

**Marian I. Hamilton**  
University of Northern Colorado  
College of Humanities and Social Sciences  
(970) 351-3212  
Email: [marian.hamilton@unco.edu](mailto:marian.hamilton@unco.edu)

## Education

- PhD, University of New Mexico, 2018.  
Area of Study: Anthropology  
Dissertation/Thesis Title: Reconstructing Landscape Use Patterns with Strontium Isotope Ratios
- MS, University of New Mexico, 2014.  
Area of Study: Evolutionary Anthropology
- BA, Pennsylvania State University, 2008.  
Area of Study: Anthropology
- BA, Pennsylvania State University, 2008.  
Area of Study: History

## Professional Academic Experience

- Assistant Professor of Anthropology, University of Northern Colorado. (2018 - Present).
- Grant Writer Senior Associate, Teach For America - Colorado. (2017 - 2018).
- Graduate Teaching Assistant, University of New Mexico. (2012 - 2018).
- Content Lead and Teacher, 5th/6th Grade Science, Amistad Academy Middle School. (2008 - 2012).

## Licensures and Certifications

- Provisional Educator's Certificate, State of Connecticut Department of Education. (June 16, 2012 - June 15, 2020).

## RESEARCH, SCHOLARSHIP, AND CREATIVE WORKS

### Publications

#### Juried

Journal Article

In Preparation; Not Yet Submitted

Hamilton, M., Copeland, S., Nelson, S. Assessing Philopatry within South African Hominins: A Reassessment of Strontium Isotope Ratios. *Journal of Human Evolution*.

Hamilton, M., Drake, B. L., Nelson, S., Dzhinenko, E., Galloway, A. Sr/Ca Ratios Differentiate Frugivores and Folivores among Primates in Kibale National Park,

Uganda. *Proceedings of Royal Society Society: B*.

#### Published

- Hamilton, M., Nelson, S. V., Fernandez, D. (2021). Using Strontium Isotopes to Determine Philopatry and Dispersal in Primates. *Royal Society Open Science*.
- Janzen, A., Bataille, C., Copeland, S., Quinn, R., Ambrose, S., Reed, D., Hamilton, M., Grimes, V., Richards, P., la Roux, P., P. (2020). Spatial variation in bioavailable strontium isotope ratios ( $^{87}\text{Sr}/^{86}\text{Sr}$ ) in Kenya and northern Tanzania: Implications for ecology, paleoanthropology, and archaeology. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 560(109957).  
<https://www.sciencedirect.com/science/article/abs/pii/S0031018220304028>. DOI:  
<https://doi.org/10.1016/j.palaeo.2020.109957>
- Hamilton, M., Nelson, S. V., Fernandez, D., Hunt, K. (2019). Detecting Riparian Habitat Preferences in 'Savanna' Chimpanzees and Associated Fauna with Strontium Isotope Ratios: Implications for reconstructing chimpanzee-human last common ancestor habitat use. *American Journal of Physical Anthropology*, 170(4).  
<https://doi.org/10.1002/ajpa.23932>
- Hamilton, M., Drake, B. L., Wills, W. H., Jones, E. L., Conrad, C., Crown, P. (2018). Stable Oxygen Isotope Sourcing of Archaeological Fauna from Chaco Canyon, New Mexico. *American Antiquity*, 83(1), 163-175. <https://doi.org/10.1017/aaq.2017.61>
- Drake, B. L., Wills, W., Hamilton, M., Dorshow, W. (2014). Strontium isotopes and the reconstruction of the Chaco regional system: evaluating uncertainty with Bayesian mixing models. *PLoS ONE*, 9(8). <https://doi.org/10.1371/journal.pone.0095580>

#### Submitted

- Conrad, C., Hamilton, M. Drinking Coffee in Gold Rush-era San Francisco. *Global Food History*.

#### Book Chapter

##### Published

- Drake, B. L., Taylor, B., Hamilton, M. Quantitative Analysis. In B Lee Drake and Brandi L MacDonald (Ed.), *Advances in Portable X-ray Fluorescence Spectrometry* (pp. 81-107). London: Royal Society of Chemistry.
- Nelson, S. V., Hamilton, M. (2017). Evolution of the human dietary niche – initial transitions. In Martin Muller, Richard Wrangham, David Pilbeam (Ed.), *Chimpanzees and Human Evolution* (pp. 286-310). Cambridge, MA: Harvard University Press.

#### Non-juried

##### Technical Report

##### Submitted

- Hamilton, M., Drake, B. L., Creekmore, A. *Toxicity and Composition Report on UNC's Archeology Museum collections*.

## Professional Presentations

### Invited

#### Juried

Hamilton, M., Denver X-Ray Conference, "From the Present to the Paleocene: Assessing Non-destructive Methods for Reconstructing Primate Diets and Environments," Washington D.C. (August 5, 2020).

Hamilton, M. (Author & Presenter), Conrad, C., Crown, P., Wills, W., Drake, B., Jones, E. L., Society for American Archeology Annual Conference, "Isotopic Analysis of Small Mammals from Chaco Canyon, NM," Washington. DC. (April 2018).

#### Non-juried

Hamilton, M., Earth and Atmospheric Sciences Seminar speaker, "Reconstructing Primate Diets Using Strontium-Calcium Ratios and Handheld XRF Technology." (October 20, 2021).

Hamilton, M., Center for the Enhancement of Teaching and Learning 2020 Webinar Series, "The Benefits of Low-Stakes Assessment in Large LAC Courses." (November 11, 2020).

Hamilton, M., Darwin Day Speaker, Regis University Biology Dept Seminar, "Reconstructing Habitat Preferences with Strontium Isotopes." (February 14, 2020).

Hamilton, M., UNC Biology Department Seminar, "Tracking Mobility with Stable Isotopes." (January 25, 2019).

### Not Invited

#### Juried

Galloway, A. (Author), Hamilton, M. (Presenter), Rocky Mountain Biological Anthropology Association, "Assessing Elemental Indicators of Growth within Equine Teeth Using XRF Technology." (October 15, 2022).

Hamilton, M., Drake, B. L., Nelson, S. V., Galloway, A., Dzhinenko, E., American Association of Biological Anthropologists Annual meeting, "How inter-species variation in strontium-calcium ratios of leaves and fruit informs dietary reconstructions," American Association of Biological Anthropologists, Denver, CO. (March 28, 2022).

Hamilton, M., Drake, B., Nelson, S. V., American Association of Physical Anthropologists Annual Meeting, "Differentiating between frugivory and folivory in primates using non-destructive XRF measurements of strontium/calcium ratios: A case study from Kibale National Park." (March 2019).

Hamilton, M., American Association of Physical Anthropologists Annual Meeting, "Strontium Isotope as Indicator of Philopatry and Dispersal," Austin, TX. (April 2018).

#### Non-juried

Hamilton, M., 2020 Teaching & Assessment Symposium, "The Use of Daily Wrap-Up

Assessments Drive Achievement and Investment in a Large LAC Natural Science Course," University of Northern Colorado, Greeley, Colorado. (March 24, 2020).

## Media Contributions

### Internet

Union of Concerned Scientists blog. (October 15, 2018).

### Other

Solutions with Nano Technology podcast. (September 16, 2021).

## Research in Progress

"Assessing dietary niches of Eocene primates" (On-Going).

Supported by the New Project Proposal Grant awarded in 2019, this project is in collaboration with the University of Wyoming's Geologic Museum. Using non-destructive XRF methods, microwear casting, and analysis of available literature, we will compare the dietary niches of Eocene primates collected from WY and CO and housed in UW's museum. Then, we will survey new potential fossil collection sites in the surrounding area (Laramie, WY) to add additional fossils to the collection. Pilot data collection for this project began in December 2021 and included two student research assistants. Analysis and fossil survey work are ongoing.

"Coffee's Chemicals: tracing the origins of archeological coffee beans from San Francisco" (On-Going).

Using a combination of strontium isotope ratios and trace element analysis, this collaborative project with Los Alamos National Laboratory seeks to determine the geographic origins of archeological coffee beans excavated from a Gold Rush era site in the heart of modern San Francisco. This was intended to be part of an invited symposium at the Society for American Archeology's 2021 conference, but the symposium was cancelled due to COVID. A manuscript encompassing the cultural aspects of this study is currently under review at Global Food History (submitted June 2022) and elemental analysis is ongoing.

"Differentiating fruits and leaves in Ugandan vegetation samples with Sr/Ca ratios and XRF technology" (On-Going).

This inaugural project of the XRF@UNC lab measures strontium and calcium concentrations in vegetation samples from Kibale National Park, Uganda, in an effort to differentiate fruit and leaf parts from each other and assess if species-specific variation is patterned and predictable. This work has involved 5 student research assistants to date and has resulted in two professional conference presentations (American Association of Biological Anthropology annual meetings in 2019 and 2022) and one manuscript that is currently in preparation for submission at eLife.

"Tracking Weaning Age through Trace Element Analysis" (On-Going).

Ratioed quantities of strontium and calcium in tissues have been demonstrated to correlate with periods of weaning off of breast milk. I began this project in 2018 in collaboration with Kibale Chimpanzee Project in which we wanted to determine if trace element analysis (Sr/Ca ratios) of fecal matter were a reliable indicator of the timing and proportion of weaning within young chimpanzees. In 2022, in a continuation of a directed study project, a student began scanning horse tooth enamel for similar elemental signs of weaning. Both projects are still ongoing.

## CONTRACTS, FELLOWSHIPS, GRANTS AND SPONSORED RESEARCH

### Funded

Hamilton, M., Kyle, B., "UNC Open Educational Awards," Sponsored by UNC Open Educational Awards Committee, University of Northern Colorado, \$3,000.00. (April 29, 2021 - Present).

Hamilton, M., "Fund for Faculty Publication grant," Sponsored by Office of Sponsored Projects, UNCO, University of Northern Colorado, \$1,260.00. (February 22, 2021 - Present).

Hamilton, M., "Bruker Sponsored Research Grant," Sponsored by Bruker Nano, \$9,000.00. (January 15, 2020 - Present).

Hamilton, M., "HSS Grant Writing Incentive program," Sponsored by HSS, University of Northern Colorado, \$3,000.00. (October 31, 2022 - December 31, 2023).

Hamilton, M., "New Project Proposal: Assessing Diets of Early North American Primates via Non-Destructive ED-XRF Analysis," Sponsored by Faculty Research and Publications Board, UNCO, University of Northern Colorado, \$3,676.24. (October 29, 2019 - October 31, 2021).

Hamilton, M., "Provost Award for Travel," Sponsored by University of Northern Colorado Faculty Research and Publication Board, University of Northern Colorado, \$1,500.00. (February 12, 2019 - April 1, 2019).

Hamilton, M., "Dissertation Fieldwork Grant," Sponsored by Wenner-Gren, Private, \$19,980.00. (April 21, 2016 - May 11, 2017).

Hamilton, M., "Dissertation Research Grant," Sponsored by The Leakey Foundation, Private, \$14,875.00. (December 8, 2015 - December 30, 2016).

Hamilton, M., "Graduate Research Fellowship Program," Sponsored by National Science Foundation, Federal, \$132,000.00. (September 1, 2013 - August 31, 2016).

### Not Funded

Hamilton, M., Kyle, B., "CARES Act Funding for Course Development," University of Northern Colorado, \$9,951.15.

## TEACHING

### Teaching Experience

#### University of Northern Colorado

##### Courses Taught:

ANT 130, Introduction to Biological Anthropology Laboratory, 16 courses. 1.00 credit hours.

ANT 338, World Rebuilding (Paleoecology), 1 course. 3.00 credit hours.

ANT 340, Quantitative Methods for Anthropology, 2 courses. 3.00 credit hours.

ANT 395, Topics in Anthropology, 1 course. 3.00 credit hours.

ANT 422, Directed Studies, 6 courses. 4.00 credit hours.

ANT 430, Human Evolutionary Anatomy, 2 courses. 3.00 credit hours.

ANT 470, Seminar in Anthropology, 3 courses. 3.00 credit hours.

ANT 492, Internship, 2 courses. 3.00 credit hours.

New Programs Developed/Major Program Revision: 3 courses.

ANT 130 Online

ANT 130L (ANT 130 Introduction to Biological Anthropology lab component)

Ant 338: World Rebuilding (Paleo-ecology) - new upper-division Anthropology course exploring how scientists reconstruct past environments and climates and how this impacts our understanding of climate change and habitat loss today.

## Academic Advising

Fall 2022: 0 undergraduate students advised.

Spring 2022: 7 undergraduate students advised.

Fall 2021: 7 undergraduate students advised.

Spring 2021: 7 undergraduate students advised.

Fall 2020: 10 undergraduate students advised.

Spring 2020: 6 undergraduate students advised.

Fall 2019: 0 undergraduate students advised.

Spring 2019: 13 undergraduate students advised.

Fall 2018: 9 undergraduate students advised.

## Directed Student Learning

Supervised Research. (August 2022 - Present).

Advised: Alex Galloway

Supervised Research. (August 2022 - Present).

Advised: Amanda Consol

Supervised Research. (July 2022 - Present).

Advised: Emily Dzhinenko

Supervised Research. (August 2021 - August 2022).

Advised: Alex Galloway, Emily Dzhinenko, Siren Layle

Directed Individual/Independent Study. (May 16, 2022 - August 5, 2022).

Advised: Arianna Staiano

Supervised Teaching Activity. (April 27, 2022).

Advised: Madison Stoner

Directed Individual/Independent Study. (August 2021 - December 2021).

Advised: Alex Galloway

Directed Individual/Independent Study. (August 2021 - December 2021).  
Advised: Chrissy Brenner

Directed Individual/Independent Study. (August 2021 - December 2021).  
Advised: Cydnie O'Brian

Directed Individual/Independent Study. (August 2021 - December 2021).  
Advised: Salena Stott

Supervised Research. (June 15, 2019 - May 8, 2020).  
Advised: Eduardo Maya

Supervised Research. (August 26, 2019 - May 5, 2020).  
Advised: Theresa Schwartz

Internship Advisor. (January 27, 2020 - March 24, 2020).  
Advised: Celine Torres

Supervised Research. (January 15, 2020 - March 10, 2020).  
Advised: Ian Galloway, MacKenzie McDaniel

Internship Advisor. (June 1, 2019 - August 3, 2019).  
Advised: Theresa Schwartz

Directed Individual/Independent Study. (January 15, 2019 - May 5, 2019).  
Advised: Shelby Bundy

Supervised Teaching Activity. (January 13, 2019 - April 30, 2019).  
Advised: Devyn Wood

## **SERVICE**

### **University Service**

Chairperson, IRTH (Integrated Research and Teaching Hub) Institute. (December 2021 - Present).

Committee Member, International and Multicultural Studies Committee. (July 1, 2020 - June 30, 2023).

Task Force Member, Statistics and Data Science working group member. (March 3, 2022 - May 31, 2022).

Committee Member, Academic Appeals Committee. (July 1, 2020 - June 30, 2021).

Conference-Related, Graduate Abstract Reviewer & Finalist Judge for Research Excellence Awards & Research Day. (April 8, 2021).

Host, Host, Undergraduate Majors Fair table. (March 22, 2019).

### **College Service**

Attendee, Graduation, HSS Banner Bearer. (May 7, 2022 - Present).

## **Department Service**

- Committee Chair, Department Evaluation Committee chair. (January 10, 2022 - Present).
- Committee Member, Search committee member - Assistant to NAGPRA Committee. (October 1, 2021 - Present).
- Attendee, Convocation, Anthropology Department representative. (April 10, 2022).
- Attendee, Orientation, UNC Welcome Day. (August 22, 2021).
- Attendee, Graduation, Anthropology Department representative. (December 12, 2020).
- Attendee, Graduation, Anthropology Department representative. (May 9, 2020).
- Committee Member, Challenge Exam and Pre/Post Test Exam Question Development. (September 20, 2018 - September 30, 2018).

## **Program Service**

- Attendee, Convocation, Anthropology representative, Honors Convocation. (April 10, 2022 - Present).
- Curator of database, Alumni database. (August 2021 - Present).

## **Professional Service**

- Reviewer, Grant Proposal, National Science Foundation. (October 23, 2022 - Present).
- Reviewer, Journal Article, American Journal of Primatology. (January 4, 2022 - Present).
- Program Coordinator, Chaco Canyon Isotopic Synthesis research group. (October 2021 - Present).
- Reviewer, Journal Article, Journal of Human Evolution. (September 10, 2021 - Present).
- Reviewer, Journal Article, Public Library of Science (PLoS). (June 17, 2021 - Present).
- Reviewer, Journal Article, PCI Ecology. (June 1, 2021 - Present).
- Student Affairs Coordinator, Founding Executive Committee member, RMBAA (Rocky Mountain Biological Anthropology Association), Colorado. (October 2019 - Present).
- Reviewer, Journal Article, Journal of Archeological Science. (July 1, 2019 - Present).
- Reviewer, Journal Article, Kiva Journal of Southwestern Anthropology and History. (June 2018 - Present).
- Workshop mentor, American Association of Physical Anthropologists Committee on Diversity, Cleveland, Ohio. (March 2019).
- Mentor, University of New Mexico's Advancing Women in Science Association. (January 19, 2019 - January 20, 2019).



## **Public/Community Service**

- Guest Speaker, Montessori Academy of Northern Colorado. (November 3, 2022 - Present).
- Member, Letters to a Pre-Scientist. (January 1, 2018 - Present).
- Member, Skype a Scientist. (January 1, 2018 - Present).
- Guest Speaker, Abuela Lucy Foundation, East Brunswick, New Jersey. (August 26, 2019).
- Discussant, Teach for America Future 10X Program, Denver, CO. (January 10, 2019 - August 1, 2019).
- Guest Speaker, Advancing Women in Science (University of New Mexico), Albuquerque, NM. (January 19, 2019).
- Member, Union of Concerned Scientists Science Advocacy Network. (January 5, 2018 - September 30, 2018).

## **DEVELOPMENT ACTIVITIES ATTENDED**

- Faculty Learning Community, "How Learning Works Faculty Learning Community," Center for the Enhancements of Teaching and Learning, UNCO. (September 1, 2020 - May 1, 2021).
- Teaching Online Academy (UNCO CETL faculty development program), "Teaching Online Academy," Center for the Enhancement of Teaching and Learning (CETL), Greeley, CO. (January 7, 2019 - May 3, 2019).
- Workshop, "Community Engaged Syllabus," Office of Community and Civic Engagement. (November 7, 2018).
- Workshop, "First year faculty orientation - HSS," HSS. (September 6, 2018 - November 5, 2018).
- Workshop, "Canvas Boot Camp," CETL. (August 22, 2018).
- First-year faculty orientation, "First-year faculty orientation." (August 13, 2018 - August 17, 2018).

## **AWARDS AND HONORS**

### **Other**

- Nominated for: Provost Award for Building Community in Classrooms, University of Northern Colorado. (December 2020).

### **Scholarship/Research**

- Nominated for: Excellence in Social Science Engaged Research, Office of Research and Sponsored Programs. (March 21, 2021).

### **Teaching**

- HSS Award for Excellence in Teaching, HSS. (March 9, 2022).
- Outstanding Faculty and Staff Recognition, Center for Human Enrichment. (December 1, 2020).

Nominated for: HSS Diversity in the Classroom Award, HSS. (December 5, 2018).

### **PROFESSIONAL MEMBERSHIPS**

Rocky Mountain Biological Anthropology Association. (October 2019 - Present).

American Association of Physical Anthropology. (December 1, 2012 - Present).

Society of American Archeology. (August 15, 2016 - August 15, 2018).