

CURRICULUM VITAE

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EDUCATION

- 2021 - 2024 Ph.D., Biological Anthropology
 University of California, Santa Cruz—Santa Cruz, CA
 Advisors: Dr. Viktoria M. Oelze, Dr. Paul L. Koch
- 2019 - 2020 Master of Arts, Biological Anthropology
 University of California, Santa Cruz—Santa Cruz, CA
 Advisors: Dr. Viktoria M. Oelze, Dr. Paul L. Koch
- 2015 - 2019 Bachelor of Science, *Summa Cum Laude*, Evolutionary Anthropology
 Minor in Criminology
 Rutgers University—New Brunswick, NJ
 Advisors: Erin R. Vogel, Hylke N. de Jong

RESEARCH INTERESTS

Trace metal stable isotope analysis (Fe, Cu, Zn, Sr), osteology, growth and development, physiology, metabolism, primate reproductive ecology & senescence, female survivorship & longevity

EMPLOYMENT

- 2022 - 2024 **Graduate Teaching Fellow**, Department of Anthropology, UC, Santa Cruz
- ANTH100: History and Theory of Biological Anthropology (Virtual)
 - Summer Quarter 2024, Summer Quarter 2023, Spring Quarter 2023, Summer Quarter 2022, responsibilities will include grading, leading discussions, and mentoring students
- 2020 - 2024 **Teaching Assistant**, Department of Anthropology, UC, Santa Cruz
- Intro to Biological Anthropology (Summer Quarter 2024), Human Evolution (Winter Quarter 2023), Evolution of Human Diet (Fall Quarter 2022), Human Evolution (Spring Quarter 2022), Intro to Archaeology (Winter Quarter 2022), Evolution of Human Diet (Summer Quarter 2021), Stable Isotope Ecology (Winter Quarter 2021), Intro to Biological Anthropology (Summer Quarter 2021), Human Evolution (Spring Quarter 2020)

- Depending on the course, responsibilities include grading, instructing lectures, and lab sections, assisting in quiz and exam development, and mentoring students

- 2019 - 2021 **Graduate Student Researcher**, Department of Anthropology, UC, Santa Cruz
- P. L. Koch Lab, W.M. Keck Isotope Lab & Primate Ecology and Molecular Anthropology (PEMA) Lab
 - Sample preparation and strontium ($^{87}\text{Sr}/^{86}\text{Sr}$), carbon ($\delta^{13}\text{C}$), nitrogen ($\delta^{15}\text{N}$), and oxygen ($\delta^{18}\text{O}$) isotope analysis (EA-IRMS, TIMS) for contemporary and archaeological fauna, plant, and human tissue samples e.g., enamel, bone, dentin

RESEARCH & LAB EXPERIENCE

- 2020 - 2024 **Paul L. Koch Lab**
Department of Earth & Planetary Sciences – University of California, Santa Cruz, CA
- Sample preparation (plant material) for C and N stable isotope analysis
- 2019 - 2024 **Primate Ecology and Molecular Anthropology (PEMA) Lab**
Department of Biological Anthropology – University of California, Santa Cruz, CA
- Sample preparation (bone, dentin, dental enamel, plant material) for C, N, O, Fe, Cu, Zn, and Sr stable isotope analysis
- 2019- 2024 **W.M. Keck Lab Isotope Laboratory**
Department of Earth and Planetary Sciences – University of California, Santa Cruz, CA
- Sample wet chemistry for Fe, Cu, Zn, and Sr stable isotope analysis (modern, archaeological bone, tooth enamel, and plant material)
 - TIMS analysis of Sr
- 2021 - 2022 **Observatory Midi Pyrénées, Université Toulouse-III, Paul Sabatier**
- Salle Grisse (Grey Lab), Trace Metal Clean Lab, Géosciences Environment Toulouse (GET)
 - Fe, Cu, Zn column chromatography, elemental concentration (iCAP RQ ICP-MS) and stable isotope analysis (MC-ICP-MS) in collaboration with Klervia Jaouen and Franck Poitrasson.
 - Method development of Fe and Cu column chromatography for dental enamel
- 2019 - 2019 **Max Planck Institute for Evolutionary Anthropology (MPI-EVA)**
Department of Human Evolution and Primatology – Leipzig, Germany
- Directors: Department of Human Evolution—Jean Jacques-Hublin, Department of Primatology—Christophe Boesch
 - Sampling of the Taï chimpanzee skeletal collection curated at the MPI-EVA
 - Coordination of high-resolution tooth sample CT-scanning with Dr. Zwedi Tsegai
 - Sample preparation for trace metal stable isotope analysis in the osteology laboratory
 - Sample wet chemistry preparation in the Pico Trace clean laboratory for preparation of MC-ICP-MS applications

2018 - 2019 **Honors Thesis**
“Iron (Fe) and copper (Cu) fractionation as an indicator of sex in rhesus macaques (*Macaca mulatta*)”

- Awarded High Honors
- Fe and Cu stable isotope analysis (MC-ICP-MS) in teeth and occipital bone to show differences between male and female rhesus macaques in trace metal metabolism.

2018 - 2019 **Stable Isotope Mass Spectrometry Lab – Wright Geological Labs**
Department of Earth and Planetary Sciences – Rutgers University, New Brunswick, NJ

- Sample wet chemistry for trace metal stable isotope analysis (Fe, Cu)
- MC-ICP-MS analysis of Fe and Cu
- Trained by Dr. Linda V. Godfrey

2018 - 2019 **Faunal & Bone Boiling Lab**
Department of Anthropology at Rutgers University – New Brunswick, NJ, USA

- Processing of deceased pig (*Sus scrofa domesticus*) remains collected from Dealaman Enterprises Inc. in Warren, NJ, with extraction of bone and teeth, following warm water maceration.
- Preparation of bone and enamel samples for Stable Isotope Analysis
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FIELD EXPERIENCE

June - July 2019 **Excavation at the Middle Paleolithic site of Tinsihmet Cave, Shoham, Israel**

- Project Directors: Dr. Yossi Zaidner, Prof. Israel Hershkovitz, and Oz Varoner
- Volunteer (June 31 - July 16)

July - Aug. 2018 **Excavation at the Middle Paleolithic site of El Salt, SE Spain**

- Project Directors: Dr. Carolina Mallol and Dr. Cristo Hernandez
- Volunteer (July 29 - Aug. 14)

July 2018 **Excavation at the Middle Paleolithic site of Abric del Pastor, SE Spain**

- Project Directors: Dr. Carolina Mallol and Dr. Cristo Hernandez
- Volunteer (July 15 - July 29)

June - July 2018 **Excavation at Gorham’s Cave Complex World Heritage Site in Gibraltar**

- Project Director: Dr. Clive and Geraldine Finlayson
- Volunteer for Phase 1 (June 18 - July 13) in Gorhams and Vanguard Caves

July - Aug. 2017 **Excavation at the Roman Villa site in Vacone, Italy**

- Project Directors: Dr. Gary D. Farney, Dr. Dylan Bloy, Dr. Candace Rice, and Dr. Tyler Franconi
- Enrolled in the Rutgers Archeological Field School as part of the Upper Sabina Tiberina Project (July 9 - August 5)

GRANTS AND AWARDS

- 2023 - 2024 **UCSC Division of Social Sciences Quarter Dissertation-Year Fellowship**
- “The application of transition metals to hominid physiology and behavior”
 - Award Amount: \$9,750
- 2023 - 2024 **P.E.O Scholar Award**
- “The application of transition metals to hominid physiology and behavior”
 - Award Amount: \$20,000
- 2023 – 2024 **NSF Biological Anthropology Doctoral Dissertation Improvement Research Grant – BA-DDRIG (Co-PI)**
- “Reconstructing metabolism and physiology through analysis of transition metal isotopes”
 - Award Amount: \$24,670
- 2023 – 2024 **L.S.B Leakey Foundation Research Grant (PI)**
- “The application of transition metals to hominid physiology and behavior”
 - Award Amount: \$14,357
- 2022 – 2023 **Lambda Alpha Graduate Research Grant (Co-PI)**
- Awarded by Lambda Alpha National Honor Society
 - For field research related to “The application of transition metals to hominid physiology and behavior”
 - Award Amount: \$2,000
- 2020 – 2021 **ARC Graduate Research Grant (PI)**
- Awarded by University of California—Santa Cruz through the Department of Anthropology’s Archaeological Research Center (ARC)
 - For research on “Heavy metal stable isotopes (Fe, Cu, Zn) and their applications in biological anthropology”
 - Award Amount: \$850
- 2018 – 2019 **Bigel Endowment in Anthropology (PI)**
- Awarded by Rutgers University—New Brunswick, NJ through the Department of Anthropology
 - For research on “Fe and Cu fractionation as an indicator of sex in rhesus macaques (*Macaca mulatta*)”
- Award Amount: \$1,000
- 2018 - 2019 **CHES Barry C. Lembersky Undergraduate Research Award (PI)**
- Awarded by the Center for Human Evolutionary Studies (CHES)—New Brunswick, NJ
 - For senior honors thesis on, “Fe and Cu fractionation as an indicator of sex in rhesus macaques (*Macaca mulatta*)”
- Award Amount: \$500
- 2017 - 2018 **Aresty Undergraduate Research Fellowship (PI)**
- Awarded by Rutgers University—New Brunswick, Aresty Research Center for Undergraduates

- For research on “Fe and Cu fractionation as an indicator of sex in rhesus macaques (*Macaca mulatta*)”
Award Amount: \$750

2017 - 2018

Bigel Endowment in Anthropology (PI)

- Awarded by Rutgers University—New Brunswick, NJ through the Department of Anthropology
- For research on “Fe and Cu fractionation as an indicator of sex in rhesus macaques (*Macaca mulatta*)”
Award Amount: \$1,250

OUTREACH & SERVICE

2023 - 2024

UCSC Period Equity Coalition

- Member
- Student-led coalition that stocks free menstrual products in campus restrooms, and shares awareness on menstrual equity and women’s health research.

2022 - 2024

UCSC WiSE GradPath Mentoring Program

- Co-Founder and Coordinator
- Quarterly mentorship program that pairs UCSC grads, postdocs, and lecturers with undergraduates

2022 - 2024

UCSC WiSE K-12 STEM Outreach Events

- SIS Officer, Coordinator, and Volunteer
- WiSE in “Saturday Science Fun” at Westside Farmers Market, “Laura Hecox Day” and “First Friday” at the Santa Cruz Museum of Natural History
- WiSE “Science Influencing Society” (SIS) program, which brings local middle schoolers to the UCSC labs

2019 - 2015

Rutger’s Day, New Brunswick, NJ

- Organizer for Rutgers Undergraduate Anthropology Club (RUAC) at Rutger's Day, where the local community would participate in a mock archaeological survey with shovel test pits

January 2019

Workshop on “Careers in Anthropology” with Sylvia Cordero

- Internal workshop organized by the Rutgers Undergraduate Anthropology Club. Hosted in the Anthropology Department at Rutgers University – New Brunswick.
- Chief Organizer

April 2018

Workshop on “Jason Lewis: Exploring Archaeology”

- Internal workshop organized by the Rutgers Archaeological Society and the Rutgers Undergraduate Anthropology Club. Hosted in the Anthropology Department at Rutgers University – New Brunswick.
- Chief Organizer

October 2017

Workshop on Graduate School

- Internal workshop organized by the Rutgers Archaeological Society and hosted in the Anthropology Department at Rutgers University – New Brunswick.
- Chief Organizer

October 2017

Frontiers in Archaeological Science

- International conference organized by The Center for Human Evolutionary Studies at Rutgers University – New Brunswick
- Organizational Committee & Volunteer

PRESENTATIONS

- March 2024 **93rd American Association of Biological Anthropologists Annual Meeting, Los Angeles, CA (Podium)**
- Strontium isotopes track female dispersal in Tai chimpanzees” (12-minute talk)
- October 2023 **Great Scientific Exchange, Invited Graduate Student Presenter, Sparks, NV**
- Art and Archaeology Section, “The application of trace metal stable isotopes to Hominid physiology and behavior”
- Feb 2023 **UCSC Anthropology Department, Stable Isotope Ecology**
- Guest lecture to undergraduate students on, "Trace metal stable isotope analysis"
- Feb 2023 **Center for Stable Isotopes (CSI), Albuquerque, New Mexico (Virtual)**
- Brown Bag Seminar, “The application of trace metals to hominid physiology and behavior” (45-minute talk)
- Jan 2023 **Philanthropic Educational Organization (PEO), Chapter ED, Santa Cruz, CA**
- Scholar Award Nominee Presentation, “The application of trace metals to hominid physiology and behavior” (45-minute talk)
- May 2022 **6th Annual UC Santa Cruz Postdocs Association (USPA) Symposium**
- “Evidence for $\delta^{66}\text{Zn}$ values as indicators of meat consumption in the Tai chimpanzees” (10-minute talk)
 - Winner for *Best Graduate Student Oral Presentation*, awarded by USPA Board
- March 2022 **91st American Association of Biological Anthropologists Annual Meeting, Denver, CO (Virtual)**
- “Evidence for $\delta^{66}\text{Zn}$ values as indicators of meat consumption in the Tai chimpanzees” (12-minute talk)
- January 2022 **UCSC Anthropology Department**
- Arch/Bio Lunch Talk, departmental presentation on “The application of trace metal isotopes (Sr, Zn, Fe, Cu) to hominid ecology, physiology and behavior”
- December 2021 **UCSC Anthropology Department**
- Presentation to undergraduate students on “Field School Experiences”
- April 2021 **UCSC Anthropology Department, Stable Isotope Ecology**
- Guest lecture to undergraduate students on, "Fe,Cu & Zn stable isotope analysis"
- May 2020 **UCSC Anthropology Department, Human Evolution**
- Guest lecture to undergraduates on "*H. floresiensis*"
- November 2018 **Young Investigators Symposium, Cambridge, MA**

- Max-Planck Harvard Research Center for the Archaeoscience of the Ancient Mediterranean (MHAAM)
 - Presentation at Harvard University presenting “Variation in Cu fractionation in rhesus macaques (*Macaca mulatta*)”
- September 2018 **New Brunswick Middle School, New Brunswick, NJ**
- Presentation given to all the sixth-grade Social Studies students about, “What is Anthropology?”
 - Organized with Dr. Darshana Shapiro
- September 2016 **An-Noor Academy, Piscataway, NJ**
- Presentation given by the executive board of the Rutgers Anthropology Club to Science students, “What is Anthropology?”

POSTER PRESENTATIONS

- May 2021 **90th American Association of Physical Anthropologists Annual Meeting, Baltimore, MD (Virtual)**
- “Metabolic iron and copper stable isotope fractionation in mature rhesus macaques (*Macaca mulatta*)” (throwback)
- April 2020 **89th American Association of Physical Anthropologists Annual Meeting, Los Angeles, CA**
- “Metabolic iron and copper stable isotope fractionation in mature rhesus macaques (*Macaca mulatta*)” (cancelled)
- April 2019 **15th Annual Aresty Undergraduate Research Symposium, Rutgers University, New Brunswick, NJ**
- April 2019 **Honors Symposium, Anthropology Department, Rutgers University, New Brunswick, NJ**

PUBLICATIONS

- Boucher, R.D.**, Koch, P.L., Godfrey, L.V., Fehren-Schmitz, L. A refined protocol for the analysis of Fe and Cu isotopes in bones and their correlation with sex in great apes. *In prep.*
- Boucher, R.D.**, Jaouen, K.J., Wittig, R., Koch, P.L., Oelze, V.M. Zinc isotope ratios ($\delta^{66}\text{Zn}$) suggest a sex difference in diet among wild chimpanzees (*Pan troglodytes versus*). *In Review.*
- Boucher, R.D.**, Wittig, R., Lemoine, S.R.T., Maro, A., Wang, X., Koch, P.L., Oelze, V.M. Strontium isotopes track female dispersal in Tai chimpanzees. *American Journal of Biological Anthropology.*
- Boucher, R.D.**, Alavi, S.E., de Jong, H.N., Godfrey, L.V., Vogel, E.R. 2021. Stable isotope evidence (Fe, Cu) suggests that sex, but not aging is recorded in rhesus macaque (*Macaca mulatta*) bone. *American Journal of Physical Anthropology.*

PROFESSIONAL ASSOCIATIONS AND CLUBS

- 2023 - Present **The Society for Archaeological Sciences (SAS)**
Graduate Student Member
- 2022 - 2023 **Richard Randolph Award Committee**
- 2022 - 2023 **Anthropology Graduate Executive Committee**

- Professionalization Liaison
- 2022 - Present **Lambda Alpha National Anthropology Honors Society**
Graduate Student Founding Member, Alpha Gamma California Chapter (UCSC)
- 2021 - 2022 **Anthropology Graduate Committee**
Social Events Coordinator
- 2020 - Present **Women in Science and Engineering (WiSE)**
Graduate Student Member, SIS Officer, GradPath Co-Founder and Coordinator
- 2019 - Present **American Association of Biological Anthropologists**
Graduate Student Member
- 2018 - Present **Center for Human Evolutionary Studies (CHES)**
Alumni Affiliate Member
Advisors: Dr. Erin R. Vogel and Dr. Hylke de Jong
- 2017 - 2019 **Rutgers Archaeological Society (RAS)**
Founder and Treasurer, Vice President
- 2016 - 2019 **SAS Honors Program (SASHP)**
Undergraduate Member
- 2016 - 2019 **Rutgers Undergraduate Primate Conservation Club (RUPC)**
Club Member
- 2015 - 2019 **Rutgers Undergraduate Anthropology Club (RUAC)**
2018 - 2019: President
2015: Club Member, Public Relations Chair; 2016 - 2018: Vice President

ADDITIONAL QUALIFICATIONS

- August 2021 **IsoCamp, University of New Mexico Center, Albuquerque, NM, USA**
- Center for Stable Isotopes (CSI)
 - Project Supervisors: Thure Cerling, John Roden, Brian Popp, Keith Prufer, Ruth Blake
 - $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ analysis of parasitic plants collagen on EA-IRMS
 - Sample preparation of archaeological human and fauna collagen samples for radiocarbon dating (^{14}C) and $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ analysis on EA-IRMS
 - QA/QC Workshop for Stable Isotope Data, led by J. Renée Brooks
- April 2021 **Survivor's Guide to Stable Isotope Ecology IV, Siracusa, Italy (Virtual)**
- Exedra Mediterranean Center
 - 5-day workshop in statistical methods for analyzing and maximizing the benefits of stable isotope data in current or future research projects
- May 2018 **Volunteer - Necropsia Centro de Primate, Caribbean PRC, Sabana Seca, PR**
- Directora: Melween Martínez, Responsible Party: Samuel E. Bauman
 - Assisted in the processing (warm water maceration) and organization of skeletal remains (maceration) and in necropsies of rhesus monkeys (*Macaca mulatta*)

SKILLS

Software

Proficient in Basic Statistics & Modeling R (GAMM, GAM, t-tests, ANOVA)

Proficient in Microsoft Word, Excel, PowerPoint

Proficient in Adobe Creative Cloud, such as Acrobat, Photoshop, and Illustrator

Language

Computational Language R – foundations and applications

English – First Language

Spanish – Proficient in reading and speaking

French – Proficient in speaking, reading, and writing

Italian – Proficient in reading

REFEREES

Dr. Vicktoria M. Oelze

Department of Anthropology

University of California, Santa Cruz

Email: voelze@ucsc.edu

Dr. Paul L. Koch

Department of Earth and Planetary
Sciences

University of California, Santa Cruz

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