other teaching assistants to plan and prep for future activities

Education Summer Intern

July 2021 - August 2021

New York Chinese School under SYEP (Summer Youth Employment Program)

- Supervised Zoom tutoring sessions to ensure tutors and students are meeting set learning goals
- Moved and sorted textbooks by grade level to prepare for fall semester
- Processed and organized paperwork to maintain an efficient workplace
- Designed, printed and processed business cards for the principal and administrators to promote the school
- Cleaned and organized classrooms to prepare for in-person fall classes
- Supervised high school SYEP interns with decorating bulletin boards to improve classroom appearances

Classroom Assistant

July 2019 - August 2019

Brooklyn Chinese American Association under SYEP (Summer Youth Employment Program)

- Provided support for lead instructors in managing classroom
- Guided students with activities and worksheets

- Monitored students in classrooms and hallways and during field trips

Science Intern

June 2019 - July 2019

The Learnatory STEAM Camp

- Assisted lead instructor in monitoring students and teaching science classes looking at a wide range of topics, such as food chemistry, microbiology, and nanotechnology.
- Created PowerPoint presentations, worksheets, and laboratory exercises for grades 2 through 11
- Purchased supplies necessary for laboratory exercises