

# AMY Y CHEU

## CURRICULUM VITAE

EMAIL: amy@basiliskos.com

WEB: www.Basiliskos.com

---

### EDUCATION:

**CLARK UNIVERSITY** Fall 2015 – Spring 2022  
Doctor of Philosophy, Biology  
Advisor: Dr. Philip Bergmann  
Dissertation: *Performance and kinematic variation in multiple modes of lizard locomotion*

**UNIVERSITY OF CALIFORNIA, RIVERSIDE** Fall 2011 – Spring 2014  
Bachelor of Science, Biology

---

### RESEARCH and WORK POSTITONS:

**SCIENTIFIC ILLUSTRATION and DESIGN** Aug 2014 – Present  
Basiliskos Art. San Diego, CA  
Sole Proprietor, freelance scientific illustrator and graphic designer. Collaborates with scientists in the development of figures for manuscripts, designing of academic posters and PowerPoints, and other science communication pieces for both academic and general audiences.

**GRADUATE RESEARCHER** Aug 2015 – May 2022  
Clark University, Worcester MA  
Developed and conducted experiments based on functional morphology and biomechanics in locomotion of animals. Wrote manuscripts describing research findings and presented research at conferences. Collaborated with principle investigator and mentored undergraduate students.

**RESEARCH ASSOCIATE** Jan 2015 – June 2015  
BioTox Sciences. San Diego, CA  
Executing in-vivo pharmacokinetics, toxicology, physiology, and behavior based studies. Model Organisms: mouse, rat, rabbit, canine, porcine, and non-human primate

**UNDERGRADUATE RESEARCHER** Jan 2013 – Aug 2014  
University of California, Riverside, CA  
Advisor: Dr. Tim Higham  
Assisted lab members with research projects: data collection and filming related to terrestrial and aquatic biomechanics. Model organism: lizards and centrarchid fishes

---

---

## TEACHING EXPERIENCE:

### **INSTRUCTOR OF RECORD**, Assumption University

BIO 310 Lecture – Animal Behavior (Fall 2019)

BIO 310 Lab – Animal Behavior (Fall 2019)

### **GRADUATE TEACHING ASSISTANT**, Clark University

BIOL 101 – Environmental and Conservation Biology (Fall 2015, 2016, 2018, 2019, 2021)

BIOL 102 – Intro to Biology II (Spring 2021)

BIOL 084 – Biodiversity (Spring 2016)

BIOL 111 – Comparative Vertebrate and Human Anatomy (Spring 2017, 2018, 2019, 2020)

### **LECTURES**, Clark University

BIOL 111 – Comparative Vertebrate and Human Anatomy, Spring 2018, 2020

*"The Musculoskeletal System"*

BIO 111 – Comparative Vertebrate and Human Anatomy, Spring 2019:

*"Heterochrony and Scaling", "Musculoskeletal System", "Locomotion on Land", "Locomotion in Water & Air"*

### **SCIENTIFIC ILLUSTRATION WORKSHOP**, Clark University

**Primary coordinator and instructor**, Summer 2018, 2019

Week long NSF-funded workshop in scientific illustration for non-art trained scientists.

Focuses on technical drawing, traditional media, and digital media.

---

## PROFESSIONAL DEVELOPMENT

### **Diversity and Inclusion Certificate Program, Clark University**

Workshops taken (Spring 2020-Spring 2021): *Historical Overview: Power, Privilege and Oppression; Mental Health Stigma and the "Otherness" of Mental Illness; Social Construction of Race and Class; Racial Equity at Clark/Equitable Support for Students of Color; Microaggressions and the Workplace; Supporting International Students: Moving from Awareness to Competence; Introduction to Gender and Sexuality; AccessAbility: A Historical Overview.*

Program project: "Differences in the Perspectives of Polyethnic vs. Monoethnic Societies on Cultural Appropriation, Appreciation, and Assimilation."

### **American Mountain Guides Association (AMGA) – Professional Member**

Courses taken: *Single Pitch Instructor, April 2021*

Internationally recognized certification program designed to train professionals in instructing the sport of rock climbing in an outdoor setting.

---

## PEER-REVIEWED PUBLICATIONS:

1. **Cheu AY**, Reed SA, Mann SD, and Bergmann PJ. 2022. Performance and kinematic differences between terrestrial and aquatic running in *Anolis sageri*. *Integrative and Comparative Biology* 62: 840-851.

---

## PUBLISHED ILLUSTRATIONS:

1. Easterling C.M., Kolman M.A., and O'Donnell M.K. 2022. The Lesser-Known Transitions: Organismal Form and Function across Abiotic Gradients. *Integrative and Comparative Biology* 62: 829-839.
2. Cheu AY, Reed SA, Mann SD, and Bergmann PJ. 2022. Performance and kinematic differences between terrestrial and aquatic running in *Anolis sageri*. *Integrative and Comparative Biology* 62: 840-851.
3. Aguilar L.K., Collins C.E, Ward C.V, and Hammond A.S. 2022. Pathways to primate hip function. *Royal Society Open Science* 9: 211762.
4. McGowan C.P. and Collins C.E. 2018. Why do mammals hop? Understanding the ecology, biomechanics and evolution of bipedal hopping. *Journal of Experimental Biology* 211.
5. Higham, T.E., R.W. Clark, C.E. Collins, M.D. Whitford, and G.A. Freymiller. 2017. Rattlesnakes are extremely fast and variable when striking at kangaroo rats in nature: Three-dimensional high-speed kinematics at night. *Scientific Reports*. 7, 40412.
6. Higham, T.E., A. Birn-Jeffery, C.E. Collins, C.D. Hulse, and A.P. Russell. 2015. Adaptive simplification and the evolution of gecko locomotion: Morphological and biomechanical consequences of losing adhesion. *Proceedings of the National Academy of Sciences* 112.
7. *Integrative and Comparative Biology*. July 2015. Volume 55, Issue 1, Cover image
8. Higham, T.E., W.J. Stewart, and P.C. Wainwright. 2015. Turbulence, temperature, and turbidity: The ecomechanics of predator-prey interactions in fishes. *Integrative and Comparative Biology*. 55, 6-20.

## NON-ACADEMIC CLIENTS:

Western Massachusetts Climbers Coalition (WMCC)  
CRAG-Vermont

---

## PRESENTATIONS AND SEMINARS:

1. **Cheu AY**, Reed SA, Mann SD, and Bergmann PJ. 2022. Performance and kinematic differences between terrestrial and aquatic running in *Anolis sageri*. Society of Integrative and Comparative Biology, Talk, Invited Symposium.
2. **Cheu AY**. and Bergmann PJB. *Choose your own adventure: Performance and kinematics of multiple climbing and swimming strategies in lizards*. Society of Integrative and Comparative Biology, Virtual. Jan-Feb 2021, Talk, Contributed.
3. **Cheu, AY**. and Bergmann, PJ. 2019. *Ontogenetic Allometry of Locomotor Performance in Basilisks*. Society of Integrative and Comparative Biology Conference (SICB), Tampa, FL, USA, Poster.
4. **Cheu, AY**. 2018. *Functional Implications of Ontogenetic Growth*. Bumpus Symposium. Clark University, MA, USA. Poster.
5. **Cheu, AY**. 2018. *Complex form-function relationships in basilisk lizard locomotion*. Biology Departmental Seminar. Clark University, MA, USA. Oral.
6. **Cheu, AY**. and Bergmann, PJ. 2018. *Basilisk Olympics: Multiple modes of locomotion influences the degree of functional constraint in a trait*. Society of Integrative and Comparative Biology Conference (SICB), San Francisco, CA, USA, Oral.
7. **Cheu, AY**. 2017. *Functional implications of ontogenetic scaling*. Northeast Regional Meeting of the Society for Integrative and Comparative Biology (SICB), Lowell, MA, USA. Oral.
8. **Cheu, AY**. 2017. *Electromyography: Quantifying muscle activity patterns*. Bumpus Symposium. Clark University, MA, USA. Oral.
9. **Cheu, AY**. and Bergmann, PJ. 2017. *Increasing complexity when considering multiple modes of locomotion*. Multidisciplinary Conference, Clark University, MA, USA. Poster.
10. **Cheu, AY**. and Bergmann, PJ. 2017. *Increasing complexity when considering multiple modes of locomotion*. Society for Integrative and Comparative Biology Conference (SICB), New Orleans, LA, USA. Poster.
11. Holden, RH, **Cheu, AY.**, and Bergmann, PJ. 2017. *Performance variation in basilisk lizards during different aquatic modes of locomotion*. Society for Integrative and Comparative Biology (SICB), New Orleans, LA, USA. Poster.
12. **Cheu, AY**. 2016. *Complex Form-Function Relationships in Whole Organism Performance*. Bumpus Symposium. Clark University, MA, USA. Oral.

---

## AWARDS:

### TRAVEL

2020: Clark Biology Department Travel Award - \$100

2019: Clark Biology Department Travel Award - \$500  
2018: Clark Biology Department Travel Award - \$500  
2017: Clark Biology Department Travel Award - \$500

---

## ACADEMIC SERVICES AND OUTREACH:

### **GRADUATE MENTORSHIP, Clark University**

Rob Holden (Spring 2016 - May 2017) - MS Student

### **UNDEGRADUATE MENTORSHIP, Clark University**

Hannah Guss (Fall 2019 – 2022)  
Isabel Tonelli-Sippel (Fall 2018 – 2021)  
Kristen Glennie (Summer 2017 – Spring 2018)  
Lana Le (Spring 2017 – Spring 2018)  
Mary Molloy (Fall 2016 - Winter 2017)  
Muhaj Azeez (Spring 2016 - Summer 2016)  
Jordan Majka (Spring 2016 - Summer 2016)

### **CLARK UNIVERSITY SERVICES**

Graduate Student Association (Fall 2015 - 2022)  
GSA Biology Department Representative (Fall 2017 – Spring 2019)  
GSA Travel Award Judge (Fall 2017)

### **OTHER OUTREACH**

Manuscript reviewer for: Journal of Experimental Zoology

Sherman Fairchild Summer Research Program. Clark University, MA  
Imaging Across the Scales, Workshop: Summer 2017

Digestive System Anatomy Demo for University Park Campus School, MA  
Anatomy demonstration for 9th graders: Spring 2017, 2019

---

## ACADEMIC MEMBERSHIPS:

**SOCIETY OF INTEGRATIVE AND COMPARATIVE BIOLOGY**, (2017 – 2022)

---

## TECHNICAL SKILLS:

*\* indicates high proficiency*

### **SOFTWARE:**

- Adobe Creative\* (Photoshop, Illustrator, Lightroom, InDesign)
- Additional Art Software\* (Paint Tool SAI, GIMP, Procreate)

- R Statistical Software\*, MatLab
- Microsoft Office\* (Word, Excel, PowerPoint, Publisher)
- SignalExpress 2015\*

**EQUIPMENT/TECHNIQUES:**

- High-speed video cameras\* (Photon FASTCAM, Phantom, CASIO, AOS)
- Digital SLR Cameras\* (All Canon models)
- Electromyography\*, Sonomicrometry
- In-vivo dosing and anesthesia\* (reptiles, rodent, porcine, canine, non-human primate) via: IM, IP, SQ, IV, Oral
- Animal Husbandry\* (reptiles, rodents, fish)

---

**REFERENCES:****Dr. PHILIP BERGMANN (Advisor)**

Associate Professor  
Clark University  
Department of Biology  
Worcester, MA 01610  
pbergmann@clarku.edu

**Dr. ELIZABETH BONE**

Lecturer  
Clark University  
Department of Biology  
Worcester, MA 01610  
ebone@clarku.edu

**Dr. NEVA MEYER**

Associate Professor  
Clark University  
Department of Biology  
Worcester, MA 01610  
nmeyer@clarku.edu