

Hannah H. Chu

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EDUCATION

University of California, Riverside - Riverside, CA
Entomology, Ph.D.

Expected Grad: 2025

John Jay College of Criminal Justice, CUNY - New York, NY

August 2015 – May 2019

Forensic Science, B.S. (Hons.) – Concentration in Molecular Biology – Minor in Mathematics

HONORS, AWARDS & SCHOLARSHIPS

MUVE Student Travel Award, *Entomological Society of America*, 2022

First Place Riverside Insect Fair Booth, *City of Riverside*, 2022

Carl Strom/Western Exterminator Scholarship, *Western Exterminator*, 2022

Graduate Student Research Grant Program, *Joshua Tree National Park Association*, 2022

Graduate Research Fellowship Program (GRFP), *National Science Foundation*, 2021

Exceptional Remote Teaching Award, *UCR Entomology Department*, 2021

Presidential Membership Award, *Genetics Society of America*, 2021

Lauren and Mildred Anderson Immature Insects Award, *UCR Entomology Department*, 2020

Jonas E. Salk Scholarship, *City University of New York*, 2019-2023

Honors Program Scholarship, *John Jay College*, 2015-2019

Hecht Scholarship, *John Jay College*, 2015-2019

Presidential Scholarship, *John Jay College*, 2015-2019

Best Inquiry-Based Research Project, *John Jay College English Department*, 2016

RESEARCH EXPERIENCE

University of California, Riverside

October 2021 – present

MURILLO LAB – Amy Murillo, PhD

“Determining the Genetic Mechanisms that Mediate Thermal Tolerance in Native and Non-native Calliphorid species”

- Establishing the community composition and diversity of Calliphoridae in Southern California. Conducting bioassays to determine phenotype-genotype relationships. Evaluate the genetic basis of native and non-native populations of blow flies to identify their thermal limits.

YAMANAKA LAB – Naoki Yamanaka, PhD

July 2019 – October 2021

“Identifying a Juvenile Hormone Importer in *Drosophila melanogaster*”

- Examined the genetic basis of hormone-mediated phenotypes in fruit flies. Analyzed effects of hormone signaling and control on insect development.

John Jay College of Criminal Justice, CUNY

August 2016 – August 2019

ROSATI LAB – Jennifer Rosati, PhD

“The Effects of Drug Metabolites on Dipteran Larval Development”

- Determined presence of drug metabolites ingested by blow fly larvae. Quantified metabolites in larvae using GCMS and LCMS. Observed differences of larval development when reared on metabolite-spiked tissue and compared results to established life cycles in literature.

“The Diversity of Forensically Important Blow Flies in Manhattan”

- Analyzed and compared the species composition and relative abundance in a park habitat vs. urban habitat. Compiled a database of forensically important flies to aid future legal investigations. Investigated the diversity indices of the samples in order to identify ecological implications of temperature and other environmental conditions. Trained new lab members to identify blow fly species based on physical characteristics.

“The Effect of Tissue Type on the Development of Two Forensically Important Blow Fly Species, *Phormia regina* (Meigen) and *Lucilia sericata* (Meigen)”

- Collaborated with two lab members to examine the effects of tissue type on the development of two commonly used forensic species: the common green bottle fly, *Lucilia sericata* and the common black bottle fly, *Phormia regina*. Discovered species-specific differences in development due to tissue type as well as effects that varied with respect to life stage.

PRESENTATIONS

1. **Poster:** "An Evaluation of Trapping Methodology for a Southern California Blow Fly Survey". Riverside, CA. March 2022. – *presenter*
2. **Invited Talk:** "PRISM Alumni Panel: All About Graduate School". Virtual. January 2022 – *panelist*
3. **Oral Presentation:** "The Distribution and Diversity of Calliphoridae in Southern California". Virtual. January 2022 – *presenter*
4. **Infographic:** "When Puberty Hits Different: abnormal juvenile hormone signaling in hemimetabolous and holometabolous insects". Denver, Colorado. November 2021 – *presenter*
5. **Poster:** "A novel strategy to study loss of juvenile hormone signaling in *Drosophila melanogaster*". Virtual. October 2021 – *presenter*
6. **Infographic:** "The Case of the Perplexing Phenotypes: Juvenile Hormone Signaling in *Drosophila melanogaster*". Virtual. November 2020 – *presenter*
7. **Oral Presentation:** "Identifying and Characterizing a Juvenile Hormone Transporter in *Drosophila melanogaster*". Virtual. April 2020 – *presenter*
8. **Poster:** "Drunk Flies: Oviposition Preferences of the Blow fly *Lucilia sericata* (Meigen) on Ethanol-Treated Mediums". New York, New York. March 2019 – *presenter*
9. **Poster:** "Establishing a Protocol for Tissue Differentiation in *Lucilia sericata* (Meigen)". New York, New York. March 2019 – *presenter*
10. **Oral Presentation:** "Choose Charlene: What's Wrong With You? A New Way to Consider the Core Observation of Quantum Mechanics" New York, New York. March 2019 - *co-presenter*
11. **Poster:** "Detection of Drug Metabolites in *Lucilia sericata*". New York, New York. 2 May 2018. – *presenter*
12. **Oral Presentation:** "The effect of tissue type on the development of two forensically important blow fly species, *Phormia regina* (Meigen) and *Lucilia sericata* (Meigen)." Vancouver, Canada. November 2018 – *contributor*
13. **Poster:** "Detection of Drug Metabolites in *Lucilia sericata*". New York, New York. 2 May 2018. – *presenter*
14. **Oral Presentation:** "The Diversity of Forensically Important Flies in New York City". Denver, Colorado. 5 November 2017. – *presenter*
15. **Poster:** "Mapping of Bt Cry2Ab resistant gene in the cabbage looper, *Trichoplusia ni*". Denver, Colorado. 8 November 2017. – *contributor*
16. **Poster:** "Understanding the Molecular Mechanism of Insect Resistance to Bt Toxin Cry2Ab". USDA NIFA Project Directors Meeting. Washington, D.C. 30-31 October 2017. – *contributor*
17. **Poster:** "Analysis of mutations and expression of ABCA1 and ABCA2 genes in cabbage loopers resistant to Bt toxin Cry2Ab". Geneva, New York. 28 July 2017 – *presenter*
18. **Poster:** "The Diversity of Forensically Important Flies in Central Park". Program for Research Initiatives in Math and Science Symposium. New York, New York. 4 May 2017. – *presenter*

PUBLICATIONS, ARTICLES, AND OTHER WORKS

1. **Paper:** Mitchell Masterson, Riyan Bittar, [Hannah Chu](#), Naoki Yamanaka, Sachiko Haga-Yamanaka, "[Rapid assessment of insect steroid hormone entry into cultured cells](#)," *Frontiers in Invertebrate Physiology*, 103389. (2022)
2. **Website:** Hannah Chu, Jessica Maccaro, "[California Native Bee Zoom](#)". (2021)
3. **Blog Post:** Hannah Chu, "[Premature blowfly egg development leads to inaccurate time since death estimations](#)", *ForensicBites* (2021)
4. **Blog Post:** Hannah Chu, "[Charlene the Chuon: A new way to communicate the wave-particle duality ... to kids!](#)", *SciComm@UCR Blog* (2020)
5. **Interview:** "[From Murder Cases to Insect Puberty](#)", interviewed by You Better Werk, Amy Shakespeare (2020)
6. **Blog Post:** Hannah Chu and Madison Sankovitz, "[Our experience at ComSciCon: the perspectives of two entomology Ph.D. students](#)", *SciComm@UCR Blog* (2020)
7. **Blog Post:** Hannah Chu, "[My Short Tenure as a Forensic Entomologist](#)", Entomology Graduate Student Association at the University of California, Riverside Blog (2020)
8. **Paper:** Xiaowei Yang, Wenbo Chen, Xiaozhao Song, Xiaoli Ma, Wendy Kain, [Hannah Chu](#), Yun-Ru Chen, Zhang jun Fei, Ping Wang, "[Mutation of ABC transporter ABCA2 confers resistance to Bt toxin Cry2Ab in *Trichoplusia ni*](#)," *Insect Biochemistry and Molecular Biology*, 103209. (2019)

9. **Paper:** Veena Mehta, Joey Fragale, Hannah Chu, and Jennifer Y. Rosati , “The effect of tissue type on the development of two forensically important blow fly species, *Phormia regina* (Meigen) and *Lucilia sericata* (Meigen),” (Submitted for review)

POSITIONS

- Policy Fellow, CA Governor’s Office of Precision Medicine, 2022-present
 - Promoted from Science Communication and Graphic Design Intern (Nov – Dec 2021)
- ComSciCon
 - Organizing Committee Member, National Conference 2021
 - Organizing Committee Member, LA-Regional Conference 2021
 - Participant, National Conference, 2020
- SciComm@UCR
 - President, 2020-22
 - Social Media and Marketing Chair, 2019-20, 2022
- Entomology Graduate Student Association (EGSA)
 - Diversity, Inclusion, & Equity Committee Member, 2020-present
 - Secretary, 2020
 - Social Media and Technology Committee Member, 2019-present
 - Outreach Team, EGSA 2019
- UCR Entomology Department
 - Twitter Manager, 2019 – present
 - Outreach Student Representative, 2021-22
 - Seminar Committee Representative, 2019-21

PROFESSIONAL ORGANIZATIONS

- Entomological Society of America
 - North America Forensic Entomology Association
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EXTRACURRICULAR RESEARCH EXPERIENCE

John Jay College of Criminal Justice, CUNY

February 2017 – June 2019

YAVERBAUM LAB – Daniel M. Yaverbaum, M.S.

“Mental Models for Galilean Relativity”

- Creating different models such as board games, online games, Claymation videos, and books for communicating and teaching special and general relativity to physics students.

University of Florida – Summer Research Program

May 2018 – August 2018

HAHN LAB – Daniel Hahn, PhD

“Effects of metabolic rate on the lifespan of the apple maggot *Rhagoletis pomonella*”

- Identified the relationship between metabolic rate and lifespan in apple maggot flies to establish whether viability selection contributes to speciation of *Rhagoletis pomonella*. Used R to data mine from collected samples and data over the past year.

“What is the arrangement of the genetic architecture of thermal performance?”

- Designed experimental setup to determine the molecular level physiological tactics that underlie differences in thermal traits and whether they have been shaped by natural selection on a broad scale. Evaluated the relative contributions of molecular level tactics and the stability of thermal proteins (*Hsps*) that organisms use to respond to temperature stress.

Cornell University – Summer Research Program

May 2017 – August 2017

WANG LAB – Ping Wang, PhD

“Analysis of mutations and expression of ABCA1 and ABCA2 genes in cabbage loopers resistant to Bt toxin Cry2Ab”

- Classified the mutations and expression levels of the ABCA1 and ABCA2 genes in the larval midgut of resistant and susceptible cabbage looper pests (*Trichoplusia ni*) to the Bt toxin Cry2Ab. Resistance to this popular organic pesticide has been linked to these two genes. Discovering the mutations may aid in future targeted genetic engineering to prevent pest resistance to Bt.

WORK EXPERIENCE

College Lab Technician, *John Jay College – Science Department*
Peer Tutor, *John Jay College – Math and Science Resource Center*
Peer Advisor, *John Jay College - Academic Advisement Center*
Mediator Intern, *New York State Office of the Attorney General*

January 2018 – July 2019
September 2017 – January 2019
August 2016 – January 2018
January 2016 – August 2016

