

# CARTER CLINTON

State College, PA

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## PROFESSIONAL SUMMARY

Genetic anthropologist with proven performance in DNA extraction and analysis · Proven track record of peer-reviewed publications · Proven track record of acquiring research grants · Knowledgeable in overall laboratory function and maintenance · Strong public speaker and research communicator to scientific and general audiences · Research experience in biological anthropology, anthropological genomics · forensic anthropology, molecular biology, and human genetics.

## RESEARCH INTERESTS

Genetic anthropology · African and African American genomes · Human evolutionary medicine · Ancient DNA · health disparities in underrepresented populations · bioethical implications of scientific research

## EDUCATION

2021 -	Postdoctoral Scholar Depts. of Anthropology and Biology Pennsylvania State University	Advisor: George 'PJ' Perry
2014 - 2021	Ph.D. Biology Department Howard University	Advisor: Fatimah Jackson
2009 - 2012	B.Sc. Biology Department Benedict College	Advisor: Larry Lowe

## SKILLS

DNA/ aDNA extraction · Sanger sequencing · RNA isolation · PCR/qPCR · genotyping · protein isolation, Western Blot · big data statistical analyses · local ancestry estimation · X-ray fluorescence spectrometry · Illumina MiSeq DNA sequencing · 16S rRNA analysis · Mothur · 'R' · QGIS · ADMIXTURE · PLINK

## DISSERTATION RESEARCH

### New York African Burial Ground Grave Soil analysis

My research reconstructed aspects of identity and lifestyles of the historic NYABG population. I analyzed 92 grave soil samples collected from skeletal remains. Soil chemistry analyses were performed to explore the environment of 17<sup>th</sup> century Lower Manhattan and the predominant diets of individuals in the burial ground. Bacterial DNA analyses were performed to identify all human associated microbes, visualize the human microbiome of the inhabitant, and bacterial disease pathogen to assign potential cause of death by infectious disease. A bioethical analysis was performed to illuminate the significance of studying underrepresented populations and appropriate methods for research. Results of this research provide insights about the ancestors of present-day African Americans and the existence of enslavement in NYC.

## RESEARCH AND LEADERSHIP EXPERIENCE

July 2021 - **Postdoctoral Scholar**  
*Depts. of Anthropology & Biology, Pennsylvania State University, State College, PA*

**Modern DNA:** Explore genetic diversity within the African contribution of African Americans (rainforest hunter-gatherer and Bantu speaking populations); explore adaptive evolution in rainforest hunter-gatherers; genomic 'identity' of African Americans; identify novel genomic markers associated with disease phenotypes.  
**Ancient DNA:** Explore NYABG soil samples for human genomic aDNA

- May 2022 **ARISE (Anthropological Research in Science Education)**  
*Dept. of Anthropology, Pennsylvania State University, State College, PA*  
Admixture and African Americans Session: Teach students the definition of admixture and its importance in genetic identification and health.
- March 2022 **Panelist for Task Force on the Ethical Study of Human Materials**  
*American Association for Biological Anthropologists*  
Discuss the status of African American remains in institutions and museums and the urgency to protect future discoveries
- Spring 2022 **Lecturer, Evolution**  
*San Francisco State University, San Francisco, California*  
Faculty appointment, instructor for evolution
- Spring 2021 **Lecturer, Introduction to Genetics**  
*San Francisco State University, San Francisco, California*  
Faculty appointment, instructor for themes and concepts associated with foundational, molecular, and evolutionary genetics
- Dec 2017 – May 2021 **Assistant Curator, W. Montague Cobb Research Laboratory**  
*Howard University, Washington, DC*  
Assist director in day-to-day duties; help to create and facilitate 8 undergrad research projects; manage 21 undergraduate researchers; schedule and accommodate research assistants and interns, visiting researchers and collaborators; mentor 8 undergraduate students
- June 2020 – July 2020 **Pre-health Summer Enrichment program**  
*Howard University, Washington, DC*  
Taught Kaplan style class for MCAT and DAT students
- Spring 2020 **Teaching Assistant**  
*Department of Biology, Howard University, Washington, DC*  
Created and instructed original labs for laboratory section of Genetics, post Spring Break the class was taught entirely online
- May 2019 – June 2019 **Pre-health Summer Enrichment program**  
*Howard University, Washington, DC*  
Taught Kaplan style class for MCAT and DAT students
- May 2018 – Sept 2018 **Intramural Research Training Award Fellow, National Institutes of Health**  
*Bethesda, Maryland*  
Dry Lab: Bioinformatic candidate gene approach to exploring causes of ectopia cordis

Wet Lab: Gene expression experiments with zebra fish model

July 2017

**Finding our Roots**

*Pennsylvania State University, State College*

Presented genetics/ genealogy talk to summer session students

April 2017

**Graduate Researcher and Logistics Coordinator for the African Genomic Diversity Workshop**

*W. Montague Cobb Research Lab, Howard University, Washington, DC*

Directed responsibilities and for over 30 students and managed the flow of DNA and data collection

2016 – 2020

**Teaching Assistant**

*Department of Biology, Howard University, Washington, DC*

Aided instruction during lecture and generated original laboratory activities for Biological Anthropology (Fall semesters) and Human Diversity and Evolutionary Genetics (Spring Semesters)

Fall 2016

**Teaching Assistant**

*Department of Biology, Howard University, Washington, DC*

Instructed students during the laboratory section of Genetics

January 2016

**Department of Energy Researcher**

*Department of Biology, Howard University, Washington, DC*

Discover and categorize unknown microbes from site of plutonium radiation in Hanford, Washington

Dr. Courtney Robinson, Principal Investigator

Summer 2015

**SMDEP (Summer Medical & Dental Education Program) Mentor**

*Howard University, Washington, DC*

Advise and organize undergraduate students in research detailing health disparities in the Montague Cobb Collection

Dr. Fatimah Jackson, Principal Investigator

March 2015

**Historically Underrepresented Persons or Groups in the Grand Canyon Region**

*Grand Canyon National Park, Arizona*

Compile archival documents revealing population diversity in the Grand Canyon region

Dr. Fatimah Jackson, Principal Investigator

2014 – 2021

**Research Assistant at W. Montague Cobb Research Lab**

*W. Montague Cobb Research Lab, Howard University, Washington, DC*

Assess and record analysis of grave soil samples of the New York African Burial Ground

Dr. Fatimah Jackson, Principal Investigator

**GRANTS AND AWARDS**

September 2019

Travel Award for competing in Edward Bouchet 3MT Competition

August 2019

Edmund & M. Prioleau Scholarship

June 2019

AAAS/Science Program for Excellence in Science

March 2019 Cosmos Scholar with distinction (Henry Work Award)  
 November 2018 Sigma Xi Student Research Conference Award for Superior Presentation in Anthropology  
 April 2018 Howard University "Graduate Student of the Year" Award  
 March 2018 Honorary speaker at Sigma Xi: Pathway to the Future Reception  
 November 2017 Sigma Xi Student Research Conference Award for Superior Presentation in Anthropology  
 June 2017 Just- Julian Assistantship  
 National Geographic Explorer Grant  
 Sigma Xi Grant-in-aid

#### ADDITIONAL RESEARCH PROJECTS

July 2019 **Petrous bone extraction and sequencing of an historic African American population**  
*Howard University, Washington, DC*  
 Dr. Fatimah Jackson, Principal Investigator

April 2017 **10,000 African Diaspora Genome Database**  
*Howard University, Washington, DC*  
 Dr. Fatimah Jackson, Principal Investigator

May 2015 **What is CRISPR?**  
*Howard University, Washington, DC*  
 Acquisition of in-depth knowledge of CRISPR/ Cas9 including its uses  
 Dr. Hemayet Ullah, Principal Investigator

December 2012 **The Future of Genetic Engineering in Medicine with focus on Pharmacodynamics**  
*Benedict College, Columbia, SC*  
 Exploring the uses and benefits of tailor-made medicine  
 Dr. Larry Lowe, Mentor

#### PUBLICATIONS

Under review Clinton, C.K., Robinson, C.J., Jackson, F.L.C. The soil bacterial community at the historic New York African Burial Ground soil samples suggests evidence of human microbiome. *American Society of Microbiology's Applied and Environmental Microbiology*

Nov 2020 Clinton, CK, Jackson, FLC. Historical overview, current research, and emerging bioethical guidelines in researching the New York African burial ground. *Am J Phys Anthropol.* 2020; 1– 11. <https://doi.org/10.1002/ajpa.24171>

Dec 2019 Clinton, C.K., Duncan, C.M., Shaw, R.K. et al. Identification of trace metals and potential anthropogenic influences on the historic New York African Burial Ground population: A pXRF technology approach. *Sci Rep* 9, 18976 (2019). <https://doi.org/10.1038/s41598-019-55125-7>

May 2015 Elizondo, D, L.M. Fernando, E. Oliver, **K. Clinton**, N. Retland, H. Paturault & H. Ullah. 2015. Welcome to the Brave New World: CRISPR Mediated Genome Editing- pathway to Designer Babies Bangladesh Association for Plant Tissue Culture and Biotechnology (BAPTC&B) (25):1

#### PRESS/ MEDIA

April 2022 NIH National DNA Day Q & A: <https://twitter.com/i/events/1517497881128837120>  
 November 2020 Virtual Field Trip with National Geographic

[https://docs.google.com/forms/d/e/1FAIpQLSfSSYTViLsne0yHjQWFu3Y\\_WjTjEpgvKV0H-HGdHjiK3GkMY5A/closedform](https://docs.google.com/forms/d/e/1FAIpQLSfSSYTViLsne0yHjQWFu3Y_WjTjEpgvKV0H-HGdHjiK3GkMY5A/closedform) or

- February 2020 <https://www.youtube.com/watch?v=3x6S3majs8k>  
American Geophysical Union Third Pod from the Sun Podcast Interview:  
<https://twitter.com/thirdpod/status/1230180161900961792?s=12>
- January 2020 National Geographic Big Ideas Education series: Soil Secrets  
<https://www.nationalgeographic.org/video/soil-secrets/or>  
<https://www.youtube.com/watch?v=7IRFObgeb8&t=22s>
- April 2019 *Radio Facts- The Voice for the Voices*  
"Howard University PhD Student Makes New Health Discover About the Enslaved Africans of New York"  
(<https://radiofacts.com/howard-university-ph-d-student-makes-new-health-discovery-about-the-enslaved-africans-of-new-york/>)
- April 2019 The Journal of Blacks in Higher Education  
"Howard University Doctoral Student Discovers New Information About the Diet of Enslaved Africans"  
(<https://www.jbhe.com/2019/04/howard-university-doctoral-student-discovers-new-information-about-the-diet-of-enslaved-africans/>)
- April 2019 *Howard Magazine*  
"Howard University PhD Student Makes New Discovery about the Enslaved Africans of New York" (<https://newsroom.howard.edu/newsroom/static/10211/howard-university-phd-student-makes-new-health-discovery-about-enslaved>)
- April 2018 *American Scientist*  
"Researching the lives of slaves" (<https://www.sigmaxi.org/news/news-archive/2018/04/23/researching-the-lives-of-slaves>)
- Jan 2018 Howard Newsroom  
"Biology major and fourth-year doctoral student Carter Clinton has been named the first Howard University student ever selected as a top presenter of the national Sigma Xi Student Research Conference."  
(<https://newsroom.howard.edu/newsroom/static/7916/first-hu-student-named-sigma-xi-top-presenter-student-research-conference>)

#### **EXTERNAL TRAINING**

- May 2022 Evolutionary Medicine Summer Institute (EMSI) by TricEM  
North Carolina State University, Raleigh, NC
- July 2018 Summer Teachers and Scholars Institute (STSI)  
Columbia University, New York, New York
- February 2017 Radiation Certification  
Environmental Science and Technology Department, University of Maryland, College, Park
- Spring 2017 Forensic Molecular Biology  
The George Washington University, Mount Vernon Campus, DC
- Fall 2016 Fundamentals of Forensic Science  
The George Washington University, Mount Vernon Campus, DC
- June 2016 Data science bootcamp  
Pennsylvania State University

## MENTORSHIP AND STUDENT TRAINING

Babajide Owosela	May 2019 Graduate. Post-baccalaureate researcher at NIH-NHGRI → Emory School of Medicine, Atlanta, GA
Shyan Organ	May 2019 Graduate. Traveler's Summer Research Fellowship, Cornell University → Howard University College of Medicine, Washington, D.C.
Nancy Varice	May 2019 Graduate. Sloan Kettering, New York, NY.
Ugonna Nwannunu	May 2019 Graduate. Post- baccalaureate research at NIH-NCI → Howard University College of Medicine, Washington, D.C.
Imade Ojo	May 2019 Graduate. Researcher at GSK.
Jade Dickenson	May 2021 Graduate. MPH. Columbia University

## CONFERENCE PRESENTATIONS/ INVITED TALKS

(\*\*invited speaker presentations)

April 2022	<b>Harnessing the past to better understand health disparities in living African Americans and the urgency for diversity in genomic databases</b> National DNA Day – Louise M. Slaughter Lecture National Institutes of Health
April 2022	<b>**Insights from the Human Microbiome Analysis of the historic New York African Burial Ground and its potential to inform us about disease phenotypes of living African Americans</b> Anthropology and World Studies Department Virginia Commonwealth University
April 2022	<b>Untold stories from beyond the grave: The resilience of The New York African Burial Ground population</b> Inaugural Underground Railroad Conference Lincoln University, Lincoln, PA
March 2022	<b>**Presidential Plenary Panel: Task Force panelist for the Ethical Study of Human Remains</b> American Association of Biological Anthropologists Denver, CO
November 2021	<b>**Keynote Address: Teaching in the Digital Age: Literally!</b> National Science Teachers Association Gaylord National Resort and Convention Center, National Harbor, MD
June 2021	<b>**Juneteenth Keynote Speaker</b> Barclay Bank
June 2021	<b>**Featured speaker for National Geographic Society's Explorer festival</b> National Geographic Society
October 2020	<b>**Bacterial DNA analysis of the 17th and 18th Century New York African Burial Ground: Exploring the human microbiome and infectious disease</b> Biology Department San Francisco State University **via Zoom
April 2020	<b>16S rRNA analysis of human microbiome and infectious disease pathogen found in New York African Burial Ground soil samples</b> New England Science Symposium/ BioMedical Student Conference Harvard University, MA <i>canceled due to COVID-19 restrictions</i>
March 2020	<b>**Deciphering the lifestyles of the 17<sup>th</sup> and 18<sup>th</sup> century New York African Burial Ground population</b>

- Anthropology Seminar Speaker Series.  
Virginia Commonwealth University, VA
- November 2019 **Human microbiome analysis of the New York African Burial Ground**  
Invited talk. Forensic Science Department.  
Virginia Commonwealth University, VA
- October 2019 **Urgency for diversity in genomic research -Plenary Panel**  
MABIG (Mid-Atlantic Bioanthropology Interest Group)  
Virginia Commonwealth University, VA
- September 2019 **You Must Look to the Past to Know Where You're Going: Insights from the New York African Burial Ground**  
Edward A. Bouchet 3MT Competition  
Howard University, DC
- May 2019 **Deciphering the lifestyles of the 17<sup>th</sup> and 18<sup>th</sup> century New York African Burial Ground population**  
CSAAD (The Center for the Study of Africa and the African Diaspora) & ASWAD (The Association for the Study of the Worldwide African Diaspora)  
New York University, NYC
- March 2019 **Spatial distribution of trace metals found in the New York African Burial Ground using XRF technology**  
American Association for Physical Anthropologists  
Cleveland, Ohio
- February 2019 **Spatial distributions of bacteria and trace metals found in the NY African Burial Ground**  
American Association for the Advancement of Science  
Washington, DC
- November 2018 **Trace metal variation of 17<sup>th</sup> and 18<sup>th</sup> Century New York African Burial Ground soil samples using XRF technology**  
Sigma Xi, The Scientific Research Honor Society - Top Presenter Award  
San Francisco, CA
- October 2018 **Reconstructing the lives of the 17<sup>th</sup> and 18<sup>th</sup> Century New York African Burial Ground population**  
Mid-Atlantic Biological Anthropology Conference  
Virginia Commonwealth University, VA
- November 2017 **Creation of a genomic database for the 17<sup>th</sup> and 18<sup>th</sup> Century New York African Burial Ground Population**  
Sigma Xi, The Scientific Research Honor Society - Top Presenter Award  
Cary, North Carolina
- July 2017 **Creation of a Genomic Database from New York African Burial Ground Grave Soil Samples**  
Society for Molecular Biology and Evolution Conference  
Austin, Texas
- May 2017 **Creation of a Genomic Database from New York African Burial Ground Grave Soil Samples**  
European Society for Human Genetics Conference  
Copenhagen, Denmark

#### **PROFESSIONAL MEMBERSHIPS**

- July 2019 American Association for Human Genetics (ASHG)  
March 2019 American Association for Physical Anthropologists (AAPA)

November 2018  
April 2017

American Association for the Advancement of Science (AAAS)  
Sigma Xi Scientific Research Honor Society

**REFERENCES**

Available upon request.