

Rachel McNeal

College Station, TX • 949-291-2352 • rachelanmcneal@gmail.com

EDUCATION

Texas A&M University, College Station, Texas

Doctor of Philosophy in Entomology

Expected August 2025

GPR: 3.3

Preliminary Dissertation Title: "Temperature Impacts Interactions Between Microbes and Carrion Flies: A Comparison Study between a Generalist, *Hermetia illucens*, and a Specialist, *Cochliomyia macellaria*"

Primary Investigator: Dr. Jeffery Tomberlin

Bachelor of Science in Forensic & Investigative Sciences, Pre-Law Emphasis

May 2021

Double Major in Entomology

Cum Laude

GPR: 3.694

RELEVANT EXPERIENCE

Texas A&M University AgriLife, College Station, Texas

May 2023 – Present

Graduate Research Assistant

- Carried out experiments within the sustainability industry with black soldier flies
- Experience doing life history traits, probiotic supplementation, nutrition analysis, moisture content, pH, temperature
- Carried out statistics for data analysis
- Methods design
- Crafted reports for data analysis to present to industry team

Texas A&M University AgriLife, College Station, Texas

August 2021 – May 2023

Graduate Teaching Assistant

- Developed laboratory modules, refined experimental protocols, and revised lecture materials
- Assisting with attendance, questions, and emails
- Managed laboratory courses and activities consistent with learning outcomes
- Creating interactive lectures to accurately teach the appropriate lab materials
- Inventory and purchasing of necessary supplies for laboratory activities
- Evaluating reports, exercises, quizzes, and exams
- Creating laboratory examinations to assess students on their learned skills
- Training subsequent TAs on learning outcomes, material and content, and applications of the material to the broader field of forensic science

Courses: Introductions to Forensic and Investigative Science, Forensic Biotechnology, Forensic Soil Science, Forensic Microscopy, Forensic Photography, Forensic Implications of Inheritance, Crime Scene Investigations, and Applied Forensic Entomology

PUBLICATIONS

- **McNeal, R.**, Wells, J., and Tomberlin, J.K. 2024. "Bernard Greenberg: A Legacy in Medical, Veterinary, & Forensic Entomology" *Journal of Medical Entomology*.
- **McNeal, R.**, Dawson, K., and Albright, H. 2019. "Clarity of Shoe Impressions in Different Soil Types." *Instars: A Journal of Student Research*, Volume 5.

CONFERENCE PRESENTATIONS

- **McNeal, R.**, T. Crippen, A.M. Tarone, J.K. Tomberlin. 2024. Pathogen Control in Insects as Food and Feed: Interactions between Black Soldier Fly Larvae (*Hermetia illucens*) and *Escherichia coli* O157:H7. Entomological Society of America Annual Meeting.
- **McNeal, R.**, T. Crippen, A.M. Tarone, J.K. Tomberlin. 2024. Body Weight of *Hermetia illucens* (Diptera: Stratiomyidae) Impacted by the Presence of *Escherichia coli*: Implications for Estimating Time of Colonization. North American Forensic Entomology Association Annual Meeting.
- **McNeal, R.** 2020. Habitat Preference for Forensically Important Diptera in Toco, Trinidad, WI. North American Forensic Entomology Association Annual Meeting.

POSTER PRESENTATIONS

- Powell, A., **R. McNeal**, K. Gipson, and J.K. Tomberlin. 2023. Microbe interactions and their impacts on black soldier flies: A review. National Science Foundation Emerging Research Network-Research Experience and Mentoring Conference, Washington, D.C.

PROFESSIONAL CERTIFICATIONS

- Forensic Entomology Technician – License #16, 2022, American Board of Forensic Entomology
- Public Health Entomology, 2021, Texas A&M University
- Associate – Senior Fellow of the Academy of Future Faculty, Center for the Integration of Research, Teaching and Learning, Texas A&M University
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CASEWORK

Cases Signed

- F.L.I.E.S. Facility, Case 194 (Springfield, MA)
- F.L.I.E.S. Facility, Case 185 (Lake Butler, FL)
- F.L.I.E.S. Facility, Case 182 (Beeville, TX)
- F.L.I.E.S. Facility, Case 167 (Oaxaca, MX)

INVITED PRESENTATIONS

- *Using DNA Techniques Without Being a DNA Analyst: Microbes and Forensics*, Forensic Implications of Inheritance, 2023, Texas A&M University
- *Aquatic Forensic Entomology*, Forensic Entomology, 2023, Arizona State University
- *Malaria*, Public Health Entomology, 2023, Texas A&M University
- *Forensic Entomology: My Journey in Forensic Science After Graduation*, Forensic Science, 2022, Dana Hills High School
- *Using DNA Techniques Without Being a DNA Analyst: Microbes and Forensics*, Forensic Implications of Inheritance, 2022, Texas A&M University
- *Kissing Bugs and Chagas Disease*, Global Public Health Entomology, 2022, Texas A&M University
- *Collection Techniques and the Role of a Forensic Entomologist*, Investigative Biological Forensics, 2022, Indiana University of Pennsylvania
- *Trace Evidence*, Introduction to Forensic and Investigative Science, 2021, Texas A&M University
- *The History of Forensic Entomology*, Investigative Biological Forensics, 2021, Indiana University of Pennsylvania
- *Criminal Profiling*, Introduction to Forensic and Investigative Science, 2021, Texas A&M University

WORKSHOPS

- *American Board of Forensic Entomology Technician's Workshop*, September 19 & 20, 2023, Institute of Legal Medicine, Korea University, trained fifty participants to collect entomological evidence from remains under varying conditions in preparation to take a certification exam
- *Forensic Entomological Evidence and Collection Techniques*, September 21, 2022, Federal Bureau of Investigations, Dallas, trained thirty FBI agents to collect entomological evidence from remains under varying conditions
- *American Board of Forensic Entomology Technician's Workshop*, July 13 & 14, 2022, Federal Bureau of Investigations, Denver, trained twenty FBI agents to collect entomological evidence from remains under varying conditions in preparation to take a certification exam
- *American Board of Forensic Entomology Technician's Workshop*, July 11 & 12, 2022, Federal Bureau of Investigations, Denver, trained twenty FBI agents on insect biology and to collect entomological evidence from remains under varying conditions in preparation to take a certification exam

CURRICULUM DEVELOPMENT

- Tomberlin, J.K., Gipson, K., Miranda, C., and **McNeal, R.** "Using Science as a Platform to Expand Opportunities" Texas A&M University.

AWARDS

- **Outstanding Teaching Assistant Award**, Texas A&M University April 2023
 - Presented for excellence in teaching and service to students in the Forensic and Investigative Sciences Program
 - Presented by the Aggie Forensic and Investigative Sciences Organization
- **Entomology Scholar's Society**, Texas A&M University April 2019 – May 2021
 - Scholarship of \$250 per semester received
 - Assisted with Departmental outreach events such as New Student Conferences
 - Worked as a mentor to lower level and incoming forensic science students to discuss success strategies, study methods, and plans for career success post graduation
- **Undergraduate Award**, North American Forensic Entomology Association Summer 2020
 - Top undergraduate presentation at the annual NAFEA conference for 2020, award of \$75

LEADERSHIP

- **Academy for Future Faculty**, CIRTL, TAMU June 2023 – Present
 - *Director* June 2024 – Present
 - Planning and organization of general and officer meetings
 - Representative for Entomology graduate students within the Department of Entomology
 - Manage online and social media presence
 - Outreach with local community events and schools
 - Task determination and delegation within the Executive Committee
 - Management of registration and online materials for participants
- *Executive Committee* June 2023 – June 2024
 - Planning and organization of general and officer meetings
 - Representative for Entomology graduate students within the Department of Entomology
 - Manage online and social media presence
 - Outreach with local community events and schools