

# FYRE First Year Research Experience

Paul Schaeffer in Zoology is looking for First Year students to become part of his research projects through the new FYRE program.

To apply, e-mail Martha Weber at [weberme@muohio.edu](mailto:weberme@muohio.edu)

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ASSISTANT PROFESSOR, ZOOLOGY



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## Interested in FYRE-STEM Opportunities in Zoology?

New students could participate in one of many ongoing projects or design a project with Dr. Schaeffer that they would work on individually.

### Molecular biology of cardiac hypertrophy

Techniques to be learned: Cardiac physiology, molecular biology of gene expression.

Relevant information: Cardiac hypertrophy is associated with both exercise and failure. We seek to understand the divergent pathways that permit growth of the heart without leading to pathology.

### Patterns of energy use in lizards

Techniques to be learned: Whole animal energy use, small animal surgery, radiotelemetry.

Relevant information: Recent innovations in radiotelemetry have made it possible to retrieve physiological data from free-living animals. We will study the ways in which daily temperatures and feeding affect the relationships between heart function and overall energy use in a variety of lizard species, both in the field and in the laboratory.

### Muscle energetics in migrating & Ohio resident birds

Techniques to be learned: Whole animal energy use, cellular biochemistry and molecular biology of cloning and gene expression.

Relevant information: Birds either migrate or overwinter in Ohio. Both strategies pose an energetic challenge. We study the ability of birds to modify their use of energy in response to these challenges.

### Molecular biology of obesity and diabetes

Techniques to be learned: Whole animal energy use, glucose and insulin tolerance assays, cellular biochemistry and molecular biology of gene expression.

Relevant information: Obesity is associated with pathology of metabolic systems leading to type 2 diabetes. We study the ways that exercise and obesity impact muscle metabolism using mice.