

Curriculum Vitae

Iman Hamid

Education:

Duke, University Program in Genetics and Genomics, PhD

2017-present

Advisor: Dr. Amy Goldberg

Certificate in College Teaching

GPA: 4.0

UCLA, Major in Biology, Bachelor of Science

2013-2016

Departmental Highest Honors, Summa cum laude

GPA: 4.0

Current Research:

I am passionate about advancing computational and statistical methods to study genetic variation. My dissertation research focuses on how selection can quickly shape genetic variation in recently admixed populations. Through this research, I have integrated genetic ancestry information and genomic simulations to detect adaptation in populations with mixed ancestry, conceived and implemented new summary statistics to characterize evolutionary history in admixed populations, and developed novel applications of machine learning and computer vision methods to localize adaptive genetic variants.

Other Research Experience:

Variant Bio (Research Fellowship): May 2021-August 2021

I interned at the drug development start-up, Variant Bio with the co-founder and CTO, Dr. Stephane Castel. I implemented admixture-aware trait-mapping methods, assisted with analysis and interpretation of selection scans, and provided population genetics background research on populations of interest for current and future partnerships for the company.

NASA Ames Research Center, Space Biosciences Division: June 2016 – June 2017

I worked as Research Associate under Drs. Sharmila Bhattacharya and Ravikumar Hosamani to investigate the biomedical impacts of long-term spaceflight. I worked to determine the genetic and molecular responses to hypergravity-induced endoplasmic reticulum stress in *Drosophila melanogaster*. I also worked on characterizing the loss of dopaminergic neurons and associated behavioral changes in flies exposed to chronic hypergravity.

Honors Research in Ecology and Evolutionary Biology: March 2015-March 2016

I worked with graduate student Deborah Bird in Dr. Blaire Van Valkenburgh's functional morphology lab. Using 3D models rendered from skull CT scans, we studied differences in olfactory skull morphology, specifically the cribriform plate, across the order Carnivora. We asked whether these differences were a result of ecology or phylogeny and tested the predictions that olfactory gene repertoires reflected ecological reliance on olfaction and that aquatic animals have evolved smaller olfactory anatomy as compared with terrestrial species.

Teaching Experience:

Instructor: Fall 2021

Course: *Human Evolutionary Genetics*

Topics: population genetics, computational genomics methods, human evolution

Guest Lecture: Spring 2021

Course: *Human Evolutionary Genetics* – Duke University, invited by Dr. Amy Goldberg

Topic: human geographic variation

Guest Lecture: Fall 2020

Course: *Evolution* – Monmouth University, invited by Dr. Megan Phifer-Rixey

Topics: admixture, genetic ancestry, selection

Teaching Assistantship: Fall 2019

Course: *Gateway to Biology: Molecular Biology*

Duties: laboratory instruction, office hours, grading

Other Work Experience:

GCB Summer Scholars Program in Genome Sciences and Medicine: May – July 2018

I worked under Dr. Susanne Haga as a graduate assistant for this summer research opportunity for freshmen and sophomore underrepresented minority undergraduates. I mentored nine students while they worked on their research, abstracts, and posters. I also designed and led workshops on communicating with advisors and applying to graduate schools.

Publications:

Gopalan S, Smith SP, Korunes K, Hamid I, Ramachandran S, Goldberg A. Human genetic admixture through the lens of population genomics. **2021**. *arXiv*, 2109.12190

Hamid I, Korunes K, Beleza S, Goldberg G. Rapid adaptation to malaria facilitated by admixture in the human population of Cabo Verde. **2021**. *eLife*, 10:e63177

Bird DJ, Hamid I, Fox-Rosales L, Van Valkenburgh B. Olfaction at depth: Cribriform plate size declines with dive depth and duration in aquatic arctoid carnivores. **2020**. *Ecology and Evolution*, 10: 6929-6953.

Marion SB, Hamid I, Manzano-Winkler B, Noor MAF. Naturally occurring recessive lethal alleles in a natural population of *Drosophila melanogaster* appear to result from single locus loss of function effects. **2018**. *Drosophila Information Service*, 101: 60-63.

Bird DJ, Murphy WJ, Fox-Rosales L, Hamid I, Eagle RA, Van Valkenburgh B. Olfaction written in bone: Cribriform plate size parallels olfactory receptor gene repertoires in Mammalia. **2018**. *Proceedings of the Royal Society B*, 285: 20180100.

Posters and Presentations:

Hamid I, Korunes K, Beleza S, Goldberg A. Ancestry-aware statistics for detecting rapid adaptation in admixed populations. Poster Presentation, EMBO PopGen, Virtual, March **2021**.

Hamid I, Korunes K, Beleza S, Goldberg A. Rapid adaptation to malaria in under 20 generations in the admixed human population of Cape Verde. Oral presentation, Club EvMed Student Spotlight, Virtual, September **2020**.

Hamid I, Marion S*, Glenn E, Noor M. Identifying the genetic basis and distribution of lethal mutations in a natural population of *Drosophila melanogaster*. Poster presentation, Evolution, Providence, RI, June **2019**.

Hamid I, Hosamani R, Bhattacharya S. Hypergravity, Endoplasmic Reticulum Stress, and the Unfolded Protein Response in *Drosophila*. Oral presentation, American Society for Gravitational and Space Research, Cleveland, OH, October **2016**.

Honors and Awards:

Variant Bio Fellowship: Research Fellow (2021)
Bass Instructional Fellowship: Instructor of Record (2020)
NSF Graduate Research Fellowship Honorable Mention (2019)
Duke Graduate School Dean's Graduate Fellowship (2017)
Duke BioCoRE Scholar (2017-present)
Phi Beta Kappa National Honor Society (2016-present)
Golden Key International Honour Society (2015-present)
Jo-Belle Wolf Scholarship (2015)
Ella Okern Scholarship (2015)
Phi Eta Sigma Honor Society (2014-present)
Alpha Lambda Delta Honor Society (2014-present)
WM Stout Memorial Scholarship (2014)
Rose Gilbert in Memory of Maggie Gilbert Honors Scholarship (2014)
UCLA Achievement Scholarship (2013-2016)
UCLA University Grant (2013-2015)
UCLA Scholarship Recognition Award (2013)
UCLA May Ballard Scholarship (2013)
UCLA A. & R. Miller Scholarship (2013)
FEEA- Federal Employee Scholarship (2013)
NARFE Scholarship (2013)

Outreach:

MicroMoles: Learning STEMs from Curiosity: 2018-2021

I was the President and Founder of this student group which writes short, illustrated children's stories based on recent graduate student publications.

UNC Morehead Planetarium IMPACTS Scholar: 2018-2019

As an IMPACTS scientist, I worked with professional informal science educators to design and conduct science-related classroom and community expo activities for the local community.

NC Museum of Natural Sciences: 2017-2019

I was a regular volunteer at the Visual World Investigate Lab, where I facilitated public interactions and explorations of the NCMNS makerspace.

DOinGG: 2017-2021

I was a participant in my graduate program's outreach activities geared towards scientific education and communication to local schools.

Project Literacy at UCLA: 2015-2016

I mentored students from underprivileged backgrounds in academic and personal aspects. The aim is to improve literacy rates in students (all grade levels) from local schools and encourage them to pursue higher education.

Program Involvement:

BioCoRE Professional Development Student Leadership Team: 2020-2021

Representative, Graduate and Professional Student Council General Assembly: 2018-2020

Committee Member, Genetics and Genomics Recruitment: 2017-2018

Recruitment for Duke Graduate School at ABRCMS: November 2018