# Kat Ray King, M.S.

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## EDUCATION

**PhD** University of Louisville, Biology ABD
Dissertation: "On the Straight and Narrow: How Cultural Beliefs about Sex/Gender Manifest in College Learning Environments"
Committee: Dr. Linda Fuselier (co-chair), Dr. Paul Ewald (co-chair), Dr. Jennifer Mansfield-Jones, Dr. Sheron Mark, Dr. Holly S. Ewald

**MS** University of Louisville, Biology May 2018
Non-Thesis Degree
Advisors: Drs. Paul Ewald and Linda Fuselier

**BS** University of Louisville, Biology May 2015
Graduated Cum Laude
Minored in Forensic Anthropology

## TEACHING EXPERIENCE

**Teaching Philosophy:** I believe my role as an instructor is to facilitate student learning of material. Each student enters the classroom with unique experiences and expectations. My task is to reach each student where they are, so that they can grow and thrive in the learning environment.

**University of Louisville**, Louisville, KY August 2015 to July 2020
**Graduate Teaching Assistant**, Department of Biology

- **Unity of Life – Honors Recitation (Biology 240)**, Fall 2019
  - Supplement to honor's sections of required introductory biology course for science majors
  - Part of a pilot program to provide practical examples of introductory concepts to students as part of recitation
  - Taught two courses with 20 students each
  - Met weekly with course developers to provide feedback on prior material and review upcoming curricula
  - Utilized active learning strategies to guide class discussions
  - Conducted lectures that integrated class concepts into tangible contexts
  - Contributed questions over recitation materials to lecture exams
- **Principles of Biology Laboratory (Biology 244)**, Fall 2018-Summer 2019, Spring 2020*
  - Comprehensive laboratory component for paired introductory biology courses for science majors
  - Required laboratory component to declare biology major

- Taught four courses with 20-25 students each
- Gave weekly in-laboratory lectures providing more in-depth coverage to topics from class
- Mentored undergraduate research assistants
- Wrote, gave, and graded quizzes and exams
- Assisted students in conducting various basic laboratory tests including gel electrophoresis, PCR, spectrophotometry, enzyme kinetics, etc.
- *COVID-19 Response
  - During Spring 2020, converted to online instruction
  - Recorded lectures
  - Wrote and conducted online exams and quizzes
  - Engaged students using message boards

- **Human Anatomy and Physiology Laboratory (Biology 262)**, Fall 2015-Summer 2018
  - Introduction to human anatomy/physiology topics for pre-healthcare majors (nursing, exercise science, etc.)
  - Taught five-seven courses per year with 20-25 students each
  - Gave weekly in-laboratory lectures providing additional material or introducing topics omitted from in-class coverage
  - Wrote, gave, and graded quizzes and exams during summer terms (not responsible for writing exams or quizzes during other terms)
  - Aided students in conducing physiological experiments including electromyogram and electrocardiograms
  - Lead teaching assistant for two years
    - Trained new teaching assistants assigned to the course
    - Responsible for setup and breakdown of weekly lab materials
    - Redesigned course lecture format to incorporate active learning components
    - Transitioned from physical quizzes and homework to online versions

**University of Louisville**, Louisville, KY August 2014 to May 2015
**Undergraduate Teaching Assistant**, Department of Biology

- **Genetics and Molecular Biology Recitation (Biology 330)**, Spring 2015
  - Primary instructor for twice weekly, one-hour recitation section reviewing in-class lecture materials
  - Conducted lectures each class session
  - Wrote, gave, and graded quizzes which contributed to overall course grade
  - Led in-class exam reviews for 20-30 students per class
- **Principles of Biology Laboratory (Biology 244)**, Fall 2014
  - Assisted graduate instructor
  - Conducted 1/3 of in-class lectures
  - Led student lab-group activities for 10+ students

## RESEARCH EXPERIENCE

**Dissertation**, University of Louisville, Louisville, KY 2017-2020
Advisor: Dr. Linda Fuselier

- Designed, validated, and implemented study to evaluate student beliefs about sex/gender
- Obtained review board approval for all relevant studies
- Developed and implemented an educational intervention to improve student understanding of human sex/gender
- Mentored two undergraduate research assistants

**Graduate Research Assistant,** University of Louisville 2017 to 2018
Teaching, Learning, and Instructional Resource Project; Principle Investigator: Dr. Linda Fuselier

- Collected data from individual subjects
- Used Q-methodology to analyze individual subjectivities about the nature of science
- Conducted data analysis using PQ Method software
- Contributed methods, analysis, and results to manuscript draft
- Worked alongside other graduate research assistants

**Undergraduate Research Training in Molecular Anthropology** 2013 to 2014
**Research Trainee**, Advisor: Dr. Christopher Tillquist

- Trained on laboratory practices covering a wide range of genetic techniques: DNA extractions, PCR, cloning, Gel electrophoresis, and DNA sequencing
- Gained practical experience in analyzing results and genetic database searching techniques (NCBI-GenBank, BLAST searches, etc).

## PUBLICATIONS

### *Journal Publications*

Fuselier, L., McFadden, J. & Ray King, K., "Do Biologists' Conceptions of Science as a Social Epistemology Align with Critical Contextual Empiricism?". Science & Education 28, 1001–1025 (2019); https://doi.org/10.1007/s11191-019-00084-8

### *Journal Papers in Review or Preparation*

Ray King, K. and Fuselier, L., "From Belief to Reality: Using Q-Methodology to Characterize Undergraduate Sex/Gender Beliefs," In Preparation for: Gender and Education.

Ray King, K., Fuselier, L., and Sirvisetty, H. "(Em)bodied in Knowledge: Queer Theory Analysis of College Anatomy and Physiology Textbooks," In Preparation for: Journal of Research in Science Teaching

## PRESENTATIONS AND INVITED LECTURES

**Poster Presentation**, "Sex/Gender Essentialist Beliefs in Pre-Healthcare Students", National Association for Research in Science Teaching (NARST) Annual Conference, March 2020*

**Poster Presentation,** "Words Matter: A Queer Theory Analysis of Anatomy/Physiology Textbooks" **, NARST Annual Conference, March 2020*

**Long Talk**, "From Belief to Reality: How Undergraduates Understand Sex/Gender (And Why We Should Care)", Western Washington University Queering Research Series, February 2020

**Poster Presentation**, "Representation Matters: A Queer Theory Analysis of Anatomy/Physiology Textbooks" *, Early Undergraduate Summer Research Symposium, July 2019

**Short Talk**, "From Belief to Reality: Characterizing Undergraduate Sex and Gender Beliefs", Society for the Advancement of Biology Education Research (SABER) National Meeting, July 2019

**Invited Lecturer,** "Is Race Real: Using Evolutionary Ideas to Examine Race", University of Louisville Introduction to Biology Course, March 2018

**Poster Presentation**, "Scientists' Beliefs About the Nature of Science", Kentucky Graduate Student Regional Research Conference, March 2018

**Short Talk,** "Characterizing Epistemic Beliefs Among Scientists" Kentucky Academy of Science Annual Meeting, *First Prize: Graduate Science Education Talk*, November 2017

**Poster Presentation,** "Characterizing Epistemic Beliefs Among Biologists", SABER National Meeting, July 2017

* cancelled due to COVID-19
** second author

## PROFESSIONAL TRAINING

**NARST Sandra K. Abell Institute for Doctoral Students**, July 2019

**Course Design Institute**, University of Louisville, May 2019

**Teaching with Active Learning**, University of Louisville, Spring 2018

**STEM GTA Academy**, University of Louisville, Summer 2016

## PROFESSIONAL AFFILIATIONS

American Association for the Advancement of Science (AAAS), 2013-Present

NARST, 2017-Present

SABER, 2017-Present

## PROFESSIONAL SERVICE

**Tour Guide for Biology Department Teaching Labs**
Student Preview Days, Summer 2019

## COMMUNITY SERVICE

**Louisville Regional Science and Engineering Fair**
Lead Judge, Senior Biology and Health, March 2019

**Louisville Regional Science and Engineering Fair**
Lead Judge, Junior Biology and Health, March 2017

**Louisville Regional Science and Engineering Fair**
Lead Judge, Junior Microbiology March 2016