

Steven Higgins

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University of Tennessee
Microbiology Department
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Education:

Doctor of Philosophy, Microbiology (expected December 2015)

The University of Tennessee, Knoxville, TN 37996

Master of Science, Biology (July 2011)

The University of South Dakota, Vermillion, SD 57069

Thesis: "Analysis of urea and glycerol as cryoprotectants in the freeze-tolerant boreal chorus frog, *Pseudacris maculata*"

Bachelor of Science, Biology Cum Laude (May 2008)

The University of Massachusetts, Amherst, MA 01002

Research Experience:

Thesis research

January '09 – July '11

Studying patterns of osmolyte concentrations in boreal chorus frog liver and muscle tissue seasonally, as well as before and after experimental freezing bouts. Injected frogs with urea to assess freezing survival differences with a potential cryoprotectant.

Independent research

October 2010 – July '11

Examining seasonal lipid alterations in the boreal chorus frog liver and muscle triacylglycerols and glycerolipids using GC-MS.

Independent research

October 2009 – July '11

Analyzing overwintering site microhabitat characteristics of the blanchard's cricket frog (*Acris blanchardi*) along the James river watershed in South Dakota.

Professional Experience:

The University of South Dakota

January 2009 – May 2011

Teaching Assistantship – Vermillion, SD

I received this appointment on a semester-by-semester basis. My tasks include instructing students in completing scientific laboratory assignments, grading, and other associated instructor tasks.

The University of South Dakota

May to November 2007-2010

Field Technician – Vermillion, SD

Responsible for assisting a mark-recapture study on Chelydrid, Emydid and Trionychid turtle species. Gained proficiency using radio telemetry devices to determine home ranges for two aquatic turtles: *Graptemys pseudogeographica* and *Apalone mutica*.

Developed skills in boat navigation on a riverine system and gained an intimate understanding of the Missouri River watershed from Yankton, SD south to Ponca, NE.

The University of Massachusetts

September 2007 – May 2008

Research Assistant – Amherst, MA

Assisted Julie Ritchie's M.S. thesis research to better understand the function of myosin 8 in the moss *Physcomitrella patens*. Myosin 8 gene function was disrupted through stable knockouts and transient knockdowns. Analysis of function was performed through various physiological assays, and it was found that myosin 8 plays a role in proper growth, development, and polarity sensing in *P. patens*. The completion of this project was presented in poster format at two regional meetings.

Academic Accomplishments:

SCALE-IT Fellowship

June 2011 – Present

Awarded NSF-funded IGERT fellowship to improve research skills involved with uniting high performance computational tools and biological research.

Dakota Amphibian Reptile Network - Oral Presentation

May 2011

Presented solidified thesis research as a practice for my thesis defense at the annual D.A.R.N. meeting in Minot, North Dakota.

IdeaFest at the University of South Dakota – Oral Presentation

April 2011

Presented semi-final research findings on boreal chorus frog freeze tolerance at the annual symposium highlighting research at USD in Vermillion, SD.

Kansas Herpetological Society – Oral Presentation

November 2010

Presented preliminary thesis research findings at the Annual Kansas Herpetological Society meeting held at the Topeka Zoo, Topeka, KS.

Northern Integrative Biology Society – Oral Presentation

October 2010

Presented preliminary thesis research findings at the Northern Integrative Biology Society meeting in Decorah, IA at Lutheran College.

Poster presentation – Amherst, MA

October 2007 and April 2008

Attended a poster presentation at the Umass Plant Biology annual symposium, and though unable to attend, research conducted was in poster format at the Northeast Section of American Plant Biologists at Uconn-Storrs.

Intramural Funding:

USD Graduate Research Grant – Univ. South Dakota

December 2010

Awarded a research grant for \$500 to defray costs of conducting thesis and independent research.

John W. Carlson Research Grant – Univ. South Dakota

June 2010

Successfully received a research grant to study and complete both thesis and independent research at the University of South Dakota. Funding received was \$2,000.

Biology Department Travel Award – Univ. South Dakota

June 2010

Obtained resources necessary for traveling to conferences to present research. \$300 award amount.

Extramural Funding:

Wildlife Diversity Small Grants Program

June 2009

Co-primary investigator assessing microhabitat characteristics of overwintering sites of the Blanchard's cricket frog, *Acris blanchardi* in South Dakota. Funding was \$7,000.

Other Activities:

University of Massachusetts, Amherst, MA

September 2007 – January 2008

Club Fencing

University of South Dakota, Vermillion, SD

March 2009 – 2011

Club Rugby