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The oral examination of the doctoral thesis titled  
**Relating acid-base compensatory strategies of  
brachyuran crabs to their environments and life  
histories**

will be held on

**Wednesday, August 17, 2022 at 1:00 PM (CST)**

**See zoom link in email**

## **Examining Committee**

**Advisor:** Dr. Dirk Weihrauch, Biological Sciences

### **Examiners:**

Dr. Gary Anderson, Biological Sciences

Dr. Jason Treberg, Biological Sciences

Dr. Peter Eck, Food & Human Nutritional  
Sciences

Investigations, Invited Member

### **External Examiner:**

Dr. Carolina Freire

Physiology, Federal

University of Parna, Brazil

## **Thesis Abstract**

Brachyuran crabs are amongst the most habitat-diverse groups of animals on Earth. Different environments are associated with specific challenges that their inhabitants must overcome throughout their species' history to maintain physiological homeostasis, including the pH of the body fluids. The frequency and magnitude of acid-base challenges are environmentally dependent with some ecosystems experiencing regular seasonal fluctuations such as inland waters or coasts, some having diurnal fluctuations as occur in intertidal zones, whereas marine environments may face irregular but relatively large shifts from coastal upwellings or permanent extreme stress near hydrothermal vents. Given that brachyurans permanently inhabit these ecosystems, their acid-base regulatory processes and stress tolerances are presumably broad making them an interesting animal group to study connections between a species' life-history relates and physiology. Despite the diverse nature of brachyurans, their acid-base regulatory systems and stress tolerances are generally poorly understood. To date, only a few osmoregulatory-capable species are beginning to be characterized at the whole animal and mechanistic levels due to their historical use as osmoregulatory models.