

Matthew F. Warren, Ph. D.

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EDUCATION

- Ph. D.**, Nutrition, North Carolina State University (NC State), Raleigh, NC 05/2020
PhD Advisor: Kimberly A. Livingston, Ph. D.
Dissertation: Evaluation of dietary vitamin D₃ on physiology and vitamin D metabolism in chicken (*Gallus gallus domesticus*) model
- M. S.**, Biological Sciences, Auburn University, Auburn, AL 08/2016
Major Professor: Wendy R. Hood, Ph. D.
Thesis: Effects of dietary protein intake on fecal and milk microbiota
- B. S.**, Animal Science, University of California-Davis (UC Davis), Davis, CA 06/2014
- UC Davis Summer Abroad, "Genetics: The Global Language of Biology, UK & Sweden,"**
University of Cambridge, Cambridge, United Kingdom; Stockholm, Sweden 08/2012 - 09/2012
- A. S.**, Biology, West Hills College Lemoore (WHCL; renamed to Lemoore College in 04/2024), Lemoore, CA 05/2011
- A. A.**, Liberal Arts in Math and Sciences, WHCL, Lemoore, CA 05/2011

ACADEMIC AND RESEARCH POSITIONS

- Assistant Teaching Professor of Medical Education**, University of California-Merced, Merced, CA 07/2024 - Present
- Adjunct Professor (without salary)**, University of California-San Francisco, San Francisco, CA 07/2024 - Present
- Research Associate**, University of Wisconsin-Madison (UW-Madison), Madison, WI 07/2023 - 06/2024
Postdoctoral Advisor: Federico E. Rey, Ph. D.
- Metabolism and Nutrition Training Program (MANTP; NIH T32) Postdoctoral Trainee**, UW-Madison, Madison, WI 07/2020 - 06/2023
Postdoctoral Advisor: Federico E. Rey, Ph. D.
- Graduate Research Assistant**, Prestage Department of Poultry Science, NC State, Raleigh, NC 08/2016 - 05/2020
PhD Advisor: Kimberly A. Livingston, Ph. D.
- Graduate Teaching Assistant (GTA)**, Auburn University, Auburn, AL 08/2014 - 05/2016
Lab Coordinator: Linda Pastorello, M. S.
- Lab Assistant III**, Department of Animal Science, UC Davis, Davis, CA 06/2013 - 07/2014
Supervisor: Kirk C. Klasing, Ph. D.

TEACHING EXPERIENCE***UC-Merced***

Secondary Instructor – Microbiology 08/2024 - Present

- Co-teaching with two other instructors on upper-division level microbiology course with two sections.
- Delivering 9 flipped-classroom sessions and facilitating student learning in an active learning environment.

Secondary Instructor - Microbiology Lab 08/2024 - Present

- Co-teaching with two other instructors on upper-division level microbiology laboratory course, one section.
- Facilitating weekly lecture sessions to review student learning and progress of the research-oriented course design.

Guest Lecturer – Introduction to Medical Learning (Year 1) 08/2024 - Present

- Leading 2 sessions on weekly discussion-based course on teaching students about medical and health professions with two sections.
- Developing sessions on team-based care and identity in health care professions.

UW-Madison

Microbiology Teaching Fellow (Instructor of Record) - Critical Analyses in Microbiology

01/2024 - 05/2024

- Developed a teachable unit called “QTL Adventure” which teaches students about using different next-generation technologies and approaches to analyze quantitative trait loci and connect gut microbial taxa to host physiological traits.
- Oversaw course management using Canvas and grading assessments.
- Taught 19 undergraduate sophomore/junior microbiology students in the course to learn how to reach peer-reviewed articles.
- Trained students to critically think about the scientific method in 50-minute lecture/week.

NC State

Guest Lecturer - Mineral Metabolism 09/2019

- Developed a 90-minute lecture on bone metabolism and how calcium and phosphorus metabolism for 16 in-class and distance education graduate students.

Graduate Teaching Assistant - Comparative Nutrition 01/2018 - 05/2019

- Instructed 3 semesters of Comparative Nutrition with 2 semesters as distance education GTA (average of 90 students) and 1 semester as in-class GTA (25 students).
- Facilitated 1-hour discussion of in-class lectures per week to answer questions.
- Managed attendance component of in-class discussions and course web-component to ensure content is updated.

Graduate Teaching Assistant - Vitamin Metabolism 08/2018 - 12/2018

- Taught 26 in-class and distance education graduate students.
- Designed and conducted 3 90-minute lectures on thiamin, niacin, and vitamin D.
- Oversaw students' progress on term projects and gave input throughout the semester to prepare them for final presentation.

Graduate Teaching Assistant - Avian Anatomy and Physiology 08/2017 - 12/2017

- Developed and delivered 7 45-minute lectures on: avian skeleton and bone development, muscle anatomy and physiology, introduction and mechanics of flight, and avian gut microbiome.

- Prepared lab experiments and oversaw students handling chickens.

Auburn University

Graduate Teaching Assistant - Human Anatomy and Physiology 2 01/2015 - 05/2016

- Taught 320 students across 4 semesters of second semester human anatomy and physiology labs as lead lecturer for 9 lab sections.
- Trained 3 new graduate teaching assistants and helped create a grading rubric for semester-long case study assignment.
- Managed lab assignment grades and lab exams.

Graduate Teaching Assistant - Human Anatomy and Physiology 1 08/2014 - 12/2014

- Instructed 89 students across four lab sections of first semester of human anatomy and physiology as lead lecturer for 2 lab sections.
- Proctored lecture and lab exams; graded lab assignments and lab exams.

WHCL

College Tutor 08/2009 - 05/2011

- Tutored students in human anatomy and physiology, microbiology, nutrition, and general chemistry.

PUBLICATIONS

4. **Warren, M. F.**, P. M. Pitman, D. D. Hodgson, N. C. Thompson, and K. A. Livingston. 2024. Dietary super-doses of cholecalciferol fed to aged laying hens illustrates limitation of 24,25-dihydroxycholecalciferol conversion. [Current Dev. Nutr. 8:5.](#)
3. **Warren, M. F.** and K. A. Livingston. 2021. Implications of vitamin D research in chickens can advance human nutrition and perspectives for the future. [Current Dev. Nutr. 5:5.](#)
2. **Warren, M. F.**, T. C. Vu, O. T. Toomer, J. D. Fernandez, and K. A. Livingston. 2020. Efficacy of 1- α -Hydroxycholecalciferol supplementation in young broiler feed suggests reducing calcium levels at grower phase. [Front. Vet. Sci. 7.](#)
1. **Warren, M. F.**, H. A. Hallowell, K. V. Higgins, M. R. Liles, and W. R. Hood. 2019. Maternal dietary protein intake influences milk and offspring gut microbial diversity in a rat (*Rattus norvegicus*) model. [Nutrients. 11: 2257.](#)

RESEARCH EXPERIENCE

Postdoc Research – Butyrate-producing Bacterial Communities Study,

Department of Bacteriology, UW-Madison 11/2022 - 06/2024

- Examined how different bacterial communities affect butyrate production in vivo.
- Corresponded with lead investigator about experimental design and sampling.
- Observed no differences with cecal butyrate between two synthetic communities.

Postdoc Research – Women’s Poultry Program to Improve Income

and Nutrition Study (SELEVER), International Collaboration 06/2022 - 06/2024

- Analyzed 16S rRNA amplicon sequence data from 870 fecal samples from 1-5 yr old children collected from baseline timepoint from rural villages across 3 regions in Burkina Faso.
- Observed regional differences in fecal microbial abundances with an uncultured taxon from family *Succinivibrionaceae* that is present in samples from two of the three regions.
- Created pipeline using the program DADA2 to clean up 16S rRNA amplicon data for downstream analysis.

Postdoc Research – Diversity Outbred (DO) Study 2021,

Department of Bacteriology, UW-Madison

11/2021 - 06/2024

- Evaluated how host genetics and diet affect short-chain fatty acid (SCFA) output, and host uptake of SCFAs using 1,200 DO mice fed a high-carbohydrate, low-fat diet (HC/LF) or high-fat, low-carbohydrate diet (HF/LC).
- Determined diet, sex, and host genetics effects on cecal and fecal samples for SCFA measurements.
- Analyzed data for quantitative trait loci associated with SCFAs.

PhD Research, Prestage Department of Poultry Science, NC State, NC

08/2016 - 05/2020

- Designed and led study using 64 70-week-old HyLine Brown hens fed different levels of dietary vitamin D₃ to evaluate how vitamin D₃ super-doses affected hens' plasma and egg yolk vitamin D₃ levels.
- Observed hens fed dietary super-doses of vitamin D₃ had significant increases in plasma and egg yolk vitamin D₃.
- Determined older laying hens fed dietary super-doses of vitamin D₃ have value-added production with laying vitamin D-enriched eggs.

MS Research, Department of Biological Sciences, Auburn University, AL

08/2014 - 08/2016

- Organized experiment and investigated how high and low protein diets affected the maternal gut and milk associated microbiota in rat dams.
- Analyzed 16S rRNA amplicon sequence data using QIIME 1.9 and observed the milk microbiota having lower alpha diversity compared to dam and pup cecal content.
- Observed differences in milk and cecal microbiota highlighted how milk composition can affect the microorganisms that in the milk.

Undergraduate Research, Department of Animal Science, UC Davis, CA

10/2012 - 07/2014

- Designed and led study on development of lymphoid tissues in newly hatched cockatiels undergoing a dinitrophenyl keyhole limpet hemocyanin (DNP-KLH) antigenic challenge.
- Determined KLH-challenged chicks had decreased spleen weight that was likely caused by lymphocyte migration from spleen to circulation because of the immune response.

AWARDS AND HONORS**Metabolism and Nutrition Training Program (MANTP) Postdoctoral Trainee,**

UW-Madison

07/2020 - 06/2023

3-year NIH T32-supported postdoctoral training for career and research development

Strategies and Techniques for Analyzing Microbial Population Structures (STAMPS),

Woods Hole, MA

07/2022

Completed University of Chicago's Marine Biological Laboratory advanced research course

NC State Graduate School Writing Certificate, Raleigh, NC

02/2020

Completed the Writing Certificate Program requirements and awarded certificate

NACTA Graduate Student Teaching Award, Twin Falls, ID

06/2019

Awarded in recognition of teaching in agricultural disciplines

A&P 2 Outstanding GTA, Auburn University, Auburn, AL

05/2016

Awarded in excellence with teaching second semester human anatomy and physiology

Graduate Oral Research Contest Division I, Houston, TX

03/2015

1st Place, MANRRS 30th Annual Career Fair and Training Conference**UCD MANRRS Award, UC Davis, CA**

06/2014

Recipient of King Award for Excellence

Department of Animal Science Scholarship Award, UC Davis, Davis, CA 06/2013
Recipient of the Ed F. Olivera Memorial Award 2013

Undergraduate Oral Research Contest Division I, Sacramento, CA 03/2013
1st Place, MANRRS 28th Annual Career Fair and Training Conference

President's Scholar, WHCL, CA 08/2008 - 05/2010
Recipient of WHCL President's Scholarship Program

RESEARCH SKILLS

Short-chain fatty acids

Headspace gas-chromatography to measure SCFAs of fecal and cecal contents

Molecular Biology

DNA extraction using phenol-chloroform isolation with bead beading protocol.

RNA extraction, converting RNA to cDNA, qPCR, measuring cecal and fecal microbial density using DNA concentration

Bioinformatics

Designed custom workflow using DADA2 and RStudio to process 16S gene amplicon data
Quantitative Insights Into Microbial Ecology (QIIME 1.9 and QIIME 2)

Computer Skills

Data visualization using Microsoft PowerPoint, Inkscape, and R
Adept with making publication-quality figures using Biorender

Statistics

Experienced with analyzing data using SAS, JMP, and R

RESEARCH GRANTS/FELLOWSHIPS

National Institutes of Health's Ruth L. Kirschstein National Research Service Award Individual Postdoctoral Fellowship (Parent F32) 12/2021

Project Title: Host genetics and dietary effects on gut microbial density and butyrate utilization
Proposed funding amount: \$66,390. Grant discussed; Impact Score: **34**; not funded.

National Science Foundation Graduate Research Fellowship Program 10/2015
Proposed funding amount: \$46,000. Not awarded.

Auburn University Graduate School Research Funds 03/2015
Proposed funding amount: \$500. Awarded \$500 for research aid.

American Society of Mammologists Grant-In-Aid for Research (GIAR) 02/2015
Proposed funding amount: \$1,500. Awarded \$1,500 for research aid.

Sigma Xi GIAR 10/2014
Proposed funding amount: \$1,000. Awarded \$600 for research aid.

TRAVEL GRANTS

Stanley W. Watson Education Fund, Marine Biological Laboratory Scholarship 07/2022
Awarded \$500 to help pay for course fees for STAMPS 2022.

Jack Kirby Farrington Travel Fund 05/2016
Awarded \$500 for travel funds for Comparative Nutrition Society (CNS) Symposium 2016.

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| Auburn University COSAM Graduate Student Travel Funds | 01/2015 |
| Awarded \$250 for travel funds for MANRRS 30 th Annual Career Fair and Training Conference. | |
| UC Davis Department of Animal Science's Educational Enhancement Funds | 04/2014 |
| Awarded \$543 for travel funds for Avian Immunology Research Group (AIRG) 2014. | |
| UC Davis' Undergraduate Research Travel Award | 04/2014 |
| Awarded \$500 for travel funds for AIRG 2014. | |

ABSTRACTS AND PRESENTATIONS

Kuehn, J. F., M. B. Heston, **M. F. Warren**, J. W. Kang, S. J. Harding, N. J. Davenport-Sis, R. L. Kerby, E. C. Schiffmann, J. L. Wheeler, H. Noughani, A. Forst, G. Everitt, S. Shankar, A. Mickol, J. Zemberi, H. Chow, E. Zhang, E. Clements, C. Carlsson, S. Johnson, S. Asthana, H. Zetterberg, K. Blennow, B. Bendlin, and F. E. Rey. 2024. Exploring relationships between microbiome-derived short chain fatty acids and Alzheimer's Disease pathology biomarkers (Oral). 9th Conference on Beneficial Microbes, UW-Madison, Madison, WI.

Warren, M. F., K. A. Mitok, K. L. Schueler, D. S. Stapleton, Q. Zhang, S. P. Simonett, M. P. Keller, A. D. Attie, and F. E. Rey. 2023. Exploring the effects of host genetic variation, sex, and diet on short-chain fatty acid levels in a genetically diverse mouse population (Oral). Presented at Joint-T32 Retreat, University of Chicago, Chicago, IL.

Warren, M. F., K. A. Mitok, E. R. Hutchison, K. L. Schueler, D. S. Stapleton, S. P. Simonett, R. L. Kerby, M. P. Keller, A. D. Attie, and F. E. Rey. 2022. Exploring the influence of host genotype and diet on gut microbial density, diversity, and short-chain fatty acids (Poster). 8th Conference on Beneficial Microbes, UW-Madison, Madison, WI.

Warren, M. F. 2020. Evaluation of dietary vitamin D₃ on physiology and vitamin D metabolism in chicken (*Gallus gallus domesticus*) model. PhD Defense Seminar. NC State, Raleigh, NC.

Warren, M. F. and K. A. Livingston. 2019. Dietary vitamin D₃ super dosage effects on older laying hens in production (Poster). 12th Annual Future of Food and Nutrition Graduate Student Research Conference, Tufts University, Boston, MA.

Wu, C, G. K. Walker, M. L. Livingston, K. Flores, **M. F. Warren**, J. Cabanas, and K. A. Livingston. 2018. Effects of supplemental dietary glutamine and arginine on broiler live performance, blood chemistry, and incidence of white striping and wooden breast (Oral). 70th Reciprocal Meat Conference, Texas A&M, College State, TX.

Warren, M. F. and K. A. Livingston. 2018. Impacts of 1 α -hydroxycholecalciferol and calcium inclusion on vitamin D status in broilers (Oral). MANRRS 32th Annual Career Fair and Training Conference, Greensboro, NC

Warren, M. F., J. Wen, K. A. Livingston, and M. E. Persia. 2017. Impacts of dietary vitamin D on immune-related activities of *Salmonella enteritidis* on vaccinated laying-hens (Poster). Presented at International Poultry and Processing Expo 2017, Atlanta, GA.

Warren, M. F., M. R. Liles, and W. R. Hood. 2016. Effects of dietary protein intake on fecal and milk microbiota (Oral). Comparative Nutrition Society Symposium 2016, Rio Grande, Puerto Rico.

Warren, M. F. 2016. Effects of dietary protein intake on fecal and milk microbiota. Master's Defense Seminar. Department of Biological Sciences, Auburn University, Auburn, AL.

Warren, M. F. and W. R. Hood. 2015. Using 16S rRNA sequencing to examine dietary protein effects on the rat microbiome (Oral). 30th Annual MANRRS Conference for the Graduate Oral Research Contest Division I, Houston, TX.

Warren, M. F., N. E. Riedl, and K. C. Klasing. 2014. Interactions between lymphoid tissues and antigenic challenges in cockatiels (Poster). Avian Immunology Research Group Meeting 2014, University of Guelph, Guelph, Canada.

Warren, M. F. and K. C. Klasing. 2013. Analysis of bacteria-killing assay using chicken plasma samples (Oral). 28th Annual MANRRS Conference for the Undergraduate Oral Research Contest Division I, Sacramento, CA.

PROFESSIONAL DEVELOPMENT

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| Mobile Summer Institute for Science Teaching (MoSIST) 2024, UC Merced, CA | 08/2024 |
| Delta Program – Build your Inclusive Canvas Dream Course, UW-Madison | 01/2023 - 05/2023 |
| Delta Program – Teaching in the Classroom: Science and Engineering, UW-Madison, WI | 09/2022 - 12/2022 |
| Delta Program – Research Mentor Training, UW-Madison, WI | 01/2022 - 05/2022 |
| Big Ten Postdoctoral Alliance Workshop: Exploring Leadership, Virtual | 02/2022 |
| Breaking the Bias Habit: An Introduction to Implicit Bias, UW-Madison, WI | 04/2021 |
| Journal Article Publication Development Series, NC State, NC | 01/2019 - 12/2019 |
| Grant Writing Development Series, NC State, NC | 01/2019 - 05/2019 |

MENTORING EXPERIENCES

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| NextGen Health Professionals Living and Learning Community, Faculty Lead, UC Merced, CA | 08/2024 - Present |
| Undergraduate Research Scholar Program, Mentor, UW-Madison | 10/2022 - 05/2023 |
| Poultry Science Graduate Peer Mentoring Program, Facilitator, NC State | 09/2019 - 05/2020 |
| Graduate Peer Mentoring Collaborative, Peer Mentor, NC State | 05/2019 - 05/2020 |
| Creating Awareness of Agriculture and Life Sciences Disciplines, Degree Programs, and Discoveries, Mentor, NC State | 07/2017, 07/2018, 07/2019 |

ACADEMIC/COMMUNITY EVENTS PLANNING

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| Why Is it Hard to Talk About Ourselves? Developing Your Personal Brand, Workshop Co-presenter, UW-Madison, WI | 01/2024 |
| Beyond the Table: Food Justice, Science, and Policy, MANRRS Planning Committee Member, UW-Madison, WI | 11/2022 - 04/2023 |
| MANRRS x MOSAIC 2022 “Planting Seeds: Strengthening Agriculture by Growing Ourselves”, MANRRS Committee Member, UW-Madison, WI | 04/2022 |
| Demystifying Graduate School and You are Not Alone, Moderator, NC State, NC | 02/2020 |
| Cesar E. Chavez Conference 2014, MANRRS Representative, UC Davis, CA | 03/2014 |

SERVICE

Minorities in Agriculture, Natural Resources and Related Sciences (MANRRS)

UW-Madison – Co-Advisor 01/2021 - 06/2024

- Overseeing leadership training of student members.
- Designing PowerPoint presentations on multiple professional development topics like network, impactful first impressions, etc. to train student members.
- Advising student leadership team with leading general meeting agendas.
- Coordinating with other co-advisor with managing logistics of chapter management

NC State – Graduate Student Member 08/2018 - 05/2020

- Coordinated with chapter advisor with helping manage NC State's MANRRS chapter.
- Discussed semester and meeting schedule with general membership to build professional development skills around a theme that members would build upon.
- Reviewed and provided feedback for members' resumes.

Auburn University – Graduate Student Member 08/2014 - 08/2016

- Assisted in community service activity by helping out at the Auburn University Food Pantry to distribute food to graduate students.
- Edited resumes for local high students to help them with their mock interviews.
- Helped set up the MANRRS 30th Annual Career Fair and Training Conference by putting ribbons and setting up name badges for 5 different schools.
- Assigned to watch 10 Jr. MANRRS members while travelling to and from airports.

UC Davis – Undergraduate Member 10/2011 - 08/2014

- Helped reactivate UC Davis MANRRS chapter status on 12/2011.
- Coordinated extensive outreach, planned meetings, and communicated with MANRRS National Office for reports and assistance.
- Facilitated community service activity by working with Safe Ground Gardens, Sacramento, CA for developing an urban garden for a men's empowerment program.

University Committee

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| UW-Madison Postdoctoral Association Badger Buddies Committee (Peer Mentoring), Co-Chair, UW-Madison, WI | 06/2021 - 06/2022 |
| Equity and Diversity Committee, Postdoc Member, UW-Madison, WI | 08/2020 - 05/2021 |
| Postdoc Symposium Committee, Member, UW-Madison, WI | 08/2020 - 09/2020 |
| Evaluation of Teaching Committee, Graduate Student Member, NC State, NC | 10/2018 - 04/2020 |
| NC State's Outstanding Teaching Award Committee, Member, NC State, NC | 01/2019 - 02/2019; 12/2019 - 01/2020 |
| College of Agricultural and Environmental Sciences Undergraduate Majors and Courses Committee, Member, UC Davis, CA | 09/2013 - 06/2014 |

Invited Speaker

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| Big Ten Academic Alliance Responsible Conduct of Research Virtual Conference 2021 | 10/2021 |
| Biz Chat, WHCL, CA | 10/2020 |
| Life After WHCL, WHCL, CA | 05/2017 |
| Transfer Recognition Reception 2014, WHCL, CA | 05/2014 |
| Transfer Experience Presentation, WHCL, CA | 09/2012 |

Science Outreach

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| MANRRS Undergraduate Poster Research Contest Div. 1, Judge | 04/2023 |
| MANRRS Undergraduate Oral Research Contest Div. 1, Judge, Virtual | 04/2021 |
| North Carolina Science and Engineering Fair, Biological Sciences B Judge, NC State, NC | 03/2018; 03/2019 |
| Greater East Alabama Regional Science and Engineering Fair, Medical and Health Sciences Judge – Jr. Division, Auburn University, AL | 03/2016 |

MENTEES

UW-Madison

Caleb Lee - Kinesiology BS '2026 - Undergraduate Research Scholar for 2022-2023
Lindsay Templeton - Enloe High School Student, NC - Summer 2022 intern

NC State

Nick Thompson - Animal Science BS '2020 - MS Student at NC State
Taylor Jones - Biochemistry BS '2020 - Working in industry
Pete Pitman - Biology BS '2019 - Working in NGO

UC Davis

Catherine Lopez - Linguistics BS '2017 - Research Assistant II at UC San Diego

PROFESSIONAL AFFILIATIONS

American Society for Nutrition (ASN)

02/2019 - Present

Early Career Member

Sigma Xi

03/2015 - Present

Associate Member

Minorities in Agriculture, Natural Resources and Related Sciences (MANRRS)

Described on Page 7 – SERVICE ACTIVITIES