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 in the honey bee • colony thermoregulation • eusociality and social immunity • gut microbiota and stress • regulation of age polyethism and stress • bee neurobiology

RESEARCH EXPERIENCE

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

- Characterizing proteostatic networks using chemical stress approaches in forager bees
- Exploring the effect of life stage in stress responses to heat shock in nurses vs foragers
- Qualifying 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

- Characterized habituation of domestic dog to the familiar odor of their owners to determine whether dogs recognize and represent humans, such as 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 Sept 2013 to May 2015
Research Assistant, PI: Elliot S. Paul

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

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

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 in the fall
- Teach 1–2 sections of BIOL BC1503 Introductory Lab in Cellular & Molecular Biology in the spring
- Teach 1–2 sections of BIOL BC1010 Lab in Global Health and Ecology (for non-majors) in the spring

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

PUBLICATIONS

Journal Publications

Shih, S.R., Huntsman, E.M., **Flores, M.E**., & Snow, J.W., Reproductive potential does not cause loss of heat shock response performance in honey bees. *Scientific Reports*, *10*(1), pp. 1–8.

Submitted

Flores, M.E., McNamara-Bordewick, N.K., and Snow, J.W. Pharmacological prolyl-tRNA synthetase inhibition activates ribotoxic stress response in honey bees. Submitted to *Insect Biochemistry and Molecular Biology*.

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. Virtual. Mar 2020.

DEPARTMENTAL SERVICE

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.

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 and inclusive lens, including hiring practices, curricular design, student advising, and research mentorship.

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

REFERENCES

Dr. Jonathan Snow, Assistant Professor
Department of Biological Sciences
Barnard College
3009 Broadway
1006 Altschul Hall
New York, NY 10027
Phone: 212.854.2084
Email: jsnow@barnard.edu

Dr. Jessica Goldstein, Senior Lecturer
Department of Biological Sciences
Barnard College
3009 Broadway
904 Altschul Hall
New York, NY 10027
Phone: 212.854.5298
Email: jgoldste@barnard.edu

Dr. Hilary Callahan, Professor
Department of Biological Sciences
Barnard College
3009 Broadway
1007 Altschul Hall
New York, NY 10027
Phone: 212.854.5405
Email: hcallaha@barnard.edu

Dr. Alexandra Horowitz, Adjunct Associate Professor
Department of Psychology
Barnard College
3009 Broadway
404 Milbank Hall
New York, NY 10027
Phone: 212.851.0227
Email: ahorowit@barnard.edu