

# T. Jeffrey Cole

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## Education

- ▣ **Ph.D. in Biological Sciences** May 2021  
East Carolina University, Greenville NC
  - Dissertation title: *Molecular evolution of venom proteins in Ctenidae spiders*
- ▣ **B.S. in Biology, magna cum laude** May 2016  
Samford University, Birmingham AL
  - **GPA:** 3.88
  - **Honors**
    - ◇ Beta Beta Beta National Biology Honors Society (2013-2015)
      - Vice President (2015)
    - ◇ Alpha Lambda Delta Honors Society (2013-2015)

## Publications

- Cohen CM., Noble K, **Cole TJ**, Brewer MS. (2020). Ultraconserved elements help resolve the phylogeny of an ancient radiation of venomous flies (Diptera: Asilidae). *bioRxiv*.
- Cohen CM, **Cole TJ**, Brewer MS. (2020). Pick your poison: molecular evolution of venom proteins in Asilidae (Insecta: Diptera). *Toxins* 12.12 (2020): 738.
- Cole TJ**, Brewer MS. (2019). toxify: a deep learning approach for classifying animal venom proteins. *PeerJ*, 7, p.e7200.
- Cole TJ**, Brewer MS. (2018) FUSTr: A tool for finding gene Families Under Selection in Transcriptome databases. *PeerJ*, 6, e4234.
- Cole TJ**, Hataway RA. (2016). Prescribed burning affects a measure of fitness in *Ctenus hibernalis* (Araneae: Ctenidae) at Oak Mountain State Park, Shelby County, Alabama. *Southeastern Naturalist*. 15(4):646–652.

## Presentations

- ▣ **Molecular evolution of inhibitor cysteine knot toxins in the genomes of spiders** 2020  
*Oral presentation*
  - 44<sup>th</sup> annual meeting of the American Arachnological society, virtual via Davis CA.
- ▣ **Comparative venom gland transcriptomics of wandering spiders (Araneae:Ctenidae)** 2019  
*Poster presentation*

- 73<sup>rd</sup> annual meeting of the Society for the Study of Evolution, Providence RI.
- Phylogenomics of the venomous assassin flies using ultracovserved elements** 2019  
*Poster presentation (co-author)*
  - presented by Chris Cohen
  - 73<sup>rd</sup> annual meeting of the Society for the Study of Evolution, Providence RI.
- Comparative venom gland transcriptomics of the U.S Ctenidae (Order:Araneae)** 2018  
*Oral presentation*
  - 42<sup>nd</sup> annual meeting of the American Arachnological society, Ypsilanti MI.
- Using deep learning to classify animal venom proteins** 2018  
*Oral presentation*
  - 79<sup>th</sup> annual meeting of the Association for Southeastern Biologists conference, Myrtle Beach, SC.
- Signatures of positive selection in venom proteins of Hawaiian Tetragnatha (Araneae:Tetragnathidae)** 2017  
*Poster presentation*
  - 35<sup>th</sup> annual Society for Molecular Biology and Evolution, Austin, TX
- Characterization of the venom proteome for the wandering spider *Ctenus hibernalis* (Araneae: Ctenidae)** 2016  
*Oral presentation*
  - Venom Week V, Greenville NC*Poster presentation*
  - 93<sup>rd</sup> annual Meeting of the Alabama Academy of Science, Florence AL
    - ◇ Winner of Best Poster in Biological Sciences Award
  - 77<sup>th</sup> annual meeting of the Association for Southeastern Biologists conference, Concord NC
  - 20<sup>th</sup> annual meeting of the International Congress of Arachnology, Golden CO
- Molecular evolution of sperm proteins in *Danaus* butterflies** 2015  
*Oral presentation*
  - Samford University Summer Research Symposium*Poster presentation*
  - University of Kansas Summer Undergraduate Research Poster Session
  - 5<sup>th</sup> annual Emerging Researchers National STEM Conference, Washington D.C.
- Density and fitness of *Ctenus hibernalis* (Aranea: Ctenidae) in a montane longleaf pine ecosystem undergoing restoration** 2015  
*Oral presentation*
  - Samford University Summer Research Symposium*Poster presentation*
  - 92<sup>nd</sup> annual Meeting of the Alabama Academy of Science, Livingston, AL
  - 4<sup>th</sup> annual Emerging Researchers National STEM Conference, Washington D.C.

- **Effects of surface runoff from a landfill containing coal ash on water chemistry in adjacent surface water in Perry County, Alabama** 2014

*Oral presentation*

- Perry County City Hall meeting
- Samford University Summer Research Symposium

*Poster presentation*

- 75<sup>th</sup> annual Association for Southeastern Biologists conference, Spartanburg SC
  - ◊ Winner of Elsie Quarterman-Catherine Keever Poster Award

**Society Memberships**

Society for Molecular Biology and Evolution . . . . .	2017-present
American Arachnological Society . . . . .	2016-present
North American Society of Toxinology . . . . .	2015-present
American Chemical Society . . . . .	2015-present
Association for Southeastern Biologists . . . . .	2015-present
Alabama Academy of Science . . . . .	2013-2016

**Awards & Grants**

American Museum of Natural History Theodore Roosevelt Memorial Grant (\$1,000) . . . . .	2017
East Carolina University biodiversity initiative internal grant for outreach (\$200) . . . . .	2017
NSF Graduate Research Fellowship (\$132,000) . . . . .	2016
Brakefield Textbook scholarship (\$100) . . . . .	2016
NSF REU Summer research grant, University of Kansas (\$5,500) . . . . .	2015
NSF REU Summer research grant, Samford University (\$5,500) . . . . .	2014
Samford University Summer Propst Research scholar (\$2,000) . . . . .	2013

**Teaching**

- **Principles of Biology Laboratory, BIOL 1101, graduate teaching assistant** 2018-2020
  - East Carolina University
  - Utilizing Argument Driven Inquiry to guide students in experiments related to molecular biology, bioenergetics, cellular structure, physiology, and the molecular basis of inheritance and control of gene expression
  
- **Practical computing, BIOL 6220, guest lecturer** 2017-2019
  - East Carolina University
  - Best practices for reproducibility in bioinformatics
  - Phylogenetic tests for positive selection

- ▣ **Population Biology, BIOL 350, guest lecturer** 2019
  - Samford University
  - Techniques and principles of population genomics

## Service & Outreach

- ▣ **U.S. Census Field Enumerator** 2020
  - Assist members of the community in Eastern North Carolina with completing the 2020 U.S. Census questionnaire.
- ▣ **Nerd Nite Boss** 2019
  - Organizer of science communication event where members of the public present on topics of personal interest or expertise in a fun-yet-intellectual format
- ▣ **Bugfest** 2016-present
  - Annual public showcase of local arthropod diversity at the Museum of Natural History, Raleigh NC
- ▣ **Undergraduate student mentor** 2016-present
  - research project coordinator for 5 undergraduate research projects
- ▣ **Letters to a Pre-Scientist.** 2016
  - Mentoring network for middle school students in at-risk communities to encourage their pursuit of scientific careers
- ▣ **Spiders of Birmingham, AL** 2015
  - Bi-annual community seminar on how to collect and identify local spiders
- ▣ **Sustainable fisheries practices** 2015
  - Guest lecture at 4H chapter in Birmingham
- ▣ **Shades Creek Cleanup** 2013-2016
  - Co-organizer for annual cleanup efforts in Birmingham AL
- ▣ **Samford gives back** 2013-2016
  - Annual event to provide assistance with establishing community gardens

## Skills

- ▣ Programming and Markup Languages
  - **Expert:** Python, Go, R, Bash
  - **Intermediate:** Java, C++, HTML, CSS, Javascript, SQL,  $\LaTeX$