

ALEXANDER G. LUCACI

Philadelphia, PA \diamond Alexander.Lucaci@Temple.edu

ORCID: 0000-0002-4896-6088

EDUCATION

Temple University

Present

PhD Student in Bioinformatics

Department of Biology

Institute for Genomics and Evolutionary Medicine (iGEM)

Acme Computational Molecular Evolution Group (ACME)

New York University

2018

Masters of Science in Biology

Department of Biology

Masters Thesis topic: "The current state of affairs: the twilight of tobacco"

'How electronic cigarettes impact humanity's relationship with nicotine'

SUNY Stony Brook University

2011

Bachelors of Science in Biochemistry

Department of Biochemistry and Cell Biology

Laboratory of Chemosensory Systems and Behavior

EXPERIENCE

Temple University

Fall 2020

Graduate Teaching Assistant

Genomics in Medicine

- Directed over one hundred and sixty students in a cross-listed (Graduate and Undergraduate) course in a virtual format.
- Responsible for holding office hours and communicating with students.
- Provide guidance on assignments, help with interpreting primary research articles and offered guidance on classroom projects.

Bioinformatics Studio at Temple University

Spring 2018 - Present

Co-Founder

- The Bioinformatics Studio is an inclusive and hands-on environment for learning, training, sharing, and most importantly doing bioinformatics at Temple University.
- A student run organization that provides guided hands-on training at every level of research and computational expertise in an open studio format.

Temple University

Spring 2020 - Present

Graduate Research Assistant

- Conducting research in molecular evolution evaluating the effect of multinucleotide mutational events on the inference of parameters of gene adaptation. This work involves the use and development of statistical models and computational software. Our current implementation is available as an extension in the Hypothesis testing in Phylogenies (HyPhy) suite of analyses.

Temple University

Fall 2019

Graduate Teaching Assistant

Genomics in Medicine

- Directed over one hundred students in a cross-listed (Graduate and Undergraduate) course.

- Responsible for holding office hours and communicating with students. Additionally, provided guidance on assignments, helped with interpreting primary research articles and offered guidance on classroom projects.

Temple University

Graduate Teaching Assistant

Spring 2019

Introduction to Organismal Biology

- Directed forty students over two sections of the Introduction to Organismal Biology Laboratory course.
- Instructed students on laboratory exercises, provided feedback, and demonstrated proper techniques.

Temple University

Graduate Teaching Assistant

Fall 2018

General Biology

- Directed forty students over two sections of the "General Biology I" Laboratory course
- Instructed students on laboratory exercises, provided feedback, and demonstrated proper techniques.

ROTH Capital Partners

Intern

Spring 2018

Healthcare Investment Banking

- Participated in the process for the Initial Public Offering (IPO) of BioNano Genomics, an optical mapping company (Ticker: [NASDAQ:BNGO]).
- Responsible for current healthcare IPO market data, preparing pitch decks for senior managers and materials for mergers and acquisition (M&A) deals.

New York University

Adjunct Professor

Spring 2018

Fundamentals of Bioinformatics

- Directed twenty students in a weekly recitation section.
- Reviewed theory and topics discussed in lecture and provided guidance and hands-on support in the use of bioinformatics software and analysis.

New York University

Adjunct Professor

Fall 2017

Molecules of Life

- Directed forty students over two sections in a weekly laboratory course.
- Reviewed theory and topics discussed in lecture and provided guidance and hands-on support in the use of standard laboratory techniques.

New York University

Adjunct Professor

Spring 2017

Principles of Biology Laboratory

- Directed forty students over two sections in a weekly laboratory course.
- Reviewed theory and topics discussed in lecture and provided guidance and hands-on support in the use of standard laboratory techniques.

ORGANIZATIONS

Member: The National COVID Cohort Collaborative (N3C)

Member: American Physiological Society (APS)

Member: Vertebrate Genomes Project (VGP)

Member: Vertebrate Genomes Project - Genome Assembly Group

Member: Models of Infectious Disease Agent Study (MIDAS)

Member: CDC-MIDAS COVID-19 working group

Co-Founder: The Bioinformatics Studio at Temple University

Member: Society for Molecular Biology and Evolution
Member: Biology Graduate Student Society at Temple University
Member: New York Academy of Sciences

RELEVANT COURSES

Core Courses

Genomics
Computational Genomics
Molecular Phylogenetics
Population Genetics
Design and Analysis of Algorithms

Other Courses

Infectious Disease Dynamics
Biomarkers and Biotargets
Evolutionary Analytics
Applied Statistics and Data Science
Data Structures

PUBLICATIONS

1. RASCL: RAPID ASSESSMENT OF SARS-COV-2 CLADES THROUGH MOLECULAR SEQUENCE ANALYSIS Alexander G Lucaci, Jordan D Zehr, Stephen D Shank, Dave Bouvier, Han Mei, Anton Nekrutenko, Sergei L Kosakovsky Pond

*Manuscript in preparation

2. Extra base hits: widespread empirical support for instantaneous multiple-nucleotide changes Alexander G Lucaci, Sadie R Wisotsky, Stephen D. Shank, Steven Weaver, Sergei L. Kosakovsky Pond

PLOS ONE <https://doi.org/10.1371/journal.pone.0248337>

3. Electrical synaptic transmission in developing zebrafish: Properties and molecular composition of gap junctions at a central auditory synapse. Yao, C., Vanderpool, K. G., Delfiner, M., Eddy, V., Lucaci, AG. G., Soto-Riveros, C., Pereda, A. E. (2014).

Journal of Neurophysiology.

WORKSHOPS

- 2020 American Society of Tropical Medicine and Hygiene (ASTMH)

Modeling for Disease Outbreaks

- 2020 Marine Biological Laboratory (MBL) - Workshop on Molecular Evolution

* Cancelled due to COVID-19 *

- 2019 Temple University (College of Science and Technology)

Summer workshop on Scientific Computing and Statistical Reasoning

AWARDS

2020 Society for Molecular Biology and Evolution (SMBE).

Young Investigators Travel Award [1,500 USD]

REVIEWER FOR ACADEMIC JOURNALS

Genomics (<https://www.journals.elsevier.com/genomics>)

PRESENTATIONS

2021 EMBO Workshop: The Evolution of Animal Genomes

2021 6th Annual MidAtlantic Bioinformatics Conference – Emerging Approaches to Omics Questions
Data Science for the 21st Century

- 2021 Dynamics and Evolution of Human Viruses – Presentation "RASCL: RAPID ASSESSMENT OF SARS-COV-2 CLADES THROUGH MOLECULAR SEQUENCE ANALYSIS"
- 2020 CSHL Biological Data Science
Abstract: "Evaluating the impact of multiple simultaneous mutations on evolutionary rate inference."
- 2020 9th Human Genetics in NYC Conference
Abstract Accepted: Conference Cancelled due to COVID-19
- 2020 Society for Molecular Biology and Evolution (SMBE)
Abstract Accepted: Conference Cancelled due to COVID-19
- 2020 Biology Graduate Student Organization Symposium - Binghamton University
Abstract: "Evaluating the impact of multiple simultaneous mutations on evolutionary rate inference."
- 2019 Temple University Biology Graduate Student Society Annual Retreat
Abstract: "Evaluating the impact of multiple simultaneous mutations on evolutionary rate inference."
- 2019 Mid-Atlantic Bioinformatics Conference (MABC)
Abstract: "Evaluating the impact of multiple simultaneous mutations on evolutionary rate inference."
- 2019 Evolution in Philadelphia Conference (EPiC)
Abstract: "Evaluating the impact of multiple simultaneous mutations on evolutionary rate inference."

CONFERENCES

- 2021 9th Human Genetics in NYC Conference
- 2021 Society for Molecular Biology and Evolution (SMBE)
- 2020 Mid-Atlantic Bioinformatics Conference (MABC)
- 2020 COVID-19 Dynamics and Evolution - Virtual Conference Series
- 2020 ETH Zurich Department of Biosystems Science and Engineering (D-BSSE) eSymposium 10.13.2020
"What do SARS-CoV-2 genomes tell us about their evolution and spread?"
- 2020 Institute for Translational Medicine and Therapeutics (ITMAT) 15th Annual International Symposium
- 2020 Biodiversity Genomics Conference
- 2020 24th International Conference on Research in Computational Molecular Biology (RECOMB)
- 2020 The Allied Genetics Conference (TAGC) - Online
- 2019 The State of Pre-College Education 12 years after "The Gathering Storm"
- 2019 Artificial Intelligence for Improvements of Biomarkers Imaging and TMA Multiplexing Analysis
- 2019 Epigenetics in Cancer Scientific Symposium at The Wistar Institute
- 2019 8th Human Genetics in NYC Conference
- 2019 BIO International Convention
- 2019 Mount Sinai: Fifth Annual New York Area Population Genomics Workshop
- 2018 7th Annual Human Genetics in NYC Conference
- 2018 BIO International Convention
- 2017 NYC EDC SBIR Impact: Bio and Health Tech NYC
- 2017 NYU Tandon: Future Labs AI Summit

- 2017 10th Annual NYU Developmental Genetics Symposium - Tissue Homeostasis and Regeneration