

MELISSA FLORES

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EDUCATION

BA Barnard College, Columbia University May 2016
Psychology
Minored in Biology & Chemistry

Senior Thesis, Barnard College, Columbia University, New York, NY
Advisor: E'mett O. McCaskill
Title: *Geriatric Bipolar Disorder: Exploring the Relationship Between Bipolar Disorder, Cognitive Dysregulation, and the Progression of Dementia*

HONORS AND AWARDS

Dean's List 2015–2016
Based on a semester GPA of at least 3.60 (min. 12 letter-graded pt.) 2012–2013

RESEARCH INTERESTS

stress cellular mechanisms • thermoregulation • social immunity • pollinator physiology and behavior

RESEARCH EXPERIENCE

Barnard College, New York, NY 2019 to Present
Research Assistant, PI: Jonathan W. Snow

- Design and conduct experiments with the western honey bee (*Apis mellifera*); analyze data using GraphPad Prism; assist in writing manuscripts; present at lab meetings & conference
- Characterize proteostatic networks using chemical stress approaches in forager bees
- Explore the effect of life stage in stress responses to heat shock in nurses vs. foragers
- Quantify the genetic changes in response to heat shock in queen vs. attendant bees to demonstrate persistence of heat shock response in these reproductive individuals

Barnard College, New York, NY Sept 2016 to May 2019
Research Assistant & Social Media Manager, PI: Alexandra Horowitz

- Designed experiments by testing protocols with dog at home; led experimental trials with humans and their dogs (*Canis lupus familiaris*); analyzed data; managed lab social media
- Characterized habituation of domestic dog to the familiar odor of their owners to determine whether dogs recognize and represent humans (i.e. having mental cognitive image of their owners)
- Used “nosework” to stimulate positive judgment bias (optimism) to demonstrate that olfaction-based activities can positively contribute to a dog’s welfare
- Redesigned the mirror self-recognition test for domestic dogs by using an “olfactory mirror” test to examine this meta-cognitive task using the dog’s primary sensory modality

Barnard College, New York, NY
Research Assistant, PI: Elliot S. Paul

Sept 2013 to May 2015

- Translated passages from Descartes in the original Latin into English for book of essays exploring the philosophy of creativity

PUBLICATIONS

Flores, M.E., McNamara-Bordewick, N.K., & Snow, J.W. 2021. Halofuginone triggers a transcriptional program centered on ribosome biogenesis and function in honey bees. *Insect Biochemistry and Molecular Biology*, 139, 103667. <https://doi.org/10.1016/j.ibmb.2021.103667>

Shih, S.R., Huntsman, E.M., **Flores, M.E.**, & Snow, J.W. 2020. Reproductive potential does not cause loss of heat shock response performance in honey bees. *Scientific Reports*, 10(1), 19610. <https://doi.org/10.1038/s41598-020-74456-4>

MEETING PRESENTATIONS

Flores, M.E., Huntsman, E.M. Shih, S.R., and Snow, J.W. Reproductive potential does not cause loss of Heat Shock Response performance in honey bees. *Biology and Genomics of Social Insects*. Cold Spring Harbor Laboratory. Virtual. Mar 2020.

TEACHING EXPERIENCE

Barnard College, New York, NY

Sept 2020 to Present

Discussion Leader, Department of Biological Sciences

- Lead 1 section of BIOL BC1510 Discussion Section, an undergraduate course accompanying the co-requisite Introduction to Organismal & Evolutionary Biology lecture offered in the fall; lead 1 section of BIOL BC1512 Discussion Section, an undergraduate course accompanying the co-requisite Introduction to Cellular & Molecular Biology lecture offered in the spring
- Assist with curricular development of discussion topic and attended workshop with the Center for Engaged Pedagogy to learn best skills and practices in multi-partial facilitation to hold difficult conversations such as those around race and science

Barnard College, New York, NY

Sept 2016 to Present

Lab Instructor, Department of Biological Sciences

- Teach 1–2 sections of BIOL BC1501 Introductory Lab in Evolutionary & Organismal Biology; BIOL BC1503 Introductory Lab in Cellular & Molecular Biology; and BIOL BC1010 Lab in Global Health and Ecology (for non-majors)
- Assist with curricular development of labs and attend weekly prep sessions for the following week's lab

Barnard College, New York, NY

May 2014 to Aug 2018

Teaching Assistant, Department of Biological Sciences

- Courses assisted: BIOL BC1500 Introduction to Cellular and Molecular Biology; BIOL BC1501 Introductory Lab in Organismal & Evolutionary Biology; BIOL BC1502 Introduction to Cellular and Molecular Biology; BIOL BC1503 Introductory Lab in Cellular & Molecular Biology; and BIOL BC3303 Lab in Molecular Biology

POSITIONS HELD

Department Administrator

Sept 2018–Present

Department of Biological Sciences, Barnard College, New York, NY

- Liaise between the department and other key College offices, including the Provost, Registrar, Budgeting & Planning, Human Resources, and Career Development
- Supervise and organize activities of the biology office, including communication with students, alums, faculty, and staff; maintenance of the departmental website; hosting events; departmental bookkeeping including tracking majors and budgeting information
- Prepare dossiers for tenure, 3rd year reviews, reappointment, and promotions
- Assist majors with course information and research opportunities to ensure they are on track to graduate
- Teach one lab and one discussion sections in introductory biology per semester

Laboratory Specialist

Sept 2017–Aug 2018

Department of Biological Sciences, Barnard College, New York, NY

- Taught two sections of Introductory Biology Lab each semester
- Collaborated with the Barnard Writing Fellows Program to develop workshops targeted toward teaching scientific writing for the introductory biology lab courses
- Provided upper-level lab and introductory lecture professors with administrative and teaching assistance

Laboratory Associate

Sept 2016–Aug 2017

Department of Biological Sciences, Barnard College, New York, NY

- Taught three section of Introductory Biology Lab each semester
- Presented lab techniques and procedures to instruct undergraduate students on correct application of the theoretical material taught in the concurrent lecture course
- Enforced lab procedures, including lab breakdown & safety instructions, and promoted student collaboration
- Provided knowledgeable feedback to students during lab and on their weekly graded assignments & lab reports

Program Coordinator

Jan 2017–Aug 2017

Noyce Teacher Scholars Program, Education Program, Barnard College, New York, NY

- Coordinated all communications including student recruitment emails, teacher-scholar and summer internship materials, STEM Colloquium & STEM Field Exploration logistics, and faculty & scholar support
- Developed and maintained the program website & Facebook page and an organizational system for program files
- Crafted promotional posters & brochures and disseminated to various NYC STEM education networks
- Summarized program evaluation instruments & data in an annual report to the National Science Foundation

DEPARTMENTAL SERVICE

Anti-Racism Working Group | Leader

Barnard College, Department of Biological Sciences, New York, NY, Aug 2020–Present
Examines departmental practices that contribute to recruitment and retention of students to the major with an anti-racist lens, including hiring practices, pedagogy, student advising, and research mentorship.

Introductory Biology Committee | Member

Barnard College, Department of Biological Sciences, New York, NY, Jan 2021–Present
Dedicated to curricular innovation in our introductory level year-long sequence of lecture and laboratory courses required for majors and pre-health tracks.

Advising, Mentoring, and Major Tracks Committee | Member

Barnard College, Department of Biological Sciences, New York, NY, Jan 2021–Present
Focuses on designing resources for students that will guide them in navigating the major and undergraduate research opportunities.

PROFESSIONAL TRAINING

Anti-Racism Institute

Barnard College, Center for Engaged Pedagogy, New York, NY, Oct 2020–Mar 2021
Six sessions focused on how racism permeates higher education and how to actively dismantle it by applying practical, conceptual, and historical lenses to curriculum design.

Rising to the Challenge: Creating Equitable Opportunities During a Remote Learning Environment...and Beyond

National Science Teaching Association, Association for Multicultural Science Education and NSTA's Committee on Multicultural/Equity in Science Education, Dec 2020–Jan 2021
Four-part, interactive, virtual mini-series focused on providing resources and best practices to support distance learning, in-classroom instruction, and hybrid teaching for diverse students.

PROFESSIONAL AFFILIATIONS

American Association of Professional Apiculturists, 2020–Present
National Science Teaching Association, 2020–Present

LABORATORY SKILLS

PCR and qPCR • DNA and RNA Extraction • Gel Electrophoresis • Bacterial Transformation •
Dissection • Animal, Plant, and Bacterial Colony Care • Reagent Preparation

COMPUTER SKILLS

Microsoft Office and Google Suites • GraphPad Prism • SPSS • HTML5 • CSS • Canva • Qualtrics •
WordPress • Content Management System (Drupal 9)

LANGUAGES

English & Spanish: Native Languages; **Latin:** Advanced Proficiency; **Ancient Greek & Mandarin:** Novice