

SICB 2025

The Society for Integrative
and Comparative Biology

with the
American Microscopical Society,
Minorities in Shark Sciences, The Crustacean Society

Conference Program

Atlanta Marriott Marquis • Atlanta, GA
3-7 January 2025



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The co-sponsoring society presentations are integrated into the program to minimize the potential conflicts of similar presentations being scheduled at the same time.

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The
Crustacean Society

The logo for The Crustacean Society features a stylized illustration of a crustacean, possibly a shrimp or lobster, in a dynamic, swimming pose.



The Society for Integrative and Comparative Biology

Conference Program

Atlanta Marriott Marquis

265 Peachtree Center Avenue
Atlanta, GA 30303

Future Meeting Dates

SICB 2026
Portland, OR • 3-7 January

SICB 2027
Pittsburgh, PA • 3-7 January

SICB 2028
Los Angeles, CA • 3-7 January

The Society for Integrative and Comparative Biology

950 Herndon Parkway
Suite 450
Herndon, Virginia 20170
Phone: 703-790-1745 • 800-955-1236
FAX: 703-790-2672
Email: SICB@BurkInc.com
Web: www.SICB.org

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Journal of Experimental Biology



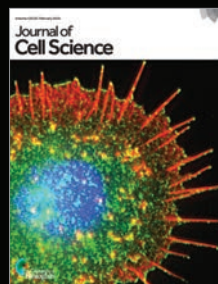
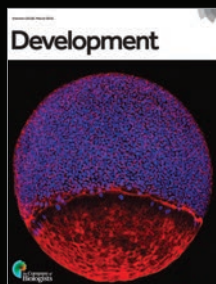
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comparative physiology
and integrative biology**

journals.biologists.com/jeb

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Our journals



General Information

Welcome to Atlanta, GA

Scan the QR for a welcome message from the SICB President and SICB Program Officer



SICB Mobile App

View detailed descriptions of the meeting highlights, plenaries, social events, workshops, programs, and floorplans on the official SICB 2025 Mobile App.



Conference Program

SICB does not assume responsibility for any inconsistencies or errors in the abstracts for contributed paper and poster presentations. We regret any possible omissions, changes and/or additions not reflected in this final program.

Speaker Ready Room

All presenters must visit the Ready Room, **L503**, at least one half day prior to their session time. It is highly recommended that you preview your presentation prior to your session to guarantee that it will work properly. Each presentation will be loaded onto a master file for each session. You may use your own computer, however, your fifteen minute time slot does not include time for set up and testing. There will be students and audio visual personnel to assist you and to check you in during the following hours:

Friday 3 January	2:30 PM – 6:30 PM
Saturday 4 January	7:00 AM – 5:00 PM
Sunday 5 January	7:00 AM – 5:00 PM
Monday 6 January	7:00 AM – 5:00 PM
Tuesday 7 January	7:30 AM – 11:00 AM

Registration

The SICB Registration/Information area is located in the **Marquis Registration**. The Registration Desk will be open during the following hours:

Friday 3 January	2:30 PM – 6:30 PM
Saturday 4 January	7:00 AM – 5:00 PM
Sunday 5 January	7:30 AM – 3:30 PM
Monday 6 January	7:30 AM – 3:30 PM
Tuesday 7 January	7:30 AM – 3:00 PM

Pop Up Meeting?

if you need a room for an unscheduled meeting, come to the registration desk and book your time.

Need a place to work?

If you need a place to plug in and work, there will be tables in the Atrium Ballroom with power. They will be marked with signage that says “Work Here.”

Quiet Room

Feeling anxious and need a moment to decompress? A Quiet Room, **L404**, with low lighting is available for attendees to rest quietly and recharge before diving back into the fray.

Friday 3 January	10:00 AM – 8:30 PM
Saturday 4 January	8:00 AM – 7:00 PM
Sunday 5 January	8:00 AM – 7:00 PM
Monday 6 January	7:00 AM – 4:00 PM
Tuesday 7 January	7:00 AM – 4:00 PM

Committee/Business Meetings

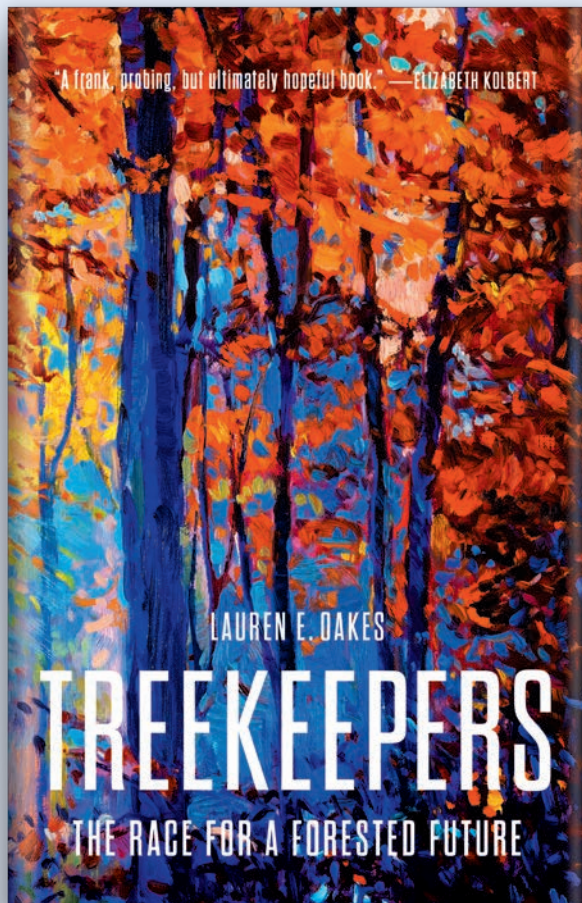
Please refer to the Schedule of Events for each day’s listing of committee/business meetings.

Coffee Breaks

Coffee break service is available each day of the meeting in the **Atrium Ballroom**.

Saturday 4 January	9:30 AM – 10:30 AM <i>Sponsored by Sable Systems International</i> 3:30 PM – 4:30 PM
Sunday 5 January	9:30 AM – 10:30 AM <i>Sponsored by SRE.college</i> 3:30 PM – 4:30 PM
Monday 6 January	9:30 AM – 10:30 AM 3:30 PM – 4:30 PM
Tuesday 7 January	9:30 AM – 10:30 AM 3:30 PM – 4:30 PM

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“A frank, probing, but ultimately hopeful book” (Elizabeth Kolbert) that shows why the path from climate change to a habitable future winds through the world’s forests

“Planting trees, protecting and restoring forests is definitely one of the ways to combat climate change. But only planting the right trees in the right places at the right time, and only restoring forests in the right way. Lauren E. Oakes travelled widely to gather her facts for this important and beautifully written book.”

—JANE GOODALL

“Forests—especially mature ones, with big trees—are clearly crucial to our future. Here’s an in-depth exploration of exactly why, and it’s filled not just with numbers but with stories!”

—BILL MCKIBBEN

General Information

Employment Opportunities

The Employment Opportunity bulletin board will be located in the SICB Registration/Information area. The Employment Opportunity board will provide a place for attendees to post "Positions Wanted," and learn about "Positions Available." Interested attendees may schedule interviews in the room set aside for that purpose. See a registration desk attendant for assistance.

SICB Childcare Room

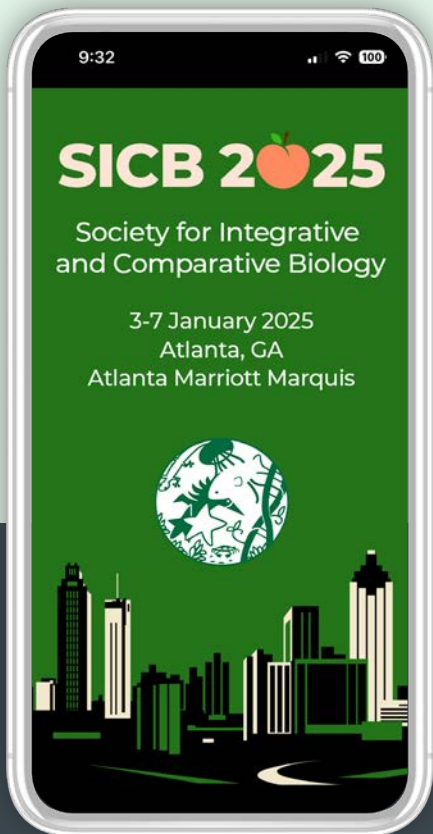
This year, SICB is providing FREE onsite childcare through Taming Toddlers in **L405/406**. Pre-registration was required, but there may be space for drop-ins. Stop by L405/406 to speak with Taming Toddlers to see if space is available.

Friday 3 January	7:00 PM – 10:00 PM
Saturday 4 January	7:30 AM – 6:00 PM
Sunday 5 January	7:30 AM – 6:00 PM
Monday 6 January	7:00 AM – 8:00 PM
Tuesday 7 January	7:00 AM – 8:00 PM

Family & Mother's Respite Room

SICB recognizes that balancing a family and meeting attendance creates unique challenges for parents. There is a Mother's room in **L502** within quick access of talks. The Mother's room is a private room equipped with comfortable chairs for nursing, chairs and tables for pumping, outlets, a refrigerator for milk.

Friday 3 January	12:00 PM – 10:00 PM
Saturday 4 January	7:30 AM – 6:00 PM
Sunday 5 January	7:30 AM – 6:00 PM
Monday 6 January	7:00 AM – 8:00 PM
Tuesday 7 January	7:00 AM – 8:00 PM



DOWNLOAD THE OFFICIAL SICB 2025 MOBILE APP

Use this app to make the most of your meeting experience. Build a personal schedule. Filter the sessions, presentations, or participants to drill down and find the information you are looking for. Receive notifications of the latest program updates and schedule changes. Keep up-to-date on all of the events.



SAVE THE DATE



The Society for Integrative and Comparative Biology
2026 Annual Meeting
3-7 January 2026 · Portland, OR



SAVE THE DATE

Joint Meeting of Ichthyologists and Herpetologists
Saint Paul RiverCentre
July 9-13, 2026 · St. Paul, MN



2025 SICB Exhibit Hall

Atrium Ballroom • Atlanta Marriott Marquis



View the latest floorplan and company profiles on your phone or tablet.

Scan the QR Code or visit sicb2025.expofp.com

Exhibit Highlights

- **Meet the Editors of *Journal of Experimental Biology***
Saturday 4 January 12:15 PM – 1:15 PM
Join Editor-in-Chief, Craig Franklin, and other Editors from *Journal of Experimental Biology* in **Marquis D** to chat about your research and find out more about the journal, including our travelling fellowship scheme for ECRs and grants for junior faculty staff, recent changes to our aims & scope, and The Forest of Biologists – a biodiversity initiative where we plant new native trees for all published Research and Review papers and protect ancient woodland on behalf of our peer reviewers. You will also have an opportunity to pick up our 2025 'limited edition' Tshirt (make sure you grab one before they run out!) and other goodies associated with the journal.
- **Stop by and meet with the SICB President and Executive Director, Table 4**
Saturday – Monday 3:30 PM – 5:30 PM
- **Free Headshot Lounge** (*Pre-registration required. Check the SICB mobile app for availability*)
Sunday – Monday 9:30 AM – 5:00 PM

Coffee Breaks

Saturday 4 January	9:30 AM – 10:30 AM <i>Sponsored by Sable Systems International</i> 3:30 PM – 4:30 PM
Sunday 5 January	9:30 AM – 10:30 AM <i>Sponsored by SRE.college</i> 3:30 PM – 4:30 PM
Monday 6 January	9:30 AM – 10:30 AM 3:30 PM – 4:30 PM
Tuesday 7 January	9:30 AM – 10:30 AM 3:30 PM – 4:30 PM

Exhibit Hours

Saturday 4 January	9:30 AM – 5:30 PM
Sunday 5 January	9:30 AM – 5:30 PM
Monday 6 January	9:30 AM – 5:30 PM

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2025 SICB Exhibitors

3D Anatomy Studios

Booth: 20

224 Lowden St Ste 1
Pawtucket, RI 02860
www.3danatomystudios.com
401-354-2943

3D Anatomy Studios is a scientist-run business building digital and physical tools to help learners of all ages discover organismal form and function. We make active learning resources for biology courses and partner with researchers to develop websites, digital models, and other open-source tools for research, education, and outreach.

American Microscopical Society

Booth: 6

www.amicros.org

The American Microscopical Society is dedicated to promoting the presentation, discussion, and publication of new and significant information about the biology of invertebrates and other organisms, sponsoring undergraduate and graduate research using microscopy and other imaging techniques, and funding training on microscopes and other imaging instruments.

Auburn University Department of Biological Sciences

Booth: 22

101 Rouse Life Sciences Building
Auburn, AL 36849
www.auburn.edu/academic/cosam/departments/biology

Behavior with Purpose

Booth: 9

www.behaviorwithpurpose.com
behaviorwithpurpose@gmail.com

BehaviorwithPurpose is a consulting company that collaborates with your research group to enhance animal welfare and improve scientific outcomes. We offer personalized animal training protocols tailored to your research projects, staff training in animal handling techniques, and the development of animal behavior management programs. Our services also include problem-solving support for various projects, as well as online and in-person training for staff.

By establishing a well-developed program for animal training, handling, and behavior management, you can achieve improved animal welfare, increased accuracy in scientific data, and reduced timelines for your studies.

The Biological Bulletin

Booth: 7

1427 East 60th St.
Chicago, IL 60637
journals.uchicago.edu/bbl

For more than 100 years, The Biological Bulletin has disseminated novel scientific results in broadly related fields of biology. It publishes outstanding original research of general interest to biologists throughout the world, with an overarching goal of explaining how organisms develop, function, and evolve in their natural environments.

Blue Beehive Studio

Booth: 1

www.etsy.com/shop/oneinchsquidstudios
www.etsy.com/shop/bluebeehivestudio

Blue Beehive Studio and One Inch Squid Studios offer a variety of science-themed art. Enameled jewelry featuring phylogenetic trees and scientific illustrations, biology-themed tote bags, embroidered plankton, stickers, and watercolor prints and cards are all created with love (and an occasional slight amount of frustration) by these sisters-in-law.

Center for Advance Motor BioEngineering and Research(CAMBER)

Booth: 12

1510 Clifton Rd. NE, Suite 2133
Atlanta, Georgia 30322
camber@emory.edu
678-362-9318

Our mission is to create and disseminate next-generation tools for investigating motor control. We have created high-density electrode devices ("Myomatrix arrays") that record muscle activity at high resolution across a wide range of muscles, species and behavior.

Company of Biologists

Booth: 23

Bidder Building, Station Road
Histon, Cambridge CB24 9LF
United Kingdom
www.biologists.com
+44 1223632877

Silver Sponsor

The Company of Biologists is a not-for-profit publishing organisation dedicated to supporting and inspiring the biological community through scientific journals, meetings and grants. The Company publishes five specialist peer-reviewed journals: Development, Journal of Cell Science, Journal of Experimental Biology, Disease Models & Mechanisms and Biology Open.

Crustacean Society, The

Booth: 5

950 Herndon Parkway, Suite 450
Herndon, VA 20170
www.thecrustaceansociety.org
703-790-1745

The Crustacean Society (TCS) achieves its mission by promoting the exchange and dissemination of information throughout the world by:

1. The Journal of Crustacean Biology (JCB) an SCI journal, with Editor-in-Chief Dr. Pedro Castro, published by the Oxford University Press;
2. Biannual, international meetings to gather the world's carcinologists for constructive interaction and collaboration, and by supporting other societies, meetings, and conferences that share our mission;
3. Annual competitions for fellowship, scholarship, and travel awards for postdocs and both graduate and undergraduate students

DataClassroom Inc.

Booth: 21

1022 Cottonwood Road
Charlottesville, VA 22901
www.dataclassroom.com
434-882-8005

DataClassroom U is a web-app for graphing, statistics, and data analysis in the college classroom. It addresses the difficulties that can arise when teaching practical data and statistical skills in introductory science and statistics courses.

Education Council

Booth: 4

Expert Digital Imaging

Booth: 25

30 Banks Road
Swampscott, Massachusetts 01907
www.expertdigitalimaging.com
617-347-1212

Expert Digital Imaging is an independent distributor of high-speed and high-resolution camera equipment from various manufacturers, including IO Industries, IDT, NAC and Mega Speed camera lines. At EDI, we offer hand-held, affordable high-speed cameras, traditional high-speed cameras as well as long-recording high speed systems and multi-headed synchronized systems.

Fastec/RDI Technologies

Booth: 13

10024 Investment Drive
Knoxville, Tennessee 37932
www.rdiotechnologies.com
865-606-1080

Fastec Imaging is a global supplier of digital high-speed imaging systems. The company specializes in uniquely portable and affordable high-speed camera systems, including handheld point-and-shoot systems, compact PC-controlled cameras, and long-duration record systems. Fastec cameras are used in many applications for manufacturing, food and beverage, pharmaceutical, packaging, pulp & paper, energy, aviation, science, academic research and training, athletics, and artistic and commercial video production.

Journal of Experimental Biology

Booth: 24

Silver Sponsor

Bidder Building, Station Road
Histon, Cambridge CB24 9LF
United Kingdom
journals.biologists.com/jeb
+44 1223 632871

The leading journal in comparative animal physiology. Journal of Experimental Biology focuses on the form and function of living organisms at all levels of biological organisation – from the molecular and subcellular to the integrated whole animal. Authors and readers reflect a broad interdisciplinary group of scientists who study molecular, cellular and organismal physiology in an evolutionary and environmental context.

SICB Journals (ICB & IOB)

Booth: 26

113 Cameron Court
Cary, NC 27511
academic.oup.com/icb & academic.oup.com/iob
706-469-7057

The Journal of Integrative and Comparative Biology is SICB's flagship journal publishing annual symposia papers, awardee papers & invited groupings. Integrative Organismal Biology is SICB's premiere Open Access Journal with excellent O.A. rates. There are discounts for members. See each journal's publish and or submit pages on their websites to gain more knowledge about types of papers each publish.

Mothers in Science

Booth: T2

www.mothersinscience.com

Mothers in Science is a grassroots international nonprofit that advocates for mothers in STEMM and develops evidence-based solutions to promote workplace caregiver inclusion. We offer resources to support and empower mothers in STEMM, raise awareness of the motherhood penalty, and conduct research to inform policy and create systemic change.

National Science Foundation

Booth: 17

2415 Eisenhower Avenue
Alexandria, VA 22314
new.nsf.gov/bio/ios/about
703-292-5111

NSF's Division of Integrative Organismal Systems (IOS) supports research to understand why organisms are structured the way they are and function as they do. IOS supports projects focusing on development, behavior, neuroscience, physiology, biomechanics and morphology, microbiology, immunology, virology, and plant and animal genomics.

Non-clinical Tomography Users Research Network (NoCTURN)

Booth: 10

19555 N 59th Ave
Glendale, AZ 85387
nocturnetwork.org
513-550-1496

The booth will provide expert advice and hands-on guidance for creating, storing, processing, and sharing CT datasets. Visitors will have access to NoCTURN-developed recommendations, best practices, and accessibility resources. Workshop attendees will engage in post-workshop discussions on robust, reproducible, and FAIR-aligned data generation for integrative biology research.

OSyM-Organismal Systems Modeling Network

Booth: T1

Stony Brook University
Stony Brook, NY 11794
organismal-systems.org

OSyM provides a forum for organismal biologists and modeling experts to collaborate, improving our ability to predict impacts of change on organisms. OSyM provides workshops and travel grants for scientists to learn modeling to pursue this emerging, critical area of research on how animals maintain stability while accommodating change.

Oxford University Press

Booth: 11

corp.oup.com

Oxford University Press (OUP) is the world's leading university press with the widest global presence. Our academic publishing program serves scholars, teachers and researchers, publishing important and rigorous research and scholarship across subject areas stretching from History to Life Sciences to Economics.

PUI Primarily Undergraduate Serving Institution

Booth: 3

The Primarily Undergraduate Institution (PUI) action group offers support and opportunities to faculty at PUIs, as well as grad students and postdoc seeking to work at a PUI. Our booth has daily events and information for those interested and is a place to build community.

Qubit Systems Inc.

Booth: 19

1573 John Counter Blvd.
Kingston, Ontario K7M 3L5
Canada
qubitsystems.com

Qubit Systems Inc. specializes in the design and manufacture of instrumentation for the biological and environmental sciences from aquatic biology to plant physiology, to animal, insect, and human respirometry. Our aim is to provide educational establishments, research institutes and companies with innovative, cost-effective equipment for research, teaching, and industrial applications.

Sable Systems International

Booth: 14

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**Society of Vertebrate
Paleontology**

Booth: 2

**University of Alabama
at Birmingham –
Department of Biology**

Booth: 16

902 14th Street South, ESH 3100
Birmingham, AL 35294-1170
www.uab.edu/cas/biology
205-934-9684

The UAB Department of Biology is defined by its cutting-edge research programs that address critical global challenges, such as climate change, biodiversity loss, and human health and its commitment to providing exceptional, interdisciplinary educational opportunities that equip students with a comprehensive understanding of modern biological sciences.

University of Chicago Press **Booth: 8**

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journals.uchicago.edu
773-702-7700

Founded in 1890, the University of Chicago Press is one of the oldest continuously operating university presses in the United States. The Journals Division publishes more than 90 scholarly journals that cover a wide range of disciplines, from the humanities and the social sciences to the life and physical sciences.

Xcitex Inc

Booth: 29

8 Cabot Road
Woburn, MA 01801
www.xcitex.com
617-225-0080

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Friday Schedule of Events

Events take place in the Atlanta Marriott Marquis, unless otherwise noted

EVENT	TIME	LOCATION
MISS Summit Registration and Kickoff	8:00 AM – 9:00 AM	L506-507
Registration	2:30 PM – 6:30 PM	Marquis Registration
Speaker Ready Room	2:30 PM – 6:30 PM	L503
SPECIAL LECTURE		
Science and Society Special Lecture: Jasmin Graham Sometimes the boat is worth rocking: addressing root causes of inequities in science	7:30 PM – 8:30 PM	Marquis Ballroom
COMMITTEE AND BOARD MEETINGS		
SICB Executive Committee Meeting	2:30 PM – 5:00 PM	A705
Student Orientation & First Timer Orientation* “How to get the most out of your SICB meeting” <i>*Required for students with Charlotte Mangum support</i>	5:30 PM – 6:30 PM	Marquis Ballroom
Student Support Committee	5:30 PM – 7:00 PM	L501
WORKSHOPS AND PROGRAMS		
MISS Introduction to GIS Workshop	9:00 AM – 10:30 AM	L506-507
MISS Media Training Workshop	9:00 AM – 10:30 AM	L508
From Specimens to CT Datasets: Robust, Reproducible, and Reuse-Ready	9:00 AM – 12:00 PM	A708
MISS Introduction to eDNA Workshop	10:30 AM – 12:00 PM	L508
MISS Networking Workshop	10:30 AM – 12:00 PM	L506-507
MISS Pitch Practice	12:00 PM – 2:00 PM	M202
Computer vision and deep learning for pollinator biology	1:00 PM – 5:00 PM	A702
MISS Grant Writing Workshop	1:30 PM – 3:00 PM	L508
MISS Statistical Analysis in R Workshop	1:30 PM – 3:00 PM	L506-507
MISS Working Groups	3:15 PM – 5:15 PM	L506-507
SOCIAL EVENTS		
Outgroup-In Sober Social (LGBTQ+)	6:30 PM – 7:30 PM	M103-104
Broadening Participation Meet & Greet	6:30 PM – 7:30 PM	A707
SICB Welcome Reception	8:30 PM – 10:00 PM	Marquis Ballroom Foyer

Saturday Schedule of Events

Events take place in the Atlanta Marriott Marquis, unless otherwise noted

EVENT	TIME	LOCATION
Registration	7:00 AM – 5:00 PM	Marquis Registration
Speaker Ready Room	7:00 AM – 5:00 PM	L503
Poster Session 1 Set Up	7:00 AM – 8:00 AM	Atrium Ballroom
Coffee Break AM, <i>sponsored by Sable Systems International</i>	9:30 AM – 10:30 AM	Atrium Ballroom
Exhibit Hall	9:30 AM – 5:30 PM	Atrium Ballroom
Coffee Break PM	3:30 PM – 4:30 PM	Atrium Ballroom
Poster Session 1 Even Numbers Authors Present	3:30 PM – 4:30 PM	Atrium Ballroom
Poster Session 1 Odd Numbers Authors Present	4:30 PM – 5:30 PM	Atrium Ballroom
Poster Session 1 Teardown	5:30 PM – 6:00 PM	Atrium Ballroom
SPECIAL LECTURE		
SICB President's Select Plenary: Dr. Scott Gilbert. The evolutionary developmental biology of holobionts: An imperative for science teaching.	7:30 PM – 8:30 PM	Marquis B
SYMPOSIUM ORAL PRESENTATIONS		
S1: Cities as a natural experiment: how organisms are finding different solutions to the same urban problems	8:00 AM – 3:30 PM	Marquis A
S2: Paddling together: navigating the crosscurrents of plant and animal biology to explore uncharted waters in disease ecology	7:45 AM – 3:30 PM	Marquis B
S3: Fleshing it out: recent advances in form, function and motor control of biological hydrostats	8:00 AM – 3:30 PM	Marquis C
CONTRIBUTED PAPER ORAL PRESENTATIONS		
MORNING		
Social interactions, learning, and play	7:45 AM – 9:30 AM	International Salon 8
Animals on cylinders	8:00 AM – 9:45 AM	International Salon 4
Biology of ecological stress	8:00 AM – 10:00 AM	A703
Chordate development and evolution	8:00 AM – 9:15 AM	A707
Conducting research in the Global South	8:00 AM – 10:00 AM	Marquis D
Division of Phylogenetics and Comparative Biology Best Student Presentation David and Marvalee Wake Award	8:00 AM – 10:00 AM	A601
Electroreception and magnetoreception	8:00 AM – 10:00 AM	International Salon 9
Epigenetics	8:00 AM – 10:00 AM	International Salon 5
Evo-devo	8:00 AM – 10:00 AM	International Salon 7
Feeding hydrodynamics	8:00 AM – 10:00 AM	International Salon 10
Material properties	8:00 AM – 10:00 AM	International Salon 6
Navigating environments	8:00 AM – 10:00 AM	A704
Neural control of flight	8:00 AM – 10:00 AM	International Salon 2-3
Neurobiology in mating and reproduction	8:00 AM – 9:30 AM	A706
The better to eat you with	9:30 AM – 12:00 PM	A707
Biology education in practice	10:00 AM – 12:00 PM	International Salon 8
Division of Animal Behavior Best Student Presentation	10:00 AM – 12:00 PM	A706
Big picture questions in organismal biology	10:15 AM – 12:00 PM	International Salon 2-3
Development, regeneration, and metamorphosis	10:15 AM – 12:00 PM	International Salon 4
Division of Ecoimmunology and Disease Ecology Best Student Presentations	10:15 AM – 12:00 PM	A704
Insights from integrative biology in arthropods	10:15 AM – 12:00 PM	A601
All about the optics: color and more	10:30 AM – 12:00 PM	International Salon 6
Color and genes	10:30 AM – 12:00 PM	A703

Complementary session 1 to S12: Identifying the physiological mechanisms that underlie phenotypic responses to rapid environmental change	10:30 AM – 11:45 AM	International Salon 5
Flapping from big to small	10:30 AM – 12:00 PM	International Salon 10
Scaling new depths	10:30 AM – 12:00 PM	International Salon 9
Skulls and Brains	10:30 AM – 11:45 AM	International Salon 7
AFTERNOON		
Aquatic ecology and behavior	1:30 PM – 3:30 PM	International Salon 4
Case these joints	1:30 PM – 3:00 PM	International Salon 5
Cool 3D methods	1:30 PM – 3:45 PM	A706
Coral and clownfish: a match made in the reef	1:30 PM – 3:30 PM	A601
Division of Comparative Endocrinology Best Student Presentation	1:30 PM – 3:30 PM	A707
Division of Evolutionary Developmental Biology best student presentation	1:30 PM – 3:30 PM	A704
Evolution and diversification	1:30 PM – 3:30 PM	International Salon 2-3
Hunger, feeding and foraging behavior	1:30 PM – 3:30 PM	International Salon 10
Muscle ch-ch-ch-changes	1:30 PM – 3:30 PM	International Salon 6
Sensory biology and behavioral endocrinology of fishes: a special session honoring the work of Karen Maruska	1:30 PM – 3:30 PM	A703
Stressed out	1:30 PM – 3:15 PM	International Salon 7
Understanding mechanisms of resistance and persistence	1:30 PM – 3:30 PM	International Salon 8
COMMITTEE AND BOARD MEETINGS		
Student Journalists Meeting	7:00 AM – 8:00 AM	International Salon 1
Development Committee	12:00 PM - 1:30 PM	SEAR Restaurant
Division Chairs/President/President-Elect Meeting	12:00 PM – 1:30 PM	A702
ICB Editorial Board	12:00 PM – 1:30 PM	International Salon 1
Spiralibase Meetup	12:15 PM - 1:15 PM	A708
AMS Executive Committee	7:00 PM – 10:00 PM	International Salon 1
TCS Board Meeting	7:00 PM – 10:00 PM	A702
BUSINESS MEETINGS		
DAB Member Meeting	5:45 PM – 6:45 PM	International Salon 6
DEDB Member Meeting	5:45 PM – 6:45 PM	A704
DEDE Member Meeting	5:45 PM – 6:45 PM	International Salon 2-3
DEE Member Meeting	5:45 PM – 6:45 PM	International Salon 10
DVM Member Meeting	5:45 PM – 6:45 PM	A707
WORKSHOPS AND PROGRAMS		
Fluid ART — Free pour painting workshop	12:15 PM - 1:15 PM	Atrium Ballroom
Systems thinking: Using directed acyclic graphs (DAGs) to infer causation	12:15 PM - 1:15 PM	Marquis B
Journal of Experimental Biology – Meet the Editors	12:15 PM – 1:15 PM	Marquis D
What's new in NSF BIO and Q&A session	12:15 PM – 1:15 PM	A601
SOCIAL EVENTS		
DEDE/DEE/DIZ/DOB/DPCB/AMS/TCS Social	9:30 AM - 10:30 AM	International Salons ABC

Saturday Program Symposia

8:00 AM – 3:30 PM

S1: Cities as a natural experiment: how organisms are finding different solutions to the same urban problems

Marquis A

8:00 am

Introduction to the symposium: Cities as a natural experiment

Valentina Alaasam, Anthony Snead, Kristin Winchell
New York University

8:15 am

Does urban life and small population size lead to accumulation on deleterious mutations?

Aude Caizergues
University of Montpellier

8:30 am

Phenotypic correlations in response to urbanization: a test case for constraints to adaptation

Eric Prileson
Washington State University Vancouver

8:45 am

Patterns of raccoon cranial variation under domestication and urbanization

Christina Sluka, Mark Clementz, Sarah Benson-Amram, Merav Ben-David
University of Wyoming, University of British Columbia

9:00 am

Uncovering the drivers of temperature-dependent sprint performance in urban lizards

Princeton Vaughn, Andrea Rummel, Shane Campbell-Staton
Princeton University, Rice University

9:15 am

Hot Spots of Evolution: Decoding the Spotted Lanternfly's Thermal Ecology

Fallon (Fang) Meng, Valentina Alaasam, Kristin Winchell
New York University

9:30 am

Boulevard of broken frogs: patterns of local (mal)adaptation in polluted ponds

Santi Arounsack-Colon, Steven Brady
Southern Connecticut State University

10:00 am ————— Coffee Break

10:30 am

Workshop: Opportunities and challenges in urban fieldwork

Kristin Winchell, Anthony Snead, Valentina Alaasam
New York University

12:00 pm ————— Lunch

1:30 pm

Lessons from Wall Lizards: What We've Learned and What's Next In Urban Morphological Evolution

Eric Gangloff, Princeton Vaughn, Alyssa Head, Kristin Winchell
Ohio Wesleyan University, Princeton University, New York University

1:45 pm

Behavioral tolerance and physiological responses to human proximity in the rufous-collared sparrow

César González-Lagos, Pablo Sabat, Natalia Ricote, Maite Arriagada, Benjamin Corvalan, Karin Maldonado
Universidad Adolfo Ibáñez, Universidad de Chile

2:00 pm

The genetic architecture of pollution adaptation in Atlantic killifish

Carolina Rios, Bryan Clark, Sibel Karchner, Neel Aluru, Andrew Whitehead, Mark Hahn
University of California, Davis, Atlantic Coastal Environmental Sciences Division EPA, Woods Hole Oceanographic Institution

2:15 pm

Big Bad Bugs in the Big City: Effects of Urbanization on Invasive Spotted Lanternfly Body Size

Brenna Levine, Alyssa Moffitt, Ayush Patel, Renato Mendez
Kean University

2:30 pm

The genomics of urbanization in house mice

Megan Phifer-Rixey, Renè Clark, Adrienne Kasprovicz, Samantha Giancarli, Stephen Kupchella, Logan Lacy, Nina Mallalieu, Maddie Balman, Jason Munshi-South
Drexel University

2:45 pm

Roundtable Discussion: Cities as Natural Experiments

Kristin Winchell, Anthony Snead, Valentina Alaasam
New York University

7:45 AM – 3:30 PM

S2: Paddling together: navigating the crosscurrents of plant and animal biology to explore uncharted waters in disease ecology

Marquis B

8:00 am

Connecting the dots in dilution: competence in the context of diversity, demography, and disease

Tara Stewart-Merrill, Pieter Johnson
Cary Institute of Ecosystem Studies, University of Colorado Boulder

8:30 am

Exploring biological diversity at multiple trophic levels to better respond to vector-borne diseases

Andrea Swei, Heather Broughton, Shannon Summers, Grace Shaw, Arielle Crews, Marie Lilly
San Francisco State University, San Mateo County Parks, San Mateo County Mosquito and Vector Control, Columbia University

9:00 am

Integrating phylogenetic information reveals new insights into "Diversity-Disease" relationships

Yingying Wang, Kevin Matson, Fred de-Boer
University of California-Davis, Wageningen University & Research

9:30 am ————— Coffee Break

10:00 am

Environmental effects on host competence for two zoonotic pathogens

Lynn Martin, Vania R Assis, Meredith DeWitt, Tom Unnasch, Kailey McCain, John Orrock, Clinton Francis
University of South Florida, University of Wisconsin, California Polytechnic State University

10:30 am

Does the "plant pathogen landscape" change with fragmentation?

Michelle Hersh, Cathy Collins
Sarah Lawrence College, Bard College

11:00 am

A legacy of competitive exclusion: Temperature-dependent effects on host stage structure and disease

Alexander Strauss, Daniel Suh, Katie Schroeder, Jenavier Tejada, Emily Landolt
University of Georgia

11:30 am

Host-microbiome interactions as moderators of disease-diversity relationships

*Kristen Rosamond, Kevin Matson
University of Missouri-St. Louis, Wageningen University & Research*

12:00 pm ————— Lunch

1:30 pm

Variable host susceptibility to the multi-host sea star wasting pathogen

*Alyssa Gehman, Grace Crandall, Melanie Prentice, Ondine Pontier, Derek VanMaanen, Tyrel Froese, Gillian Sadlier-Brown, Danja Currie-Olsen, Zach Monteith, Angeleen Olsen, Carolyn Prentice, Krystal Bachen, Alex Schmill, Margot Hessing-Lewis, Drew Harvell
Hakai Institute, University of Washington, University of British Columbia, Cornell University*

2:00 pm

Do distributions of host susceptibility reflect the evolution of pathogen specialization or generalism?

*Arietta Fleming-Davies, David Paez
University of San Diego, Western Fisheries Research Center, USGS*

2:30 pm

Pathogen specialization among competing hosts drives coexistence and pathogen dilution

*James Bever, James Adelman, Maarten Eppinga, Elizabeth Archie, Vanessa Ezenwa
University of Kansas, The University of Memphis, University of Zurich, Yale University*

8:00 AM – 3:30 PM

S3: Fleshing it out: recent advances in form, function and motor control of biological hydrostats

Marquis C

8:00 am

Lizard and snake tongues as muscular hydrostats: comparative morphology and function

*Kurt Schwenk
University of Connecticut*

8:30 am

The muscularized tongue is a key feature of the mammalian feeding system

*Kaleb Sellers, Peishu Li, Courtney Orsbon, Casey Holliday, Callum Ross
Ohio University, University of Vermont, University of Missouri, University of Chicago*

8:45 am

3D Muscle architecture reveals the hydrostatic function of the pangolin tongue

*Casey Holliday, Lillian Porter, Christopher Zobek, Conner Verhulst, Eric Hostnik, Copper Aitken-Palmer
University of Missouri, Ohio State University, Brookfield Zoo*

9:00 am

Linking form to complex function in the octopus arm muscular hydrostat

*Letizia Zullo, Beatrice Pistolato, Janina Röckner
IRCCS Ospedale Policlinico San Martino, Istituto Italiano di Tecnologia*

9:30 am ————— Coffee Break

10:00 am

Metamaterials Investigations of Biological Composites in the Elephant Trunk

*Andrew Schulz
Haptic Intelligent Department, Max Planck Institute for Intelligent Systems*

10:30 am

Two roads taken: superelongation in the obliquely striated muscles of soft-bodied animals

*Kari Taylor-Burt, Joseph Thompson
Mount St Mary's University, Franklin & Marshall College*

11:00 am

The mechanics of soft skeletons: tube feet in sea stars

*Matthew McHenry, Olaf Ellers, Theo Po, Amy Johnson
UC Irvine, Bowdoin College, Virginia Tech*

11:30 am

Energy-Efficient Paths and Power Law in Elephant Trunk Motion

*Yilin Cai, Man Wo Lui, David Hu, Yue Chen
Georgia Institute of Technology*

12:00 pm ————— Lunch

1:30 pm

Hanging parrots use traveling-wave micropumps to drink nectar

*David Cuban, Sunghwan Jung, Maude Baldwin, Alejandro Rico-Guevara
University of Washington, Cornell University, Max Planck Institute for Ornithology, University of Washington, Seattle*

1:45 pm

Diversity in hyolingual morphology is decoupled from diversity in tongue base retraction mechanisms

*Peishu Li, Kaleb Sellers, Courtney Orsbon, J.D. Laurence-Chasen, Riya Gumidyala, George Huerta, Madison Yuan, Teresa Lever, Nicholas Gidmark, Zhe-Xi Luo, Callum Ross
Ohio University, University of Chicago, University of Vermont, Illinois Mathematics and Science Academy, University of Missouri School of Medicine, Knox College*

2:00 pm

The oral sensory system and dynamic modulation of the tongue during chewing in carnivorans

*Rachel Olson, Moriah Wood, Stephane Montuelle, Susan Williams
University of Akron, Ohio University*

2:15 pm

Regional heterogeneity in the EMG activity of extrinsic tongue muscles is critical to tongue function

*Christopher Mayerl, Elska Kaczmarek, Maressa Kennedy, Ani Smith, Skyler Wallace, Hannah Shideler, Emily Volpe, Dylan Anderson, Thomas Stroud, Harlow Smith, Holly Sabato, Shanique Yazzie, Sarah Sheldon, Tobin Hieronymus, Rebecca German
Northern Arizona University, Northeast Ohio Medical University*

2:30 pm

Integrating collective and centralized control in sea star locomotion

*Theo Po
Virginia Tech*

2:45 pm

The neuromuscular substrate of elephant grasping

*Michael Brecht, Lennart Eigen, Lena Kaufmann, Thomas Hildebrandt
Humboldt University of Berlin*

Saturday Program Morning Sessions

7:45 AM – 9:30 AM

**Social interactions,
learning, and play**

International Salon 8

Chair: Marquise Henry

7:45 am

Identifying potential play behavior in cuttlefish

*Kira Lemke, Robyn Crook
San Francisco State University*

8:00 am

Swimming dynamics in fish aggregation: from social groups to shoaling and schooling

*Valentina Di-Santo, Camille Morerod, Xuewei Qi, Fidji Berio, Otar Akanyeti
University of California, San Diego,
Stockholm University, Aberystwyth University*

8:15 am

Reinforcement learning on the fly: modeling how spiders quickly adjust to changing prey availability

*Candido Diaz, John Long, Ashkaan Fahimipour
Stetson University, Vassar College, Florida Atlantic University*

8:30 am

Investigating the role of the hippocampus in modulating neophobia in house sparrows.

*Marquise Henry, Blake Dusang, Melanie Kimball, Ella Cochran, Christine Lattin
Louisiana State University*

8:45 am

Citalopram exposure alters social behavior, fear, and learning in fathead minnows.

*Leah Turner, Jessica Ward
Ball State University*

9:00 am

Undertaking behaviors in the common eastern bumblebee *Bombus impatiens*

*Stephanie Zhu, Micaela Romero, Z Yan Wang
University of Washington, Bellevue College*

9:15 am

Effects of behavioral syndromes on interaction outcome in cleaner shrimp-client fish mutualisms

*Bryce Barbee, Eleanor Caves
Brown University*

8:00 AM – 9:45 AM

**Animals on cylinders
International Salon 4**

Chair: Joshua Pulliam

8:00 am

A balancing act: gait kinematics and behavior of *Cephalotes atratus* traversing narrow substrates

*Sammie Dolloff, Alyssa Stark, Stephen Yanoviak
Drexel University, Villanova University,
University of Louisville*

8:15 am

Spatiotemporal stride and tail kinematic comparisons between wetland-adapted and generalist rodents

*Dulce Robles-Martinez, Diego Sustaita
California State University San Marcos*

8:30 am

Does a chameleon of arboreality conform to typical arboreal chameleon locomotor patterns?

*Michael Curran, Christopher Anderson
University of South Dakota*

8:45 am

Effects of limb cycle speed on stability during quadrupedal arboreal locomotion

*Andrew Lammers, Catherine Cornelius,
Grace Schepelmann
Cleveland State University*

9:00 am

Walking the tightrope: Is vertical gap crossing in snakes influenced by perch diameter?

*Joshua Pulliam, Jeffery Anderson, Kamau Braxton-Hall, Yohan Sequeira, Joshua Taylor,
Jake Socha
Virginia Tech*

9:15 am

Risk perception and locomotor performance in wild and captive primates

*Nicole Schapker, Lydia Myers, Judith Janisch,
Ahmad Matar, Julie Pham, Abdelrahman Boghdady, Liza Shapiro, Jesse Young
Northeast Ohio Medical University, Kent State University, The University of Texas at Austin*

9:30 am

Don't Fall! Pendular dynamics models for time scale limitations in non-primate mammalian climbing

*Cassie Shriver, David Hu, Young-Hui Chang
Georgia Institute of Technology*

8:00 AM – 10:00 AM

**Biology of ecological stress
A703**

Chair: Zach Stahlschmidt

8:00 am

Modeling ectotherm survival in fluctuating thermal environments: beyond thermal death times

*Joel Kingsolver, Garrison Bullard, Lauren Buckley
University of North Carolina at Chapel Hill, University of Toronto, University of Washington*

8:15 am

Behavioral effects of thermal stress in mantis shrimp (Stomatopoda)

*Miya Ball, Olivia Turner, Patrick Green
UC Santa Barbara, Brown University*

8:30 am

Effects of thermal stress on reproduction with investigations in mitigation by methyl farnesoate

*Abraham Velazquez, Brian Tsukimura
California State University, Fresno*

8:45 am

Physiological and behavioral effects of chemical contraception on feral urban pigeons

*Jessica Wright-Lichter, Lori Donohoe,
Rebecca Partan, Allen Rutberg
Tufts University*

9:00 am

Carryover effects influence the physiology and energetics of Florida framework corals

*Elise Keister, Will Ryan, Shelby Gantt,
Samantha Jerry, William Fitt, Dustin Kemp
NOAA Ocean Acidification Program, Towson University, Boston University, University of Alabama at Birmingham, University of Georgia*

9:15 am

Thermal biology of microplastics

Zach Stahlschmidt, Kiersten Ngeow, Jiyoung Ryu, Rohan Aujla, Roxy Wang, Sahithi Mothukuri
University of the Pacific

9:30 am

Assessing the physiological response of sand tiger sharks (*Carcharias taurus*) to longline capture

Chestina Craig, Kady Lyons, Bryan Frazier, Johanne Lewis
Georgia Southern University, Georgia Aquarium, South Carolina Dept. of Natural Resources

8:00 AM – 9:15 AM

Chordate development and evolution

A707

Chair: Billie Swalla

8:00 am

Exploring the context-dependency of macroevolutionary patterns in squamate viviparity

Laura Alencar, Saúl Domínguez-Guerrero, Gustavo Burin, Josef Uyeda, Martha Muñoz
Yale University, Durham University

8:15 am

Anamniocentesis: development of a method to genotype oviparous embryos from perivitelline fluid

Jennifer Wyffels, Kady Lyons, Lance Adams, Kevin Feldheim
Ripley's Aquariums, Georgia Aquarium, Aquarium of the Pacific, Field Museum

8:30 am

Algorithmic construction of topologically complex biomineral lattices via cellular syncytia

Pranav Vyas, Charlotte Brannon, Laurent Formery, Chris Lowe, Manu Prakash
Stanford University, Hopkins Marine Station

8:45 am

Developmental exposure to PAHs causes transcriptional and metabolic shifts in an avian model

Yulianis Pagan, Christopher Goodchild
University of Central Oklahoma

9:00 am

The tale of degenerate ascidian tails

Billie Swalla, Sydney Popsuj, Lenny Negrón-Piñeiro, Anna Di-Gregorio, Alberto Stolfi
University of Washington, Georgia Institute of Technology, New York University

8:00 AM – 10:00 AM

Conducting research in the Global South

Marquis D

Chair: Jasmin Graham

8:00 am

Abundance of elasmobranchs observed on two separate days at two selected sites in Sri Lanka

Buddhi Pathirana, Sahan Thilakarathna
Ocean Rosy

8:30 am

Swollen-thorn acacias invested more in their defending ants during El Niño 2023

Cristian Molina, Yorlenis González, Maikol Guevara, Jonah Naugle, Emmy Zeilstra, Sabrina Amador-Vargas
Smithsonian Tropical Research Institute

8:45 am

Reasoning and methodology to use zooplankton as a water resource management tool

Joseph Covi
University of North Carolina at Wilmington

9:00 am

An ICONIC Ocean of opportunities: the overlooked cartilaginous fishes biodiversity in Brazil

Ingrid Hyrycena, Patricia Charvet, Victoria Lebedeff, João Pedro Sader-Teixeira, Paulo Santos-dos-Santos
Projeto Tubarão, Universidade Federal do Ceará, Universidade Estadual de Santa Catarina

9:15 am

Marine and terrestrial sediment on algal turf limits herbivory pressure and species richness

Zuri Murph, Amarie Strong, TaVon Palmer
Hampton University, University of California, Los Angeles, MISS

9:30 am

The Sunda node: hints of non-torpid heterothermy in Bornean squirrels

Eric Brown, Claudia Saldaña-DeCamillis, Mohd-Azlan Jayasilan, Danielle Levesque
University of Maine, Universiti Malaysia Sarawak

9:45 am

Microbiome shifts under disease stress in *Acropora cervicornis* revealed by 16S rRNA sequencing

Chloe Manley, Lauren Speare
Georgia Institute of Technology

8:00 AM – 10:00 AM

Division of Phylogenetics and Comparative Biology Best Student Presentation David and Marvalee Wake Award

A601

Chair: Ryan Felice

8:00 am

Evolutionary lability of a key innovation spurs rapid diversification in fishes

Nicholas Peoples, Michael Burns, Michalis Mihalitsis, Peter Wainwright
University of California, Davis

8:15 am

Hidden dimensions of diversity in woodland salamanders

Nathalie Alomar, Henry Camarillo, Edward Burrell, Isabella Burger, Meaghan Gade, Julia Barbosa, Saúl Domínguez-Guerrero, Eric Riddell, Martha Muñoz
Yale University, University of Alabama, University of North Carolina Chapel Hill

8:30 am

The molecular underpinnings of phenotypic convergence in toucans and hornbills

Jon Merwin, Lukas Musher, Anthony Geneva, Jason Weckstein
Drexel University

8:45 am

Tempo and mode of trait evolution in the adaptive radiation of Malagasy vangas

Anya Auerbach, Euan Lim, Sushma Reddy
University of Minnesota

9:00 am

Male polymorphism in harvestmen (Arachnida, Opiliones): an integrative approach

Pietro Tardelli-Canedo, Shahan Derkarabetian, Tom Nguyen, Hannah Wood, Gonzalo Giribet, Gustavo Hormiga
The George Washington University, Harvard University, Smithsonian Institution

9:15 am

Mitochondrial resilience: Unveiling the secrets of longevity

Jess Sterling, Justin Havird, Kendra Zwonitzer
University of Texas at Austin

9:30 am

A total evidence approach to dating the cetacean phylogenetic tree using quantitative characters

Joe Minus, Anjali Goswami, Sandra Alvarez-Carretero, Ellen Coombs, Morgan Churchill, Mario dos-Reis-Barros
Queen Mary University of London, Natural History Museum, London, Smithsonian National Museum of Natural History

9:45 am

C-PHAST: Community phylogenetic analysis at speedy time

Maya Chari, Michael Alfaro, Jonathan Chang
UCLA

8:00 AM – 10:00 AM

Electroreception and magnetoreception

International Salon 9

Chair: Hazel Havens

8:00 am

What shape is magnetic information?

Hazel Havens
UNC Chapel Hill

8:15 am

Conditioning sea turtles to learn magnetic directions

Will Hammond, Dana Lim, Kenneth Lohmann, Catherine Lohmann
University of North Carolina at Chapel Hill

8:30 am

Behavioral and neural correlates of magnetic sensing in poison frogs

Alayna Mackiewicz, Abigail Trocinski, Kenneth Lohmann, Sabrina Burmeister
University of North Carolina at Chapel Hill

8:45 am

Sea turtle navigation in a moving geomagnetic field: link between maternal age and offspring response

Jadyn Sethna, Isabelle Sechrest, Stella Sherrill, Catherine Lohmann, Kenneth Lohmann
University of North Carolina at Chapel Hill

9:00 am

Illumination mediates a switch in both active sensing and control in weakly electric fish

Yu Yang, Huanying Yeh, Debojyoti Biswas, Noah Cowan
Johns Hopkins University

9:15 am

The development of electrical organs and their discharges throughout ontogeny in *L. erinacea*

Emily Brady, Sonke Johnsen
Duke University

9:30 am

Turtle tears? Understanding the magneto-microbiome of the sea turtle lacrimal gland

Julianna Martin, Robert Fitak
University of Central Florida

9:45 am

Investigating the leptinergic regulation of weakly electric fish communication signals

Mehrnoush Nourbakhsh-Rey, Michael Markham
University of Oklahoma

8:00 AM – 10:00 AM

Epigenetics

International Salon 5

Chair: Maren Vitousek

8:00 am

Screening H3 histone acetylation in a wild bird, the house sparrow (*Passer domesticus*)

Daniella Ray, Lynn Martin, Aaron Schrey, Elizabeth Sheldon, Cédric Zimmer
Georgia Southern University, University of South Florida, Cornell University

8:15 am

Does epigenetic aging underlie trade-offs between development and aging?

Abby Bickle-McKittrick, Ethan Shealy, Marilyn Mason, Benjamin Parrott
University of Georgia

8:30 am

DNA methylation and epigenetic potential regulate phenotype in House Sparrow

Aaron Schrey, Melanie Gibson, Megan Ellesse Lauer, J. Dylan Maddox, Kailey McCain, Daniella Ray, Elizabeth Sheldon, Cédric Zimmer, Lynn Martin, Jim Briskie, Kate Buchanan, Roi Dor, Henrik Jensen, Blanca Jimeno, Kevin Kohl, Gabriela Mansilla, Kim Mathot, Ho Thu Phuong, Mark Ravinet, Melissa Rowe, Jorgen Soraker, Massamba Thiam, Thinh Vu
Georgia Southern University, Pritzker Laboratory for Molecular Systematics and Evolution, Field Museum of Natural History, University of South Florida, Cornell University

8:45 am

Characterizing gene expression and methylation shifts in cold stressed *Bombus vosnesenskii*

Kelton Verble
The University of Alabama

9:00 am

Epigenetics to the rescue? A case study of genetic rescue in Florida panthers

Robert Fitak
University of Central Florida

9:15 am

Temporal changes in DNA methylation over 115 years in introduced house sparrows

Megan Ellesse Lauer, J. Dylan Maddox, Mark Ravinet, Kevin Kohl, Lynn Martin, Aaron Schrey
Georgia Southern University, Pritzker Laboratory for Molecular Systematics and Evolution, Field Museum of Natural History, Centre for Ecological and Evolutionary Synthesis, University of Oslo, University of Pittsburgh, University of South Florida

9:30 am

DNA Methylation Variation Between Native and Introduced Populations of a Model Cnidarian

Auston Rutlekowski, Adam Reitzel
University of North Carolina Charlotte

9:45 am

DNA methylation as a mechanism of environmentally-induced phenotypic flexibility in free-living bird

Maren Vitousek, Conor Taff, Sabrina McNew, Leonardo Campagna
Cornell University

8:00 AM – 10:00 AM

Evo-devo
International Salon 7
Chair: Natalia Shylo

8:00 am

Next Generation Developmental Evolution: A mechanistic model for tissue origination

Mihaela Pavlicev, James DiFrisco, Alan Love, Gunter Wagner
University of Vienna, University of Minnesota, Twin Cities

8:15 am

Genomic tools in veiled chameleon (*Chamaeleo calyptrotus*) for the study of left-right patterning

Natalia Shylo, Zoe Griffin, Andrew Price, Sofia Robb, Paul Trainor
Stowers Institute for Medical Research, University of Texas MD Anderson Cancer Center

8:30 am

A developmental approach to studying the variability and constraints of color pattern diversity

Hannah Weller, Merlijn Staps, Claudius Kratochwil
University of Helsinki, Princeton University

8:45 am

Developmental shift in chondrocranial morphogenesis underpins the origin of the avian beak

Matteo Fabbri
Center of Functional Anatomy & Evolution, Johns Hopkins University School of Medicine

9:15 am

Cis-regulatory dimensions of inter- and intraspecific variation in beetle horn development

Phillip Davidson, Armin Moczek
Indiana University

9:30 am

Ordovician Vertebrates and the Origin of Bone Remodeling

Yara Haridy, Neil Shubin
University of Chicago

9:45 am

The integration of sensory organs and skeletal formation: neuromasts and bones of the facial complex

Joshua B Gross, Brooke Blackburn, Amanda Powers, Alyssa Hamm
University of Cincinnati

8:00 AM – 10:00 AM

Feeding hydrodynamics
International Salon 10
Chair: Elska Kaczmarek

8:00 am

Evaluating the role of the tongue in the coordination of sucking and breathing in infant feeding

Elska Kaczmarek, Shanique Yazzie, Dylan Anderson, Maressa Kennedy, Ani Smith, Hannah Shideler, Skyler Wallace, Thomas Stroud, Holly Sabato, Harlow Smith, Emily Volpe, Christopher Mayerl
Northern Arizona University

8:15 am

Measuring heritability and genetic complexity of suction feeding performance in cichlid fishes

David Matthews, Craig Albertson
University of Massachusetts, Amherst

8:30 am

The effects of flow on prey capture in largemouth bass (*Micropterus salmoides*)

Erik Axlid, Tim Higham
University of California, Riverside

8:45 am

Functional models from limited data: parametric anatomy and 3D kinematics of basking shark feeding

Aurora(Tairan) Li, Mike Schindler, Martha Paskin, Venkata Surapaneni, Elliott Scott, Sabine Hauert, Nick Payne, Dave Cade, Jeremy Goldbogen, Frederik Mollen, Daniel Baum, Sean Hanna, Mason Dean
University College London, City University of Hong Kong, Zuse Institute Berlin, Bristol Robotics Laboratory, University of Bristol, Trinity College, Stanford University, Hopkins Marine Station, Stanford University, Elasmobranch Research

9:00 am

Adaptations for extreme ventilatory mechanics in whale lung airway morphology and flow patterns

Robert Cieri, Robert Shadwick, Marina Piscitelli-Doshkov, Merryn Tawhai
University of British Columbia

9:15 am

Understanding fluid-structure interactions in devil ray filter-feeding

James Strother, EW Misty Paig-Tran, Leandra Hamann
University of Florida, California State University, Fullerton

9:30 am

Fluid dynamics and feeding performance in infant mammals: evaluating the impact of nipple design
Ani Smith, Maressa Kennedy, Thomas Stroud, Emily Volpe, Dylan Anderson, Harlow Smith, Skyler Wallace, Hannah Shideler, Shanique Yazzie, Holly Sabato, Elska Kaczmarek, Christopher Mayerl
Northern Arizona University

9:45 am

Hydrodynamics of prey capture in the lobate ctenophore *Mnemiopsis leidyi*
Mitchell Ford, Sean Colin, John Costello
Providence College, Roger Williams University

8:00 AM – 10:00 AM

Material properties
International Salon 6
Chair: Philip Anderson

8:00 am

Structural control of antennal flexing by hawkmoths

Adam Puchalski, Kostya Kornev
Clemson University

8:15 am

Out of the dirt: fabrication of cicada-inspired nanostructured engineered surfaces

Yutao Chen, Marianne Alleyne
University of Illinois at Urbana-Champaign

8:30 am

Playing nano-soccer: understanding the mechanics of leafhopper brochosomes

Elizabeth Bello, Marianne Alleyne
University of Illinois at Urbana-Champaign

8:45 am

Nano-mechanical properties and application of intertidal and subtidal sea urchin glue

Zachary Baker, Scott Dietrich, Keegan Lutek, Carla Narvaez-Diaz, Austin Garner, Alyssa Stark
Villanova University, Rhode Island College, Syracuse University

9:00 am

How easy is it to shoot fish in a barrel?: Puncture mechanics of unrestrained, multi-layered targets

Bishal Baskota, Bingyang Zhang, Philip Anderson
University of Illinois Urbana-Champaign

9:15 am

Comparing data collection methods for testing web glue adhesion of *Argiope* spp. [Araneae: Araneidae]

Sal DeAndrea, Sarah Stellwagen
UNC Charlotte

9:30 am

Natural history and glue properties of the glow worm *Orfelia fultoni* [Diptera: Keroplatidae]

Hannah Faye, Sarah Stellwagen
The University of North Carolina at Charlotte

9:45 am

Mucus properties and pulse behavior function to optimize food capture in upside-down jellyfish

Aki Ohdera, Laura Miller
University of Arizona

8:00 AM – 10:00 AM

Navigating environments

A704

Chair: *Calvin Riiska*

8:00 am

A longitudinal behavioral analysis of aquarium whale sharks (*Rhincodon typus*)

Connor Gallimore, Celeste Walton, Richard Nugent, Maury Fradkin, Laurie Poppell, Christopher Schreiber, Christopher Coco, Mathew Grober, Bruce Carlson, Alistair Dove, Michael Black
Georgia State University, Georgia Aquarium

8:15 am

Distributed sensing and its robustness in a bioinspired model of a navigating leech

Jeffrey Gill, Cindy Harley, Brian Taylor
Case Western Reserve University,
Metropolitan State University

8:30 am

A potential energy landscape-based, bio-inspired control algorithm to traverse cluttered obstacles

Yaqing Wang, Xiyuan Wang, Chen Li
Johns Hopkins University

8:45 am

Avoidance of moving obstacles in Harris's Hawks

Henry Cerbone, Graham Taylor
University of Oxford

9:00 am

Orientation of blacktip sharks (*Carcharhinus limbatus*) to underwater sound

Caroline Sullivan, Edmund Gerstein, Stephen Kajiura
Florida Atlantic University

9:15 am

Arboreal navigation: corn snakes produce stable vertical motion through geometric matching

Calvin Riiska, Michelle Lee, Joseph Mendelson, Jennifer Rieser
Emory University, Zoo Atlanta/Georgia Tech

9:30 am

Exploring variations in bobcat (*Lynx rufus*) locomotion across varied environmental conditions

Katrina Moore, Megan Steen, Primrose Thavornthon, Brinda Garikapati, Monica Daley
University of California, Irvine

9:45 am

Insights into the burying behavior of the Antarctic sea spider *Nymphon australe*

Andrew Mahon, Chandler Olson, Jessica Zehnpfennig, Rebecca Varney, Kenneth Halanych
Central Michigan University, University of Alabama, Smithsonian Marine Station, University of California, Santa Barbara, UNCW

8:00 AM – 10:00 AM

Neural control of flight

International Salon 2-3

Chair: *Huai-Ti Lin*

8:00 am

“Tombo Dry: How dragonflies perform a multi-revolution aerial somersault to shake off water

Huai-Ti Lin, Samuel Fabian, Alexandra Yarger, Rui Zhou
Imperial College London

8:15 am

Role of indirect wing steering muscles during free flight in *Drosophila*

Debojyoti Biswas, Han Kheng Teoh, Abby Leung, Brianna Ludlow, Samuel Whitehead, Erica Ehrhardt, Michael Dickinson, Itai Cohen, Noah Cowan
Johns Hopkins University, Cornell University, California Institute of Technology, Institute of Zoology, University of Cologne

8:30 am

Phantom Crane Flies spread their long legs to glide in the sky without a single wing beat

Victor Ortega-Jimenez, Sarahi Arriaga-Ramirez
University of California, Berkeley

8:45 am

Adaptive flight control to increased body mass in foraging hawkmoths

Benjamin Doshna, G. Steven Chandler, Usama Sikandar, Simon Sponberg
Georgia Institute of Technology

9:00 am

Forktail damselfly navigation strategies

Elena Barredo, Veronica Muzio-Crego, Jamie Theobald
Florida International University

9:15 am

Functional organization of two neck muscles driving head movements in flying *Drosophila*

Payel Chatterjee, Serene Dhawan, Bradley Dickerson
Princeton University

9:30 am

Using haltere steering muscles to drive head and wing movements in flying flies.

Kristianna Lea, Bradley Dickerson, Jessica Fox
Case Western Reserve University, Princeton University

9:45 am

Three direct steering muscles fine-tune robust roll control in freely-flying *drosophila*

Brianna Ludlow, Samuel Whitehead, Han Kheng Teoh, Itai Cohen
Cornell University, California Institute of Technology

8:00 AM – 10:00 AM

Neurobiology in mating and reproduction

A706

Chair: *Michael Reichert*

8:00 am

Progesterin receptor regulates fertility and spawning in female cichlid *Astatotilapia burtoni*

Karen Gu, Scott Juntti
University of Maryland

8:15 am

Relationship between metabolic rate and calling behavior in the gray treefrog, *Hyla chrysoscelis*
Phoebe Will, Michael Reichert
Oklahoma State University

8:30 am

Kisses, cuddles, and near misses: mating behaviors in a nudibranch sea slug
Cheyenne Tait, Kristina Nedeljkovic, Meagan Olson, Paul Katz
Marshall University, University of Massachusetts Amherst

8:45 am

Developing dominance: neural mechanisms across life history stages in a highly social cichlid fish
Tessa Solomon-Lane, Isaac Miller-Crews, Jessica Maurice, Isabela Harmon, Margaret Mattson, Cristi Cruz, Findley Finseth
Scripps College, Pitzer College, Indiana University

9:00 am

The neural basis of parent-offspring communication in poison frogs
Billie Goolsby, Tony Chen, Ashlyn Callan, Loranzie Rogers, EmJ Rennich, Mark Cutkosky, Lauren O'Connell
Stanford University, Georgia Tech, Harvard University

9:15 am

Neural and molecular regulation of social subordination by androgen receptors in an african cichlid
Kathleen Munley, Sakuni Rankothgedera, Shiyanth Thevasagayampillai, Amy Hoang, Preethi Gunaratne, Beau Alward
University of California Los Angeles, University of Houston

9:30 AM – 12:00 PM

**The better to eat you with
A707**

Chair: David Kay

10:00 am

Toothy Teleosts: The relationship between tooth complexity and function in fishes
Keiffer Williams, Lanier Nelson, Joshua Reid, Phong Tran, Kory Evans, Samantha Price
Clemson University, Rice University

10:15 am

Ballistic testing of extraoral teeth in scale-feeding fishes
Kelsie McCorkle, Cassandra Donatelli, Jonathan Huie, Olivia Hawkins, Matthew Kolmann
Western Kentucky University, University of Washington Tacoma, The George Washington University, Tufts University, University of Louisville

10:30 am

May the bite force be with you: a force-based classification of biting mechanisms in fish
Tal Perevolotsky, Roi Holzman
Tel Aviv University, The Interuniversity Institute for Marine Sciences in Eilat

10:45 am

Modeling the relationship between gape and bite force in primates
Jose Iriarte-Diaz, Stephanie Canington, Janine Chalk-Wilayto, Jose de-Oliveira, Igor de-Souza, Carla Escabi-Ruiz, Megan Holmes, Cláudia Kanno, Michael Platt, Claire Terhune, Myra Laird
The University of the South, University of Pennsylvania, Mercer University, Universidade Estadual Paulista (UNESP), Araçatuba Dental School, University of Sao Paulo - Riberão Preto, Duke University, University of Arkansas

11:00 am

Leaf-cutter ants vary cutting technique to deal with variable mechanical constraints
David Labonte, Mia Yap, Victor Kang, Frederik Puffel
Imperial College London

11:15 am

Wear resistance of insect mandibles
Deegala Deegala, David Labonte
Imperial College London

11:30 am

Ballistic rapturing by tongues in salamanders and chameleons
Yu Zeng, Christopher Anderson, Stephen Deban
University of South Florida, University of South Dakota

11:45 am

Mechanisms of a novel feeding strategy in chameleons
Nikole Schneider, Christopher Anderson
University of South Dakota

9:30 am

Dental alveoli as possible drivers of crown shape across ontogeny in Alligator and Crocodylus
David Kay, Haley O'Brien, Paul Gignac
College of Charleston, University of Arizona, Tucson

9:45 am

These teeth aren't made for biting: morphology of the tenacular teeth across depth profiles and taxa
Kaitlyn Kern, EW Misty Paig-Tran
California State University, Fullerton

10:00 AM – 12:00 PM

**Biology education in practice
International Salon 8**

Chair: Cindy Harley

10:00 am

Biologically Inspired Design: Methods and Practice
Jeannette Yen
Center for Biologically Inspired Design at Georgia Tech

10:15 am

Teaching curiosity: lessons from the in-situ Jungle Biomechanics Lab
Jacob Harrison, Justina Jackson, Geoffrey Gallice, Johana Reyes, Jaime Nina, Saad Bhamla
Georgia Institute of Technology, Pontifical Catholic University of Peru, Alliance for a Sustainable Amazon, Nature Travel Photography

10:30 am

FathomVerse: gaming for ocean exploration
Kakani Katija, Lilli Carlsen, Emily Clark, Giovanna Sainz, Joost Daniels, Kevin Barnard, Ellemieke Berings, Meggy Pepelanova, Gaf van-Baalen
MBARI, &ranj

10:45 am

Homeostasis: the game-- a card game for teaching about the endocrine system
Cindy Harley, Elizabeth Leininger
Metropolitan State University, St Mary's College Maryland

11:00 am

Biodiversity-centered teaching: insights on how to teach a more accurate and socially just biology

Aramati Casper, Yoon Ha Choi, Antonio Duran, Sarah Eddy, Linda Fuselier, Zuleyma Tang-Martinez, Karen Warkentin
Colorado State University, University of Minnesota

11:15 am

Biology instructor efforts to teach sex and gender topics inclusively and accurately

Emily Driessen, Keenan Walker, Tess Hallman, Aramati Casper, Sarah Eddy, Joel Schneider, Kelly Lane
University of Minnesota, Colorado State University

11:30 am

Turning the frickin' frogs gay: the intersection of herpetology and queer internet culture

Kannon Pearson
University of California Berkeley

11:45 am

Biology but make it gay: A case study teaching a first-year seminar on queer and feminist biology

Kate Otter, Denise Pope
University of Massachusetts Amherst

10:00 AM – 12:00 PM

Division of Animal Behavior Best Student Presentation A706

*Chairs: Stephanie Campos,
Avery Russell*

10:00 am

Complex environments drive adaptive hunting strategies in mice

Aidan Schneider, Jacob Amme, Keith Hengen
Washington University in St. Louis

10:15 am

Linking ovarian development and mating strategies in jumping spiders

Lin Yan, Damian Elias
University of California, Berkeley

10:30 am

Sexual conflict, social networks, and the fitness consequences of female multiple mating

Janice Yan, Reuven Dukas
McMaster University

10:45 am

Uncoupling of mass loss, energy intake, and energy expenditure in a small passerine

Brett Hodinka, Lewis Halsey, Tony Williams
Simon Fraser University, University of Roehampton

11:00 am

Ant triage: Target prioritization and division of labor in fire ant rescue behavior

Paige Caine, Daniel Soto, Daniel Goldman, Michael Goodisman
Georgia Institute of Technology

11:15 am

Evolution of an animal signal in relation to group size

Hannah Reeb, Matthew Toomey, Charles Brown
University of Tulsa

11:30 am

Feeling the heat: thermal plasticity changes competitive ability across a salamander hybrid zone

Emmy James, Martha Muñoz
University of Tennessee, Yale University

11:45 am

Hot parents in your area: Abiotic and social environment influence parental behavior

Rikki Laser, Laura Lee, Alexander Ophir
Cornell University

10:15 AM – 12:00 PM

Big picture questions in organismal biology International Salon 2-3

Chair: John Yin

10:15 am

The effects of parasite risk on host physiology

Patricia Lopes, Bennett Hardy, Arly Adame, Amir Adams, Madeleine Chang, Sean McCallum, Luana Oliveira, Morgan Rea, Sophia Santangelo
Chapman University

11:00 am

Testing the species hypothesis of *Fundulus escambiae*

Adania Flemming
University of Florida

11:15 am

Improving Population Counts Using Neural Networks

Ian Bentley, Marwan Gebran
Florida Polytechnic University, Saint Mary's College

11:30 am

Time-integrated phylogenetic and physiological signatures reveal the history of Life

Jasmina Wiemann
Johns Hopkins University

10:15 AM – 12:00 PM

Development, regeneration, and metamorphosis International Salon 4

Chair: Alicia Boyd

10:15 am

Isolating stem cells via fluorescence activated cell sorting in the hydrozoan *Hydractinia*

Zachary Lane, Christine Schnitzler
University of Florida

10:30 am

Regrowing the growth zone: metamorphosis kickstarts regeneration in the annelid *Capitella teleta*

Alicia Boyd, Elaine Seaver
University of Florida

10:45 am

From Wounded to Regeneration – Mechanisms of Whole-Body Regeneration in Sea Stars

Veronica Hinman, Jon Lee Andrade
University of Florida, Carnegie Mellon University

11:00 am

Conserved anterior-posterior bilaterian features of the adult gut in a marine annelid

Stephan Schneider, Wahyu Cristine Pinem, Grace Sonia
Academia Sinica

11:15 am

Apple snails: looking at regeneration with a new pair of eyes

Alice Accorsi, Brenda Pardo, Eric Ross, Timothy Corbin, Melaina McClain, Mol Mir, Kyle Weaver, Stephanie Nowotarski, Sean McKinney, Alejandro Sánchez-Alvarado
University of California, Davis, Stowers Institute for Medical Research

11:30 am

Deducing the Evolution of Allrecognition and Primordial Immunity in Cnidarians

*Alberto Rivera, Andy Baxevanis
National Human Genome Research Institute
NIH*

11:45 am

Larvae in the dark: Meroplankton diversity and ecology during the Polar Night

*Kharis Schrage, Kirstin Meyer-Kaiser
Woods Hole Oceanographic Institution*

10:15 AM – 12:00 PM

Division of Ecoimmunology and Disease Ecology Best Student Presentations

A704

Chair: Lauren Fuess

10:15 am

Predicting disease outcomes in spatially and temporally dynamic host communities

*Nadia Raytselis, David Civitello, Alexander Strauss, Maya Risin, Jane Miller, Layla Steinbock, Ta'Nyia Heard, Christopher Bradon, Stephanie Gutierrez, Isaac Wood, Andrew Sieben, Jakob Scholeno, Kevin Xie
Emory Univeristy, University of Georgia*

10:30 am

Are they ready? Immune priming against emerging infectious diseases in bumble bees

*Austin Calhoun, Brenna Long, Benjamin Sadd
Illinois State University*

10:45 am

Parasite removal alters heat tolerance in a tropical lizard

*Leah Bakewell, Carrie Alfonso, Karla Alujevic, Samantha Fontaine, Jaden Keller, Yanileth Lopez, Nathaly Ponce, Alejandro Vivas, Claire Williams, Kelly Wuthrich, W. Owen McMillan, Michael Logan, Christian Cox
Florida International University, Smithsonian Tropical Research Institute, University of Nevada Reno, Kent State University*

11:00 am

Longitudinal impacts of habitat fragmentation on Bartonella and hemoplasma dynamics in vampire bats

*Lauren Lock, Kristin Dyer, Anni Yang, Dmitriy Volokhov, Brock Fenton, Nancy Simmons, Daniel Becker
University of Oklahoma, U.S. Food & Drug Administration, Western University, American Museum of Natural History*

11:15 am

Does incubation temperature influence host defenses in different eastern bluebird populations?

*Sila Inanoglu, Joyce Anastasia, Hannah Brewer, Olivia Hansing, Sandra Knutie, Carissa Leung, Jenna McKay, Bridget Sleath, Sarah Knutie
University of Connecticut*

11:30 am

Do Darwin's finch mothers mediate the effects of urbanization on nest parasite pressure?

*Lorraine Perez, Jailene Contreras, Katia Goldberg, Gabriela Mena, Alexandria Soldo, Adriana Ugarte, Jaime Chaves, Sarah Knutie
University of Connecticut, San Francisco State University*

11:45 am

Viral epidemic potential is not uniformly distributed across the bat phylogeny

*Caroline Cummings, Amanda Vicente-Santos, Daniel Becker, Colin Carlson
University of Oklahoma, Yale*

10:15 AM – 12:00 PM

Insights from integrative biology in arthropods

A601

Chair: Emily Lancaster

10:15 am

Proteomic analysis of the decapod molting gland (Y-organ) in response to PKG inhibition

*Talia Head, Lars Tomanek, Donald Mykles
Colorado State University, California Polytechnic State University*

10:30 am

Multi-individual tracking to investigate behavioral sexual conflict in Opiliones (Arachnida)

*Tyler Brown, Emily Marinko, Sophia Nawaz, Megan Ramirez-Cuenca, Mercedes Burns
UNC Charlotte, University of Nevada Las Vegas, University of Maryland Baltimore County*

10:45 am

Spiders of the spiny forest: the Dictynidae s.l. spider diversity of Madagascar (Araneae)

*Amin al-Jamal, Lauren Esposito
California Academy of Sciences*

11:00 am

The paraphyly of Pisauridae and restoration of the family Dolomedidae (Arachnida: Araneae)

*Sarah Morris, Nicolas Hazzi, Gustavo Hormiga
The George Washington University, National Museum of Natural History*

11:15 am

Adult nutrition does not influence spine injury resistance in a sexually selected weapon

*Christina Salerno, Elizabeth Greenway, Walter Federle, Christine Miller
University of Florida, University of East Anglia, University of Cambridge*

11:30 am

Desiccation tolerance among bee species in the Aegean Archipelago

*Anna Dreusicke, Avery Roe, Victor Gonzalez, John Hranitz, John Barthell, Theodora Petanidou, Thomas Tscheulin
University of Iowa, University of Florida, University of Kansas, University of Pennsylvania, University of Central Oklahoma*

11:45 am

Squishy and crunchy invaders: a comparison of qPCR vs metabarcoding based detection

*Emily Lancaster, Kai Watkins, Markus Frederich
Eckerd College, University of New England*

10:30 AM – 12:00 PM

All about the optics: color and more

International Salon 6

10:30 am

A function-valued approach for the comparative analysis of color evolution

*Nicholas Ruffolo, Michael Alfaro, Marc Suchard
University of California, Los Angeles*

10:45 am

Leveraging mass citizen science data for insect color macroecology: a foundational AI approach
Jacob Idec, Robert Guralnick
Florida Museum of Natural History, University of Florida

11:15 am

Trade-off between structural coloration and patterned plumage in estrildid and viduid finches
Katherine Henson, Maria Creighton, Miranda Sinnott-Armstrong, Sonke Johnsen, Steve Nowicki
Duke University

11:45 am

Are studies with big, significant results cited more? Citation bias in ecology and evolution
Justin Havird, Keri Greig, H. Chapman Tripp, Julia York, Zarluis Mijango-Ramos, Jess Sterling, Erik Iverson, Anat Belasen, Joseph Dubie, Tianyi Xu, Bahar Kasgari, Ryan Weaver
University of Texas at Austin

10:30 AM – 12:00 PM

Color and genes

A703

Chair: Jay Falk

10:30 am

The genetics of sex dichromatism: Seeking answers from a female-polymorphic hummingbird
Jay Falk, Megan Rothstein, Georgy Semenov, Scott Taylor
Smithsonian Tropical Research Institute, Princeton University, University of Colorado at Boulder

11:00 am

Assessing the Likelihood of Convergent Evolution of Dichromatic Coloration in Dabbling Ducks
Emily Griffith, Jason Weckstein
Drexel University

11:15 am

Widespread variation in retinochrome spectral absorbance across scallop phylogeny
Kyle McElroy, Anna Ward, Jeanne Serb, Jorge Audino
Iowa State University, University of São Paulo

11:45 am

New genome and vision-related genes of an eyed hydrozoan (Cnidaria)
Aide Macias-Muñoz, Rebecca Varney, Eva Katcher, Maia Everhart, Todd Oakley
University of California, Santa Cruz, University of California, Santa Barbara

10:30 AM – 12:00 PM

Complementary session 1 to S12:
Identifying the physiological mechanisms that underlie phenotypic responses to rapid environmental change

International Salon 5

Chair: Kyle McCulloch

10:30 am

Mechanisms associated with short-term thermal acclimation in European green crab (*C. maenas*)
Yaamini Venkataraman, Sara Shapiro, Sarah Zuidema, Heidi Freitas, Julia Kelso, Catlin Payne, Lauren Stephenson, Carolyn Tepolt
Woods Hole Oceanographic Institution, University of Massachusetts, Boston, Cornell University, St. Augustine's University

10:45 am

Phenotypic plasticity in the circadian rhythm of heat tolerance and its basis in gene expression
Kelly Wuthrich, Carrie Alfonso, Karla Alujevic, Leah Bakewell, Brandon Buitrago, Albert Chung, Samantha Fontaine, Catherine Grey, Elizabeth Hoffman, Jaden Keller, Yanileth Lopez, John Nguyen, Nathaly Ponce, Adam Rosso, Alejandro Vivas, Claire Williams, W. Owen McMillan, Michael Logan, Christian Cox
Smithsonian Tropical Research Institute, University of Nevada, Reno, Florida International University, Princeton University, Kent State University, St. Norbert College, University of Texas at Arlington

11:00 am

Bioenergetics of self-regulation under temperature stressors in developing fish from different therm
Ione Hunt-von-Herbing
University of North Texas

11:15 am

Alternate responses of ectothermic animals to anthropic climate warming
Saul Dominguez-Guerrero, Brooke Bodensteiner, Sarah Friedman, Guillermo Alfonso Woolrich-Pina, D Mahler, Luke Frishkoff, Martha Muñoz
Yale University, NOAA, Tecnológico Nacional de México Campus Zacapoaxtla, University of Texas at Arlington

11:30 am

Diversification of feeding morphologies in the adaptive radiation of Antarctic notothenioid fishes
Elyse Parker, Henry Camarillo, Gabriel Nelson, Alex Dornburg, Thomas Near, Mark Westneat
University of Chicago, Yale University, University of North Carolina at Charlotte

10:30 AM – 12:00 PM

Conducting Research in the Global South
Marquis D

Chair: Jasmin Graham

10:30 am

Preliminary comparative study of the ampullae of Lorenzini in Indian elasmobranch species
Meghana Binraj, Jasmin Graham, Lauren Simonitis
Species and Spaces Foundation, Minorities in Shark Sciences, Florida Atlantic University

11:00 am

Local adaptation of feeding morphology, kinematics and performance in Trinidadian guppies
Terry Dial, Tess Avery, David Matthews
Utah State University, University of Delaware, University of Massachusetts, Amherst

11:15 am

Ecological correlates, genetics, and maintenance of a female-limited polymorphism in slender anoles
John Nguyen, Karla Alujevic, Leah Bakewell, John David Curlis, Catherine Grey, Elizabeth Hoffman, Yanileth Lopez, Kelly Wuthrich, Christian Cox, Michael Logan, Claire Williams, W. Owen McMillan
University of Houston, University of Nevada, Reno, Florida International University, University of Michigan, St. Norbert College, Smithsonian Tropical Research Institute

11:30 am

Assessing the effect of rainfall on the response to the GnRH challenge in a Neotropical songbird

Rene Quispe, Camila Villavicencio, Manfred Gahr
Universidad de Chile, Max Planck Institute for Biological Intelligence

11:45 am

Evolution of migratory drop-offs and flight feather modifications in Tyrant Flycatchers

Valentina Gómez-Bahamón, Juan Gómez, Alex Jahn, Elkin Tenorio, Diego Tuero, Bobby Lauer, Carlos Cadena, Juan Areta
Virginia Tech, Universidad de los Andes, Indiana University, American Museum of Natural History, Universidad de Buenos Aires, Field Museum of Natural History, Instituto de Bio y Geociencias del Noroeste Argentino - CONICET

10:30 AM – 12:00 PM

Flapping from big to small

International Salon 10

Chair: Braden Cote

10:30 am

The effects of flapping on longitudinal stability in flight

Ronan Gissler, Santiago Romo, Kenneth Breuer
Brown University

10:45 am

Proximodistal muscle function and neuromuscular control during steady and nonsteady flight in doves.

Remy Delplanche, Kathryn Greil, Daniel Inman, Bret Tobalske
University of Montana, University of Michigan

11:00 am

μ CT of hawkmoths and silkmooths reveals distinct muscle morphologies for hovering vs. bobbing flight

Joanna Baker, Ethan Wold, Leo Wood, Brett Aiello, Simon Sponberg
Stanford University, Georgia Institute of Technology, Seton Hill University

11:15 am

An experimental investigation of resonance and wing hinge dynamics in flapping wing insects

Cailin Casey, Braden Cote, Chelsea Heveran, Mark Jankauski
Montana State University

11:30 am

The kinematics and flight behaviors of fruit flies and fungus gnats in a vertical wind tunnel

Evan Williams, Ignazio Maria Viola, Laura Ross, Robert Baird, David Murphy
University of South Florida, University of Edinburgh

11:45 am

How do tiny insects fly? Measurements of the flow generated by a freely flying sub-mm scale insect

David Murphy, Evan Williams, John Murray-Bruce
University of South Florida

10:30 AM – 12:00 PM

Scaling new depths

International Salon 9

Chair: Molly Gabler-Smith

10:30 am

The shark denticle multiverse: structure and hydrodynamic diversity

George Lauder, Tess Avery, Jade Collins, Dakota Law, Molly Gabler-Smith
Harvard University, University of Delaware, Smith College, Woods Hole Oceanographic Institution

11:00 am

Against the grain: untangling the tangled denticles of basking sharks

Mike Schindler, Aurora (Tairan) Li, Frederik Mollen, Nick Payne, Shahrouz Amini, Venkata Surapaneni, Ruien Hu, Mason Dean
City University of Hong Kong, University College London, Elasmobranch Research, Trinity College, The Hong Kong Polytechnic University

11:15 am

From fossil to function: using extant shark denticle morphology to predict fossil denticle function

Molly Gabler-Smith, Elizabeth Sibert, George Lauder
Woods Hole Oceanographic Institution, Harvard University

11:30 am

Insights into the morphological diversity of fish scales using reef fishes

Dylan Wainwright, David Collar
Purdue University, Christopher Newport University

11:45 am

Scales of evolutionary integration in air-breathing fishes

Matthew Kolmann, Abigail Radunz, Matt Friedman
University of Louisville, University of Michigan

10:30 AM – 12:00 PM

Skulls and Brains

International Salon 7

Chair: Zachary Stephen Morris

10:30 am

How foxes dive into snow

Sunghwan Jung, Jisoo Yuk, Anupam Pandey, Leena Park, Willy Bemis
Cornell University

10:45 am

Using complexity metrics to quantify morphological variation in mammalian skull sutures

Marco Camaiti, Yichen He, Marius Didziokas, Heather White, Alana Sharp, Enrico Grisan, Anjali Goswami
Natural History Museum, London, University College London, University of Liverpool, London South Bank University

11:00 am

A phylogenetic investigation into the material properties of the skull of cetaceans and artiodactyls

Danielle Adams, Brad Boyce, Kevin Garber, Benjamin Klitsner, Daniel Hooks, Lisa Cooper, Joy Reidenberg, Samantha Price, Richard Blob
Clemson University, CINT, Sandia National Laboratories, Los Alamos National Laboratory, Northeast Ohio Medical University (NEOMED), Icahn School of Medicine at Mount Sinai

Saturday Program Afternoon Sessions

1:30 PM – 3:30 PM

Aquatic ecology and behavior International Salon 4

Chair: Kathryn Nagel

1:30 pm

Using eDNA to assess phytoplankton communities and the presence of harmful algal species.

Max Taylor, Nicolaus Adams, Stephanie Moore

NOAA, University of Florida

1:45 pm

The effects the mode of delivery of microcystin-LR has on rusty crayfish behavior and morphology

Jacqueline Kossey, Paul Moore
Bowling Green State University

2:00 pm

Boldness and congener presence impact on the behavior of *Faxonius rusticus* and *Faxonius virilis*

Nicoleena Storer, Paul Moore
Bowling Green State University

2:15 pm

Comparing traditional and genetic methods for diet characterization in dispersal-stage green turtles

Chris Sarkis, Brandon Hoenig, Erin Seney, Kate Mansfield, Anna Forsman
University of Central Florida, University of Pittsburgh, Colby College

2:30 pm

Non-consumptive effects of spiny lobsters on corallivores and implications for corals

Cheyne Springbett
Florida Wildlife Research Institute

2:45 pm

Temporally dynamic landscapes of fear and safety alter prey shelter use

Madison Wagner, Paul Moore
Bowling Green State University

3:00 pm

Who are you calling a shrimp? Evaluating behavioral strategies in invasive stomatopods

Sophia Hanscom, Jackie Benson, Megan Porter
University of Hawai'i at Mānoa

3:15 pm

Yellows & purples of Yellow Island: characterizing the *Hemigrapsus* spp. on Yellow Island

Benjamin Brown, Christine Mantegna, Camille Gaynus, Tiara Moore

University of Louisiana at Lafayette, University of Washington, Black In Marine Science

1:30 PM – 3:00 PM

Case these joints International Salon 5

Chairs: Armita Manafzadeh, Juri Miyamae

1:45 pm

Salient features: tail anatomy in the bipedal jumping jerboa compared to quadrupedal rodents

Juri Miyamae, Talia Moore
University of Michigan

2:00 pm

Defining relative joint stiffness in multi-articular muscle-tendon driven systems

Margaret Zhang, Talia Moore
University of Michigan

2:15 pm

Jumping mechanics of desert kangaroo rats (*Dipodomys deserti*): The role of the tarsometatarsal joint

Christian Brown, Jordan Cannon, Marie Schwaner, Craig McGowan, David Lin
Washington State University, University of Southern California, Katholieke Universiteit Leuven

2:30 pm

Sensory feedback in a single joint: implications for agility and internal regulation

Thendral Govindaraj, Gregory Sawicki, T. Richard Nichols
Georgia Institute of Technology

2:45 pm

Joint mobility as a bridge between form and function, or, the power of ex vivo XROMM

Armita Manafzadeh
Yale University

1:30 PM – 3:30 PM

Conducting Research in the Global South

Marquis D

Chair: Jasmin Graham

1:30 pm

Mosaic coloration of blue shark skin: nano-architecture features and interplay of its components

Viktorii Kamska, Clementine Ferrari, Chiara Micheletti, Venkata Surapaneni, Luca Bertinetti, Mason Dean

City University of Hong Kong, Max Planck Institute of Colloids and Interfaces, B CUBE - Center for Molecular Bioengineering

1:45 pm

Preliminary insights into *Galeocerdo cuvier* and *Brevitrygon* species from Sri Lanka (ICONIC Oceans)

Buddhi Pathirana, Sahan Thilakarathna, Jasmin Graham

Ocean Rosy, Minorities in Shark Sciences

2:00 pm

Shark's fin-ger print: Fine scale 3D characterization of shark fins for biomimetics & conservation

Kanmani Chandra-Rajan, Ruien Hu, Viktorii Kamska, Benjamin Flaum, Mike Schindler, Mason Dean

City University of Hong Kong, The Hong Kong Polytechnic University

2:15 pm

Using ultrasonography to evaluate morphological changes in the mammary gland of bottlenose dolphins

Maria Jose Robles-Malagamba, Mason Dean
City University of Hong Kong

2:30 pm

Individual recognition and group dynamics in a miniaturized gecko (*Sphaerodactylus grandisquamis*)

Christian Perez, Brandon Hofmann, Manuel Leal

University of Missouri

3:00 pm

Passive vapor harvesting mechanism of the termite mound

Meron Dibia, Hunter King
Rutgers University

3:15 pm

The morphology of epipubic bones in marsupials is driven by gait, not reproduction

*Gabby Guilhon, Christine Lee, Michael Granatosky
New York Institute of Technology*

1:30 PM – 3:45 PM

Cool 3D methods

A706

Chair: Asja Radja

1:30 pm

Using fishes to illustrate why we need to talk more about replicability in evolutionary morphology

*Samantha Price
Clemson University*

1:45 pm

Analyzing soft coral tissues using network analysis

*Asja Radja
Bryn Mawr College*

2:00 pm

A fine-grained segmentation tool for micro-CT images

*Yichen He, Marco Camaiti, James Mulqueeney, Marius Didziokas, Lucy Roberts, Anjali Goswami
Natural History Museum, London, University of Southampton, University College London*

2:15 pm

Measuring complex 3D curvatures: a mathematical approach to human rib shape

*Randi Depp, Rachel Olson
The University of Akron*

2:30 pm

Ground truthing 3D muscle reconstructions: a comparison between myogenerator and segmented muscles

*Evan Alger-Meyer, Baker Cerise, Casey Holliday
University of Missouri*

2:45 pm

Quantifying muscle architecture in embryos using DiceCT and algorithmic fiber tracking

*Julia Molnar, Cassidy Davis, Edwin Dickinson, Akinobu Watanabe
New York Institute of Technology*

3:00 pm

Studying the evolution of body shape and locomotion through the lens of 3D modelling

*Duncan Irschick
University of Massachusetts at Amherst*

3:15 pm

The Euclidean process distance and its applications to the study of ecological communities

*Kenneth Soda
Quinnipiac University*

3:30 pm

Sifting through a haystack - efficiently finding rare behaviors in big datasets

*Shir Bar, Or Hirschorn, Shai Avidan, Roi Holzman
Tel Aviv University*

1:30 PM – 3:30 PM

Coral and clownfish: a match made in the reef

A601

Chair: Nia Symone Walker

1:30 pm

Thermal treatment and specificity affect symbiont colonization and coral development

*Maria Ruggeri, Samuel Bedgood, Jun Cai, Jennifer Qian, Federica Montesanto, Mark McCauley, Saki Harii, Sandra Loesgen, Virginia Weis
Oregon State University, New College of Florida, University of Florida, U.S. Geological Survey, University of the Ryukyus*

2:00 pm

Coral rapid acclimatization is facilitated by microbial and algal communities under climate change

*Maya Powell, Karl Castillo
University of North Carolina at Chapel Hill*

2:30 pm

The young and the resilient: investigating coral thermal resilience in early life stages

*Nia Walker, Lys Isma, Nepsis Garcia, Aliyah True, Taylor Walker, Joyah Watkins
Claremont McKenna College, Rosenstiel School of Marine Atmospheric and Earth Sciences, Rice University*

2:45 pm

Effects of point mutations on protein stability in heat-resistant algae

*Devin Ruppe, Michael Cato, Geoffrey Mitchell
Wofford College*

3:00 pm

How do clownfish make friends with anemones that are enemies?

*Jason Macrander, Alyah Bennett, Katie Statile, Coral Tolman, Wyatt Rudd, Sofia Kuklina, Gabe Langford
Florida Southern College*

3:15 pm

The potential for short-term acclimatization to daily temperature range (DTR) in tropical corals

*Adrian Cheh, Peter Edmunds
California State University, Northridge*

1:30 PM – 3:30 PM

Division of Comparative Endocrinology Best Student Presentation

A707

Chair: Jamie Cornelius

1:30 pm

Corticosterone modulates social behavior across multiple breeding seasons in tree swallows

*Thomas Ryan, Conor Taff, David Chang-van-Oordt, Monique Pipkin, Daniel Ardia, Maren Vitousek
Cornell University, Princeton University, Franklin and Marshall College*

1:45 pm

Diel variation in baseline testosterone levels in a diurnal rodent (*Octodon degus*)

*Yuta Sato, Josephine Low, Carolyn Bauer, Tate Garcia
Swarthmore College*

2:00 pm

High cortisol and preservation of lean mass linked with reproductive success in female Weddell seals

*Caroline Rzuclidlo, Amy Kirkham, Amy Klink, Jay Rotella, Allyson Hindle, Jennifer Burns, Michelle Shero
MIT-WHOI Joint Program, Texas Tech University, Woods Hole Oceanographic Institution*

2:15 pm

Manipulating individual state during migration: carry-over effects of cumulative stress on survival

*Ilona Grentzmann, Gilles Gauthier, Frédéric Angelier, Bêty Joël, Frédéric Letourneux, Pierre Legagneux
Université Laval*

2:30 pm

Paternal deprivation affects offspring care and offspring adult stress-induced corticosterone levels

Angela Riley, Jennifer Grindstaff
Oklahoma State University

2:45 pm

CORT as a physiological biomarker: decoding the environment-CORT-energy paradigm

Beverly Domschot, Thomas Riecke, Jessica Malisch, Thomas Hahn, Creagh Breuner
University of Montana, University of California-Merced, University of California-Davis

3:00 pm

The role individual social experiences play in shaping maternal hormone allocation

Jasmeen Kaur, Ryan Paitz, Golnaz Habibi, Eli Bridge, Alexandra Bentz
University of Oklahoma, Illinois State University

3:15 pm

The endocannabinoid 2-AG mediates seasonal life-history transitions in a wild reptile

Lauren Merlino, Pauline Florence, Lin Lin, Faizy Ahmed, Daniele Piomelli, Deborah Lutterschmidt
University of California, Irvine

1:30 PM – 3:30 PM

**Division of Evolutionary
Developmental Biology best
student presentation**

A704

Chair: Prashant Sharma

1:30 pm

Competition modulates the expression of cryptic genetic variation in spadefoot tadpoles

Christopher Terry, Cris Ledón-Rettig, Dante Nesta, Sydney Jacobsen
Indiana University

1:45 pm

Co-option of conserved developmental BMP pathway in beetle horn origin and diversification

Isabel Manley, Phillip Davidson, Armin Moczek
Indiana University

2:00 pm

Molecular mechanisms underlying the formation of the nerve cord in the annelid *Capitella teleta*

Johnny Davila-Sandoval, Neva Meyer
Clark University

2:15 pm

A hemichordate cell atlas and the evolution of neuron type identity programs

Jenker Hehmeyer, Chris Lowe, Heather Marlow, Daria Harris
University of Chicago, Stanford University

2:30 pm

The evolution of insect metamorphosis: A study on the heterochronic role of the gene, *chinmo*

Hana Nagata, Yui Suzuki
Wellesley College

2:45 pm

The contribution of a conserved secretory toolkit in the development of bioluminescent innovations

Lisa Mesrop, Georg Brenneis, Jakob Krieger, Steffen Harzsch, Todd Oakley
University of California, Santa Barbara, Universität Wien, University of Greifswald

3:00 pm

Thermal stress during pupal development induces changes in iridescence of *Morpho butterflies*

Juliette Rubin, Leo Camino-Cedeno, Yanileth Lopez, W. Owen McMillan
Smithsonian Tropical Research Institute

3:15 pm

Independence and constraint: how functional and genetic integration define a polyphenism

Rose Nicholson, Nicholas Levis, Erik Ragsdale
Indiana University

1:30 PM – 3:30 PM

Evolution and diversification

International Salon 2-3

Chair: Ariel Kahrl

1:30 pm

Chasing the Red Queen and sex-biased parasitism in a vertebrate killifish system

Brooke Fitzwater, Laney Woynaroski, Riley Wood, Eoin O'Hearn, Ryan Earley
University of Alabama

1:45 pm

Position of negative feedback loops within signaling pathways affect fitness

Danial Asgari, Ann Tate
Vanderbilt University

2:00 pm

Using marker-assisted selection to introgress RKN resistance into Virginia-type peanut backgrounds

Erica Jones

2:15 pm

Diverse evolutionary pathways to morphological novelty in coral reef fishes

Darien Satterfield, Bernice Yin, Samantha Hodges-List, Michael Burns, Peter Wainwright
Florida Atlantic University, UC Davis

2:30 pm

Evolution of diverse reproductive strategies and sperm morphology in tropical frogs

Ariel Kahrl
Clinton

2:45 pm

Conserved patterns of modularity in an adaptive radiation of San Salvador island pupfishes

HoWan Chan, Emma Colaco, Kory Evans, Christopher Martin
Rice University, UC Berkeley

3:00 pm

Strong differential gene expression parallels clade divergence and ecological divergence in a Baja C

Austin Biddy, Greer Dolby, Kenro Kusumi
The University of Alabama at Birmingham, Arizona State University

3:15 pm

Adaptive evolution of the brain shapes other parts of the cranium in birds

Ryan Felice, Ryan Marek, Jack Oyston, Taylor West, Andrew Knapp
University College London

1:30 PM – 3:30 PM

**Hunger, feeding and foraging behavior
International Salon 10
Chair: Victoria Coutts**

1:30 pm

Impacts of autotomy and surface on locomotor and prey capture performance in a pad-bearing gecko
*Marina Vollin, Tim Higham
University of California, Riverside*

1:45 pm

Dietary specialization impacts feeding behavior in arthropod-eating snakes
*Noah Gripshover, Patrick Hennessey, Lance McBrayer, Jesse Meik, Daniel Nicholson, Charles Watson, Christian Cox
Florida International University, Queen Mary University of London, Georgia Southern University, Tarleton State University, University of Texas Arlington, Texas A&M University - San Antonio*

2:00 pm

The influence of hunger on predatory behavior and sensory processing of a specialist predator
*Kate Otter, Paul Katz
University of Massachusetts Amherst*

2:15 pm

Developmental food restriction increases food neophobia and fear behavior but not object neophobia
*Victoria Coutts, Anderson Duke, Reid Burleson, Anna Musulman, Haruka Wada
Louisiana State University, Auburn University*

2:30 pm

Collective behavior improves foraging in *Procellariiform* seabirds
*Jesse Granger, Sonke Johnsen, Gabrielle Nevitt
Duke University*

3:00 pm

Not so dainty damselfly: leg spur patterns provide insight into damselfly predation patterns
*Christofer Brothers, Victoria Lopez-Campos, Rex Nepstad, Stacey Combes
University of California, Davis*

3:15 pm

Infection alters foraging decisions in a common songbird
*Francis Tillman, James Adelman
University of Memphis*

1:30 PM – 3:30 PM

**Muscle ch-ch-ch-changes
International Salon 6
Chair: Dominique Adriaens**

1:30 pm

Scratching beneath the surface: forelimb muscle properties in black-tailed prairie dogs
*Luke Scheetz, Carter Burnett, Benjamin Kimble, Michael Butcher
Youngstown State University*

1:45 pm

Multiscale functional adaptation in rodent jaw muscle; from the musculoskeletal to molecular level
*Robert Brocklehurst, Amber Abu-Zahra, Nicholas LaFave, Jeffrey Moore, Nicolai Konow
University of Massachusetts Lowell*

2:00 pm

Effects of early-life exercise on tendon morphological and mechanical properties
*Apolo Ibanez-Rincon, Dean Mayfield, Anthony Cobos, Tyler Whitacre, Angela Horner, Natalie Holt
California State University San Bernardino, University of California Riverside*

2:15 pm

Performance enhancing drug? Effects of genipin on rat muscle-tendon units
*Miles Valencia, Lauren Infantino, Manny Azizi
University of California, Irvine*

2:30 pm

Architectural gear ratio and muscle-tendon function improves during pregnancy and lactation in rats
*Adrien Arias, M. Lauren Delargy, Nicole Danos
University of San Diego*

2:45 pm

Extracellular matrix shape change contributes to skeletal muscle passive force production
*Emily McParland, Thomas Roberts
Brown University*

3:00 pm

Increasing intramuscular fluid volume increases passive tension in mammalian skeletal muscle
*Samantha Falcone, Richard Marsh, Thomas Roberts
Brown University*

3:15 pm

Why the long muscle? Bio-inspired exploration of muscle architecture in seahorse grasping tails
*Dries Marzougui, Riddhi Das, Barbara Mazzolai, Dominique Adriaens, Francis wyffels
Ghent University, University of Freiburg, Istituto Italiano di Tecnologia*

1:30 PM – 3:30 PM

**Sensory biology and behavioral endocrinology of fishes: a special session honoring the work of Karen Maruska
A703
Chair: Paul Forlano**

1:30 pm

The legacy of Dr. Karen Maruska: do good science and be a good person
*Julie Butler
Augusta University*

2:00 pm

Molecular mechanisms of maternal care in a mouthbrooding cichlid fish
*Susan Renn
Reed College*

2:15 pm

Uniting Tinbergen's four questions to understand brood parasitism in birds
*Kathleen Lynch
Hofstra University*

2:30 pm

Seasonal changes in toadfish vocalizations
*Allen Mensinger
University of Minnesota Duluth, The Marine Biological Laboratory*

2:45 pm

Hormone-dependent modulation of acoustic communication system in fishes
*Joseph Sisneros
University of Washington*

3:00 pm

Beyond goldfish and blind cavefish: superficial neuromasts in cypriniform and characiform fishes
*Jacqueline Webb, Maxwell Hampton, Gus Bienenfeld
University of Rhode Island*

3:15 pm

The lateral line according to 'Coop'

Timothy Tricas

University of Hawai'i at Manoa

3:30 pm

Beauty in the fish brain:
neuroanatomical insights into
physiology and behavior

Paul Forlano

National Science Foundation

1:30 PM – 3:15 PM

**Stressed out
International Salon 7**

Chair: Pranav Vyas

1:30 pm

Stress produces negative judgment
bias in cuttlefish.

Sarah Detmering, Robyn Crook

San Francisco State University

1:45 pm

Spatial neophobia is still not correlated
with object neophobia in wild-caught
house sparrows

Blake Dusing, Marquise Henry, Melanie

Kimball, Christine Lattin

Louisiana State University

2:00 pm

Capture and subsequent challenge
disrupt the gut microbiome and health
of a free-living songbird

Morgan Slevin, Jennifer Houtz, Maren

Vitousek, Rindy Anderson

Florida Atlantic University, Allegheny

College, Cornell University

2:15 pm

Do electrical deterrents attract sharks?
Assessing the risks of an emerging
animal management tool

Casey O'Connor, Laura Ryan

Macquarie University

2:30 pm

Examining stress hormone fluctuations
in green frogs (*Lithobates clamitans*)
during the mating season

Abby McIver, Joe Bidwell, Trevor Chapman

East Tennessee State University

2:45 pm

Is behavioral fever in *P. glutinosus*
quantifiably affected by variable
amounts a chemical pyrogen?

Noah Bowen, Joe Bidwell, Trevor Chapman

East Tennessee State University

3:00 pm

Avian host corticosterone is not affected
by observation of diseased conspecifics

Bennett Hardy, Madeleine Chang, Sean

McCallum, Sophia Santangelo, Patricia Lopes

Chapman University

1:30 PM – 3:30 PM

**Understanding mechanisms of
resistance and persistence**

International Salon 8

Chair: Molly Albecker

1:30 pm

Multi-level investigation of an
antagonistic heat-by-salinity interaction
in *Tigriopus californicus*

Caroline Terry, Josie Liebszeit, Ella Purvis,

Maxime Leprêtre, Dietmar Kuehlz, Wes Dowd

Washington State University, University of

California Davis

1:45 pm

Adaptive mechanisms in coastal
anurans: proteomic insights into salinity
tolerance

Molly Albecker, Camryn Kritzell, Micheal

McCoy

University of Houston, Florida Atlantic

University

2:00 pm

Identification of an aquaporin (CrAQP2)
in *C. riparius* larvae and its response to
road de-icers

Britney Picinic, Maniola Sufaj, Jean-Paul

Paluzzi, Andrew Donini

York University

2:15 pm

Effects of road de-icers on key ion-
regulating organs in *Chironomus*
riparius

Amber Reinsborough, Andrew Donini

York University

2:30 pm

Proteomic changes in response to
anoxia in anoxia-tolerant killifish cells

Chelsea Hughes, Jason Podrabsky, Meranda

Corona, Dietmar Kuehlz

Portland State University, University of

California Davis

2:45 pm

Comparing hemoglobin structural
evolution across diverse species with
proposed biophoton analysis

April Pease, Ione Hunt-von-Herbing

University of North Texas

3:00 pm

Resilient coral communities on
degraded Caribbean reefs

Peter Edmunds

California State University Northridge

3:15 pm

Long-term sampling provides powerful
insight regarding mechanisms of coral
resilience

Lauren Fuess, Erin Shilling, Sofia Diaz-de-

Villegas, Sarah Gignoux-Wolfsohn, Leah

Harper

Texas State University, Smithsonian

Environmental Research Center

7:30 PM – 8:30 PM

**President's Select Plenary:
Dr. Scott Gilbert
Marquis B**

7:30 pm

The evolutionary developmental
biology of holobionts

Scott Gilbert

Swarthmore College

Saturday POSTER SESSION P1

Atrium Ballroom • 3:30-5:30 PM

Poster Set Up: 7:00-8:00 am • Poster Teardown: 5:30-6:00 pm

Even # - Authors present from 3:30-4:30 pm • Odd # - Authors present from 4:30-5:30 pm

Division Invertebrate Zoology Best Student Poster Alan Kohn Award

P1-2

Local population variation in life history traits of the Eastern mud snail *Ilyanassa obsoleta*

*Kora Hansen, Robert Podolsky
College of Charleston*

P1-3

Genomic resources for pentastomes: a comparative study of native and invasive species.

*Stephanie Vellella, Jenna Palmisano, Robert Fitak
University of Central Florida*

P1-4

The physiological responses of *Exaiptasia pallida* under different light and feeding conditions

*Ivy Foster, Kate Lloyd, Colleen Bove
Ursinus College*

P1-5

Comparing genome-wide genetic variation in declining and stable bumble bee species

*Emma Torija-Olson, Jeffrey Lozier
The University of Alabama*

P1-6

Does it take two to tango? Self-fertilization in a solitary tunicate, *Ciona intestinalis*

*Kai Watkins, Markus Frederich
University of New England*

P1-7

Spawning is regulated by light level regardless of morphology in the ctenophore *Mnemiopsis leidyi*

*Yinghui Wang, Allison Edgar
New Jersey Institute of Technology*

P1-8

Leveraging AI for the Identification of Aquatic Invertebrate Species

*Abigayle Mejia, Jordan Cruz, Elizabeth Borda, Jose Valdez, Ashley Teufel
Texas A&M University - San Antonio*

P1-9

The effects of heat stress on honey bee (*Apis mellifera*) physiology and microbiome

*Sarah Jendresky, Adrian Fisher
Arizona State University*

P1-10

Symbiotic plasticity in a temperate coral is connected to environment, physiology, and genetics

*Clara DiVincenzo, Stephanie Peak, Sophia Oh, Karl Castillo
UNC Chapel Hill*

P1-11

The *Munidopsis serricronis* (squat lobster) species complex in the North Atlantic Ocean

*Mina Barajas
California Polytechnic State University
Humboldt*

P1-12

Damsels in Distress: How Injury Affects Larval Damselflies

*Alexis Dawes, Emma Mazeika, Sarah Berke, Sierra Libron
Siena College*

P1-13

Expanding the knowledge of non-native annelid worms in the Florida panhandle.

*Evelyn Hope Barrett, Viktoria Bogantes
University of West Florida*

P1-14

A transcriptomic study of the lone star tick's mating behaviors for disease mitigation

*Mitchell Dyen, Robert Fitak
University of Central Florida*

P1-15

Veliger larvae alter swimming patterns in response to vorticity

*Luciana Valencia
Swarthmore College*

P1-16

Explorations of myoglianin's role in regulating larval growth in *M. sexta*

*Christel Whitehead, Peggy Biga
University of Alabama at Birmingham*

P1-17

Confirming degradation of polyethylene by *Galleria mellonella* through fluorescence

*Destiny Etuk, Melissa Plakke
Governor's State University*

P1-18

Shelter choices of the Rusty Crayfish are influenced by the relative size of a predator

*Gaige Stopjik, Arthur Martin, Paul Moore
Saginaw Valley State University, Bowling Green State University*

P1-19

Exploring the genetic connectivity of the Eastern oyster (*C. virginica*) from Northwest Florida

*Maggie Davis, Viktoria Bogantes
University of West Florida*

Evolution and development

P1-20

Optimizing the isolation and storage of *Medaka* brain cells

*Addesyn Aderogba, Peggy Biga
University of Alabama at Birmingham*

P1-21

Exploring the role of *rdh1* in pectoral fin development

*Emery Edgar, Sayoni Chatterjee, Meghana Miryala, Tetsuya Nakamura, Katelyn Mika
University of Tulsa, Rutgers University*

P1-22

The evolution of palatal development in the common ancestor of living birds

*Lauren Wilson, Zachary Morris, Christopher Griffin
Princeton University, Yale University*

P1-23

Growth and sex differences in biological aging in *Danio rerio*

*Noor Yousuf, Peggy Biga
University of Alabama at Birmingham*

P1-24

Differential expression of the Myc transcription factor in the normal and regenerating brittle star

*Soji Ademiluyi, Vladimir Mashanov, Reyhaneh Nouri, Daniel Janies
University of North Carolina at Charlotte*

P1-25

Don't let vertebrate bias claud(in) your vision: exploring *claudin* gene functions in *Ciona robusta*

Sabrina Hernandez, Sydney Popsuj, Christina Cota, Alberto Stolfi, Bitu Jadali, Reagan Hicks, Caroline Nawrocki, Joshua Kavalier, Olivia Lucia, Ella Dauskardt, Olchey Tchavyntchak, Katarzyna Pierkarz
Georgia Tech, Colby College

P1-26

Ethanol exposure impacts: cardiac development and function in zebrafish

Lauren Gross, Marosh Furimsky
Westminster College

P1-27

Establishing *Molgula citrina* as a model to study life history strategy evolution in tunicates

Elizabeth Hiebert, Christina Cota, Sydney Popsuj, David Angelini
Colby College, Georgia Institute of Technology

P1-28

Is anti-müllerian hormone sex-specific in neonate sea turtle blood?

Gabriella Carvajal, Jeanette Wyneken, Itzel Sifuentes-Romero
Florida Atlantic University

P1-29

Reconstructing cell type specification trajectories in the last common animal ancestor

Natalia E-Padillo-Anthemides, Brent Foster, Fredrik Hugosson, Urvasi Goswami, Yuriy Bobkov, Rhonda Bacher, Yanping Zhang, Mark Martindale, Joseph Ryan
NEPA, The University of Florida

P1-30

A developmental atlas of *optix* expression in the *Vanessa cardui* imaginal wing disc

Chloe Hample-Forcier, David Angelini, Christina Cota
Colby College

Division of Vertebrate Morphology: Karel Liem Best Poster Competition

P1-31

Neurocranial Variation in Canids: Insights on Artificial Selection from Geometric Morphometrics

Stella Venn, Sophia Kessler, Nicholas Hebdon, Kelly Diamond
Rhodes College, Baylor University

P1-32

Visualizing the anatomy of imperfect tail regeneration in *Sphenodon punctatus* using Dice μ CT

Jordan Miller, Yara Haridy, Matteo Fabbri, Neil Shubin
University of Chicago, Johns Hopkins University School of Medicine

P1-33

Modified granular glands are a source of sexually dimorphic biofluorescence in a lungless salamander

Michael Kardos, Sarah Woodley
Duquesne University

P1-34

Comparative Skull Anatomy of Adult Zebrafish (*Danio rerio*) and Functionally Jawless Mutant

Alexandra Weber, Tetsuto Miyashita
Carleton University, Canadian Museum of Nature

P1-35

Effects of environment on the morphology of the vestibular system in North American river otter

Hansan Jones, Erika Tanquilut, Celeste Delap, Heather Smith, Leigha Lynch
AZCOM, Midwestern University, Midwestern University Glendale

P1-36

Short Photoperiod and Endogenous Regulation of Brown Adipose Tissue in Siberian Hamsters

Avalene Tan, Sayantan Sur, Calum Stewart, Tyler Stevenson
University of Texas at Dallas, University of Glasgow

P1-38

The effects of accelerated growth on the vascular histology of hind limbs in *Meleagris gallopavo*

Riley Sombathy, Patrick O'Connor, Kristin Stover
Ohio University, Ohio State University

P1-39

Proposed mechanism for head shaking behavior in Spiny Dogfish Sharks (*Squalus acanthias*)

Nicolas Johnston, Bradley Wood
University of Montana Western

P1-40

Reduced pore area in zebra finch eggs leads to dark heart coloration regardless of sex

Ada Forester, Wonil Choi, Haruka Wada
Auburn University

Evolution: genetics and genomics

P1-41

Analyzing expression dynamics of multiple *Nematostella minicollagens* using HCR and Probe-seq approach

Anna Klompen, Jenny Duong, Mary McKinney, Jason Morrison, Jose Javier, Kevin Ferro, Shiyuan Chen, Kate Hall, Allison Scott, Kaitlyn Petentler, Lacey Ellington, Anoja Perera, Zulin Yu, Matt Gibson
Stower's Institute for Medical Research

P1-42

Analyzing DNA methylation among populations of the invasive mediterranean house gecko

Sarah Murray, Aaron Schrey, Robert Espinoza, Jeanne Robertson, Jack Dirck
Georgia Southern University, California State University, Northridge

P1-44

Playing for Both Teams: Molecular Mechanisms of Sex Change in the Bluebanded Goby

Anthony Hinders, Grace Cain, Katrina White, Heather Ray, Devaleena Pradhan
Idaho State University

P1-45

Developing functional genomic techniques in the scyphozoan jellyfish *Cassiopea*

Bailey Steinworth, Mark Martindale
The University of Florida

P1-46

Evidence for extensive gene loss in the genome of a pelagic tunicate, *Dolioletta gegenbauri*

Joseph Ryan, C. J. Pickett, Leandra Toledo, Adolfo Lara, Cohen Manges, Bradley Davidson
University of Florida, Swarthmore College

P1-47

Echinobase: an orthology resource for echinoderm research.

Nicholas Christodoulides, Veronica Hinman, Macie Chess, Cheryl Telmer, Kamran Karimi, Peter Vize, Sergei Agalakov, Stanley Chu, Troy Pells, Dong Zhou Wang, Vaneet Lotay, Bradley Arshinoff, Charles Etensohn
Carnegie Mellon University, University of Florida, University of Calgary

P1-48

Cumacean 'Omics to Measure Mode of Adaptation to Antarctica (COMMAA)

Kevin Kocot, William Farris, Victoria Vandersommen, Sarah Gerken
The University of Alabama, University of Alaska

P1-49

Role of *hoxa13* and *hoxa11* on cartilage development in the zebrafish pectoral fin.

Augustin Au, Anindita Basu, Neil Shubin, Katelyn Mika
University of Tulsa

P1-50

Testing for evidence of positive selection using a consensus approach

Scott Santagata, Joseph Ryan
Long Island University, The University of Florida

P1-51

Phylogenetic reconstruction of Holothuroidea evolution using a target-capture approach

Abigail Uehling, Joseph Ryan, Gustav Paulay, Jessica Whelpley, Jesse Breinholt
Florida Museum of Natural History, The University of Florida

P1-52

The phylogeography and population genomics of the Eastern fence lizard (*Sceloporus undulatus*)

Matthew McTernan, Michael Sears, Christopher Parkinson
Clemson University, Arizona State University

Florida!!! It's one heck of an ecosystem

P1-53

What's going on in Florida? Life History tradeoffs in the Benthic Sea Anemone *Nematostella vectensis*

Jason Macrander, Joachim Surm, Sydney Birch, Ed Smith, Adrian Jaimes-Becerra, Adam Reitzel, Yehu Moran
Florida Southern College, The Hebrew University of Jerusalem, UNC Charlotte

P1-54

Allele Frequencies of Loggerhead Sea Turtles on Florida Gulf of Mexico Beaches

Aniela Anuszczyk, Andrew Maurer, Jake Lasala
University of California, San Diego, National Oceanic and Atmospheric Administration, Mote Marine Laboratory

P1-55

Genetic and epigenetic characteristics of fine-scale dispersal in the Florida Sand Skink

Victoire Litre, Faith Loggins, Katherine Miller, Paul Wieczorek, Chandler Eaglestone, Daniella Ray, Henry Mushinsky, Earl McCoy, Aaron Schrey
Georgia Southern University, University of South Florida

P1-56

Ferritin and TRPV1 in Burmese python olfactory tissues.

Lucia Felipe-Gonzalez, Sophia Prawiradilaga
Florida Gulf Coast University

P1-57

Fluctuating asymmetry and herbivory levels as indicators for stress in mangroves in Tampa Bay, FL

Kate McLendon, Peter Stiling
University of South Florida

Step in time: control of locomotion

P1-58

Froude number determines mechanical coupling of synchronizing podia in the sea star gait transition

Brady Nichols, Olaf Eilers, Dale Syphers, Mary Lou Zeeman, Amy Johnson
UC Davis, Bowdoin College

P1-59

Effect of countermovement depth on jump performance in guinea fowl

Cesar Daniel Jacques-Ibarra, Brooke Christensen, Caitlin Bemis, Monica Daley, Ava Sirignano
University of California, Irvine

P1-60

Individual Mechanisms of Balance Control: Modulating Lower Leg Stiffness in Humans

Lauren Infantino, Manny Azizi
University of California, Irvine

P1-62

The effect of jump spacing on landing pressures in agility dogs

Brendan Seitz, Rachel Olson, Arielle Markley
The University of Akron, Red Sage Integrative Veterinary Partners

P1-63

Postural stability during locomotion is species-specific and dependent on limb posture.

Claire Hanson, Alexander Klishko, Seyed Mohammad Ali Rahmati, Hangue Park, Boris Prilutsky, Turgay Akay
Georgia Institute of Technology

P1-64

The human leg in running: legs as linkages and machines. With toys.

Jim Usherwood
The Royal Veterinary College

P1-65

Changes in Joint Coordination Following Chronic, Progressive Joint Injury: Insights from a Rat Model

Seyed Mohammad Ali Rahmati, Marin Plemmons, Liang-Ching Tsai, Jarred Kaiser, Young-Hui Chang
Georgia Institute of Technology, Georgia State University, Atlanta VA Medical Center

P1-66

Changes to neuromechanical coordination of energy production in the legs after neuromuscular fatigue

Melody Modarressi, Joelle Dick, Gregory Sawicki, Young-Hui Chang
Georgia Institute of Technology

P1-67

Influence of Variation in Individual Capacity on Balance Performance in Walking

Nishita Vaddella, Ilana Plager, Miguel Santos, Alexandra Voloshina, Monica Daley
University of California, Irvine

Go with the flow: hydrodynamics and swimming behaviors

P1-69

How slippery is a shark? External mucus on the smooth dogfish

Melanie Fischer, George Lauder, Dylan Wainwright
Purdue University, Harvard University

P1-70

Hop, Swim, and Jump: Station-holding Behavior of Marine Sculpins in a Turbulent Wave Channel

Emalie Abshire, Shubham Vijay Kumar Yadav, Austin Garner, Emily Kane
University of Louisiana at Lafayette, Syracuse University

P1-71

Improved method for producing of particles to trace water flow with higher contrast in XROMM studies

Lukas Hageneder, Andres Vanhooydonck, Sam Van-Wassenbergh
University of Antwerpen

P1-72

Wiggling, bending, and paddling: how modulating tomopterid traits affects their swimming performance

Nick Battista
The College of New Jersey

P1-73

Schooling and Shoaling Patterns of Swimming Sharks

Danna Valentina Sanchez-Hernandez, A-bel Gong, Heidy Martinez, Taemur Daud, Andrew Nosal, Brooke Flammang
New Jersey Institute of Technology, University of San Diego, Minorities in Shark Science, Point Loma Nazarene University

P1-74

The hydrodynamics of the streamlined body of sea lions

Sophia Sebo, Frank Fish, Duncan Irschick, Megan Leftwich
West Chester University, University of Massachusetts at Amherst, George Washington University

P1-75

Fine Scale Movement of Whale Sharks in the Northwest Atlantic Ocean

Jaida Elcock, Martin Arostegui, Connor White, Camrin Braun
Massachusetts Institute of Technology, Woods Hole Oceanographic Institution, Harvard University

P1-76

Sensory neuroanatomy of bluegill dorsal fins

Jillian Nash, Amanda Torick, Anabela Maia
Rhode Island College

P1-77

Design of an untethered underwater limbless robot for complex aquatic terrain navigation

Matthew Fernandez, Tianyu Wang, Galen Tunncliffe, Donovan Dortilus, Daniel Goldman
Georgia Institute of Technology

P1-78

Rising to the Occasion: The Role of Fish Dorsal Fin Kinematics During Rapid Turning Maneuvers

Jason Rodgers, Bradford Gemmell, Nils Tack, Chase McGuire
University of South Florida, Brown University

P1-78a

Characterizing ecosystem engineering by infauna using acoustics

Kelly Dorgan, Jennifer Duncan, Kevin Lee, Megan Ballard, Preston Wilson
University of Texas

P1-79

Quantifying the Kinematics and Hydrodynamics of Prayiid Siphonophores

Ruby Hope, John Costello, Kakani Katija, Joost Daniels, Sean Colin
Roger Williams University, Providence College, MBARI

P1-80

Hydrodynamics of larval urchins: ontogenetic changes and tracer influence

Katherine Kohn, Will Ballentine, Karen Chan
Swarthmore College, University of Washington

P1-81

Fluid-induced vibration patterns in biological structures

Jasmin Wong, Nicholas Burnett, Shane Windsor, Stacey Combes
University of Bristol, University of California, Davis

P1-82

ROVs and Dynamic Positioning: How do they work together?

Quinn Rodriguez
Minorities in Shark Sciences

P1-83

3D PTV flow measurements around bluegill sunfish (*Lepomis macrochirus*) during suction-feeding

Jensine Coggin, Duvall Dickerson-Evans, Erin Hackett, Roi Gurka
Coastal Carolina University

P1-84

The interaction between fish schools and turbulence: analyzing flow field modulation by giant danios

Michael Calicchia, Rui Ni
Johns Hopkins University

P1-85

The function of shark skin denticles studied using biomimetic models

Jade Collins, Dakota Law, Molly Gabler-Smith, George Lauder
Harvard University, Smith College, Woods Hole Oceanographic Institution

P1-86

Flow characteristics around crocodylian scutes

Patience Strutton, Noel Rajive, Arvind Santhanakrishnan
Oklahoma State University

Social behaviors**P1-87**

The effects of social relationships on flocking dynamics in homing pigeons (*Columba livia*)

James Mayson, Jasper Chaplin, Steven Portugal
Royal Holloway University of London

P1-88

Nest defense of Eastern Bluebirds (*Sialia Sialis*) in response to competitors and non-competitors

Katalina Cunningham, Jonathan Perez
University of South Alabama

P1-89

Hyperuniform networks in Ophiuroid communities in the Arctic benthic environments

Pranav Vyas, Ethan Li, Manu Prakash
Stanford University

P1-90

Affiliative behavior and adaptation: the link between primate incisor form and grooming activity

Darrell La, Savannah Cobb
Johns Hopkins University

P1-91

'Magic Box' perspectives: audience impact on decision-making and stress in Zebra Finches

Ashlyn Hartman, Emily Brandow, Jason Davis
Radford University

P1-92

One fish, two fish, red fish, blue fish: deep learning tracks social dynamics in cichlid fish

Erika Moore, Andrew Yuan, Veronica Britton, Tessa Solomon-Lane
Scripps College, Pitzer College

P1-93

Beware the company you keep: social distancing and site fidelity in the maritime earwig

Carter Young, Vikram Iyengar
Villanova University

P1-94

Close entanglements: behavioral dynamics of Penpoint Gunnels (*Apodichthys flavidus*)

Sarah Adelson, Cassandra Ford
University of Minnesota - Twin Cities

P1-95

Examining the relationship between spatial preferences, age, and group size in highly social cichlid

Andrew Yuan, Veronica Britton, Erika Moore, Tessa Solomon-Lane
Claremont McKenna College, Scripps College, Pitzer College

P1-96

Multimodal communication during hierarchy resolution in a sexually plastic fish

Makenzie Reed, Beverly Victoria, Ashley Cantin, Devaleena Pradhan
Idaho State University

P1-97

Impact of conspecific competition on nesting decisions in arboreal ants

Marissa Douglas, Matina Donaldson-Matasci, Tito Cuchilla
Harvey Mudd College

Life history traits and strategies**P1-98**

Age, growth, diet and reproduction of African pompano

Clinton Moran, Hunter Bramley
The Citadel

P1-99

Natural Selection on Testosterone in a Wild Lizard Population

Myles Davoll, Robert Cox
University of Virginia

P1-100

Missing males: exploring potential abiotic drivers of sex ratio bias in *Syngnathus* pipefish

Samantha Levell
New College of Florida

P1-101

Maternal investment and reproductive natural history of the American grass mantis

Bridget Hollowell, Charles Watson
Texas A&M University - San Antonio

P1-102

Evaluating reproductive parameters of the dwarf seahorse (*Hippocampus zosterae*)

Dalila Sanchez, Darshi Patel, Emily Baker, Emily Rose
Valdosta State University

P1-104

Exploring offspring preference for parental adults in the convict cichlid

Natalie van-Breukelen, Nicholas Santangelo
Loyola University Maryland, Hofstra University

P1-105

Adaption of maternal investment strategies to high altitude in deer mice

Makenna Juergens, Kathryn Wilsterman
Colorado State University

P1-106

Indicators of bull shark population health in a natural spring fed shark nursery

Stephanie Perez, Alyssa Andres
MISS, Florida State University

P1-107

Stable isotopes reveal relationship between overwintering diet and breeding body condition in a bird

Nicolas Frasson, Keith Sockman
University of North Carolina - Chapel Hill

P1-108

Yearly variation in the population density of an aquatic invader, *Potamopyrgus antipodarum*

Nicole Flanders, Edward Levri
Penn State

P1-109

Exploring the drivers of gut microbiome diversification in *Anolis* lizards

Yanileth Lopez, Carrie Alfonso, Karla Alujevic, Leah Bakewell, Samantha Fontaine, Jaden Keller, Nathaly Ponce, Alejandro Vivas, Claire Williams, Kelly Wuthrich, Christian Cox, Michael Logan, W. Owen McMillan
Smithsonian Tropical Research Institute, University of Nevada, Reno, Florida International University, Kent State University

Gut microbiome**P1-110**

You are what you eat: diet and the gut microbial community and health

Amelie Mwilambwe, Benjamin Sadd, Logan Sauers
Illinois State University

P1-111

Assessing the impact of rearing strategy on Whooping Crane health through the gut microbiome

Jessica Diaz, Barry Hartup, Kevin Kohl
University of Pittsburgh, International Crane Foundation

P1-112

The diversity, structure, and bacterial-fungal interactions of herpetofauna gut microbiomes

Alexander Rurik, Jason Dallas, Chloe Cummins, Mitra Ghotbi, N. Reed Alexander, Kaitlyn Murphy, Lluvia Vargas-Gastélum, Joseph Spatafora, Kerry McPhail, Jason E Stajich, Donald Walker
Middle Tennessee State University, University of California Riverside

P1-113

Assessing the impacts of sensory pollutants on songbird diet and fecal microbial diversity

Tessa Patton, Sara Lipshutz
Duke University

P1-114

Tadpole gut microbiota acquired from natural environmental sources are responsive to dietary tannins

Rosemary Westcott, Elizabeth Rudzki, Kyle Emerson, Sarah Woodley, Kevin Kohl
Duquesne University, University of Pittsburgh

P1-115

DspikeIn quantifies absolute abundance across domains and addresses spike-in biases in herpetofauna

Mitra Ghotbi, Jason Dallas, Lluvia Vargas-Gastélum, Jason E Stajich, Kaitlyn Murphy, Marjan Ghotbi, Alexander Rurik, Chloe Cummins, Leila Shadmani, Julissa Perez-Marron, Kylie Moe, N. Reed Alexander, Joseph Spatafora, Kerry McPhail, Donald Walker
Middle Tennessee State University, University of California Riverside

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Exploring the gut microbiome of pricklebacks (Teleostei: Stichaeidae) during an ontogenetic shift

Nailea Estrada, Joseph Heras
Rhode Island College, California State University, San Bernardino

P1-117

Modifications of microbiome diversity & digestive efficiency in an omnivorous lizard, *P. grandis*

Angela Roth, Infinity Alvarez, Charles Watson
Texas A&M University - San Antonio

Molecular physiology**P1-118**

Opsin regeneration in the isolated zebrafish retina

Aimee Saunders, Jordan Renna
University of Akron

P1-119

Is Signaling Between Mitochondria and Nuclei Disrupted During Extreme Hypertrophic Muscle Growth?

*Dylan Orcutt, Stephen Kinsey
University of North Carolina Wilmington*

P1-120

Regulation of Diapause Gene Expression by the Vitamin D Receptor (VDR) in Annual Killifish, *Austrofundulus limnaeus*

*Rosalia Tanori, Amie Romney, Jason Podrabsky
Portland State University*

P1-121

Using *Xenopus laevis* to Model Adaptation to High Hydrostatic Pressure.

*Mark Corkins, Tianyuan Hao, Anvita Bhattad, Lance Davidson
University of Pittsburgh*

P1-123

Effects of Heavy Metals on BMP4 in frogs (*Lithobates hecksheri*)

*Rafael Rios, Sofia Barajas, Matthew Gross, John Phillips, Christopher Heesy, Leigha Lynch
Midwestern University, Valdosta State University, Midwestern University Glendale*

P1-124

Hemodynamic changes during the onset of cardiac innervation

*Ainsley Ahmadian, Luis Hernandez-Nunez
Harvard University*

P1-125

Low nutrient availability alters myostatin 2b expression in rainbow trout (*Oncorhynchus mykiss*)

*Michael Addo, Peggy Biga
University of Alabama at Birmingham*

P1-127

Effects of antidepressant drug on tissue morphology and body fluid conditions of American oyster

*Md Faisal Amin, Md Rahman
University of Texas Rio Grande Valley*

P1-128

Identification and characterization of neuropeptides in the earthworm *Dendrobaena veneta*

*Folashaye Araromi, Ameena Mohassib, Rebeca Rodriguez, Ahad Shabazz-Henry, Ellis Butler, Abigail Davis, Olivia Laun, Lily Silverman, Matthew Niepielko, Michael Rizzo, Cecil "Jake" Saunders
Kean University, Wake Forest University*

Behavior and mating**P1-129**

Cross-sexual transfer of pairing behavior in a female-dominant biparental cichlid, *Julidochromis mar*

*Willia Cantlon, Andrew Anderson
Reed College*

P1-130

Frogs with a southern drawl: Maintenance of species boundaries in cricket frogs

*Julia Drennan, James Tumulty
UNC - Chapel Hill, College of William and Mary*

P1-131

Exploring the influence of female mate choice genetics on male mate preferences in a butterfly

*Wendy Hoffert, Kiana Kasmaii, Erica Westerman
University of Arkansas*

P1-132

Mate guarding and pair bonding behavior in green salamanders

*Paul Cupp
Eastern Kentucky University*

P1-133

Investigating sex differences in the effect of habitat structure on nest site selection

*Erin Wagner, Paris Lopez, Joseph Leese
DeSales University*

P1-134

Territorial contests and snapping claw morphology in kelp forest snapping shrimp

*Megan Sward, Amelia Fuentes, Patrick Green
UC Santa Barbara, Brown University*

P1-135

Does social environment impact multimodal signaling in bird-voiced treefrogs?

*Jaden Kinney, Blake Braud, Whitney Walkowski
Loyola University New Orleans*

P1-136

It's a team effort... sometimes: drivers of joint territorial defense in songbirds

*Shreyas Arashanapalli, Benjamin Freeman
Georgia Institute of Technology*

Division of Comparative Biomechanics: Steven Vogel Best Student Poster Competition**P1-137**

Elastocapillary Water Dynamics in Sandgrouse Feathers: Absorption and Evaporation Study

*Maria Martinez, Nami Ha, Saad Bhamla
Georgia Institute of Technology*

P1-138

The Mechanical Properties of Shark Skin vary across Ecomorphotypes

*Madeleine Hagood, Joseph Alexander, Marianne Porter
Florida Atlantic University*

P1-139

Characterization of Nereid Epitoke Swimming

*Alyssa Giedd, Emily Carrington
University of Washington*

P1-140

Machine Learning for Estimating In Vivo Muscle Force in Rat Plantarflexors

*Shu Gong, Amro Alshareef, Gregory Sawicki
Georgia Institute of Technology*

P1-141

Bend, don't break! Using sloths to evaluate bone loading and properties in a suspensory mammal.

*Angela Mossor, Andrew McKamy, Melody Young, Aaron Rochté, Judy Avey-Arroyo, Edwin Dickinson, Michael Granatosky, Michael Butcher, Jesse Young
Northeast Ohio Medical University, Youngstown State University, Duke University, New York Institute of Technology*

P1-142

Does it hurt? Quantifying damage inflicted by Stingray barbs with a pressurized gas gun

*Jules Chabain, Philip Anderson
University of Illinois, Urbana-Champaign*

P1-143

The control of shape during laterally confined locomotion of Araneae, *Hogna carolinensis*

*Heiko Kabutz, Katrina Arbogast, Kimberly Fung, Kendall Webster, Kaushik Jayaram
University of Colorado Boulder*

P1-144

Biomechanical underpinnings of directional abscission of dandelion seeds

Jena Shields, Fiorella Ramirez-Esquivel, Aspen Shih, Yukun Sun, Sridhar Ravi, Chris Roh

Cornell University, UNSW Canberra, University of New South Wales

Behaviors in captivity

P1-145

Behavioral differences in two subspecies of Red Panda (*Ailurus fulgens fulgens* and *A. f. styani*)

Zaha Sarwar, Kelly Diamond
Rhodes College

P1-147

The impact of zoo visitor presence on meerkat social behavior

Sarah Heckmann, Kelly Diamond
Rhodes College

P1-148

Beak wiping stereotypies are not correlated with neophobia in captive house sparrows

Danna Masri, Will Frazier, Melanie Kimball, Tasha Kelly, Christine Lattin
Louisiana State University

P1-149

Influence of visitor numbers and noise levels on the behavior of captive meerkats

Malak Ibrahim, Kelly Diamond
SICB, Rhodes College

Division of Comparative Endocrinology Best Student Presentation

P1-150

Elevated testosterone advances daily onset of activity in male house sparrows (*Passer domesticus*)

Holland Galante, Samuel Lane, Emily Elderbrock, Timothy Greives, Geoffrey Brown
North Dakota State University, Indiana University

P1-151

Effects of prenatal corticosterone on corticosterone levels in nestling feathers

Taylor Miller, Kristen Navara
University of Georgia

P1-152

Glucocorticoids as a mediator of iron-associated changes in body condition and disease

Amelia Diaz, Vanessa Marshall, Wesley Neely, Samantha Siomko, Shannon Buttimer, Jack Boyette, Carlos Becker, Ryan Earley
University of Alabama, Texas State University, The Pennsylvania State University

P1-154

The stress response of the American alligator in aquacultural facilities

Lani Milstead, Christopher Murray, Jorge Lopez-Perez
Southeastern Louisiana University

P1-155

Differential gonadal gene expressions associated with breeding states in zebra finch

Olivia Breisacher, Jason Strickland, Jessica Moodie, Jonathan Perez
University of South Alabama

P1-156

Testing social buffering and repeated stressor exposure on early-life cortisol in juvenile cichlids

Eliyah Stern, Alyssa (Aly) Alvey, Erika Moore, Tessa Solomon-Lane
Scripps College, Pitzer College

P1-157

Effects of PFUnDA exposure on dopaminergic system and thyroid axis development in Japanese medaka

Allison Fletcher, Ashlynn Peszko, Dianne Baker
University of Mary Washington

P1-158

Thermal imaging indicates epinephrine is vital during stress-induced escape flights

Bradley Pedro, L. Michael Romero
Tufts University

P1-159

Exploring the role of epigenetics in shaping stress responses in chestnut-crowned babblers

Susan Anderson, Makayla Buszkohl, Andrea Liebl
University of South Dakota

P1-160

A simulated short-term heat wave alters estrogen signaling to impair oogenesis in a eurythermal fish

Isabel Villafuerte, Olivia Martin, Sean Lema
California Polytechnic State University, San Luis Obispo

P1-161

Characterizing ovarian gene expression along steroidogenic pathways in a wild territorial songbird

Josephina Fornara, Elizabeth Aguilar, Emily Levy, Kimberly Rosvall
Indiana University

P1-162

Wearable wireless system for continuous glucose and heart rate monitoring in house sparrows

Rachel Riccio, Cihan Asci, Atul Sharma, Sameer Sonkusale, L. Michael Romero
Tufts University

Call and response

P1-163

Male songbirds alter characteristics of own song in response to syntax of rival song

Emma Reinhardt, Keith Sockman
University of North Carolina at Chapel Hill

P1-164

Analysis of northern purple-faced langur calling behavior across Sri Lanka's dry-zone

Sarah Carnes, Abby Parks, Alexandra Hofner, Roberta Salmi
University of Georgia

P1-165

Song development in hand-reared Bachman's Sparrows

Heather Wolverton, Rindy Anderson
Florida Atlantic University

P1-167

Androgens regulate acoustic preferences of female *Xenopus*

Bethel Demissu, Erik Zornik, Charlotte Barkan, Juliet Berton
Reed College, Williams College

Division of Comparative Physiology and Biochemistry best student presentation

P1-168

How does exposure to iron oxide nanoparticles effect on bioaccumulation of house sparrows?

chisom Okogbue, Shae Johnston, John Wenderski, Liam Hanlon, Natalia Gonzalez-Pech, Kelly Ronald
Hope College

Division of Ecoimmunology and Disease Ecology Best Student Presentations

P1-169

Bugs in the blood: exploring *Trypanosoma* dynamics in Mexican free-tailed bats

Mackenzie Hightower, Meagan Allira, Kristin Dyer, Bret Demory, Lauren Lock, Amanda Vicente-Santos, Daniel Becker
University of Oklahoma

P1-170

Effects of temperature and seasons on microbial growth of nasal bacteria in Mojave Desert tortoises

Jenna Morales, Daniela Ramirez, William Fikan, Mariah Painter, Holly Nelson, Franziska Sandmeier
Colorado State University- Pueblo

P1-171

Thermally-dependent phagocytosis in Mojave Desert tortoise lymphocytes, heterophils, and monocytes

Holly Nelson, William Fikan, Rylee Conklin, Jenna Morales, Mariah Painter, Franziska Sandmeier
Colorado State University-Pueblo

P1-172

The effect of temperature on the morphology and innate immunity of eastern bluebird nestlings

Sophia Mita, Sarah Knutie, Jennifer Houtz
Allegheny College, University of Connecticut

P1-173

Trends in herpesvirus prevalence and intensity in sea turtles stranded in coastal Florida

Joseph Long, Katherine Martin, Christine (prefer Chris) Sarkis, Anna Forsman, Erin Seney, Anna Savage
University of Central Florida, Colby College

P1-174

Prophenoloxidase as an immune indicator in geographically distinct populations of *Astrangia poculata*

Anabel Martinez, Jaime Acero, Isabella Changsut, Lauren Fuess
Texas State University

P1-175

A New Tool for Surveillance: PCR Assay for *Raillietiella orientalis* Infection in Live Snakes

Jenna Palmisano, Anna Savage
University of Central Florida

P1-176

Variations in key immune factors across latitudinally different populations of *Astrangia poculata*

Jaime Acero, Anabel Martinez, Isabella Changsut, Lauren Fuess
Texas State University

P1-177

Does the effect of nest temperature on skin development influence host-parasite interactions?

Carissa Leung, Bridget Sleath, Sila Inanoglu, Lorraine Perez, Ashley Love, Sarah Knutie
University of Connecticut

Division of Comparative Physiology and Biochemistry best student presentation

P1-178

Characterization of Ras homolog enriched in brain (Rheb) among decapod crustaceans

Ashley Hernandez, Talia Head, David Durica, Lars Tomanek, Donald Mykles
Colorado State University, University of Oklahoma, California Polytechnic State University

P1-179

How do frozen crickets maintain mitochondrial function?

Stefane Saruhashi, Soren Coulson, James Staples, Brent Sinclair
Cornell University, University of Memphis

P1-180

Gene Expression Changes Reveal Ground Squirrels Shift Metabolic Fuel Usage Prior to Hibernation

Mary Gabrielle, Cory Williams, Cole Deal
Davidson College, Colorado State University

P1-181

Effects of heat stress on biological markers and histological alterations in tissues of goldfish.

Ngozichukwu Ngozichukwu, MD Rahman
University of Texas Rio Grande Valley

P1-182

High-altitude adaptation alters the innate immune response in deer mice

Chloe Butler, Megan Hemmerlein, Kathryn Wilsterman
Colorado State University

P1-183

Evaluating the relationship between immune function and reproductive success in long-lived reptiles

Tiffany Dawson, Katherine Mansfield
University of Central Florida

P1-184

The effects of *Mycoplasma gallisepticum* on plumage coloration of eastern bluebirds

Elizabeth Cochrane, Hailey Freeman, Taylor Kinchen, Jennifer Grindstaff
Oklahoma State University

P1-185

Influence of season and temperature on cell-based immune function of the Mojave Desert tortoise

Mariah Painter, Lexi Anderson, Jenna Morales, Holly Nelson, Franziska Sandmeier
Colorado State University-Pueblo

Environmental pollutants and toxicants

P1-186

Effects of perchlorate on mice behavior

Carly Abelson, Michael Minicozzi
Minnesota State University - Mankato

P1-187

What is driving zooplankton community changes in eutrophic lakes?

Kaylee Luchansky, Joseph Covi
University of North Carolina Wilmington

P1-188

Legacy effects of orphaned oil wells on vegetative community and deer mice physiology

Jess Warr, Richard Dolman, Christopher Goodchild
University of Central Oklahoma

P1-189

The impacts of iron oxide nanoparticles on the antipredator behaviors of house sparrows

John Wenderski, Liam Hanlon, Shae Johnston, Chisom Okogbue, Natalia Gonzalez-Pech, Kelly Ronald
Hope College

P1-190

The effects of glyphosate exposure on mosquitofish (*Gambusia affinis*) behavior

Lauren Wartluft, Isaac Ligocki
Millersville University

P1-191

The effect of glyphosate and a glyphosate based herbicide on the behavior of two tadpole species
Mitch Williams, Orion Groff, Madelyn Askey, Joseph Goudy, Isaac Ligocki
 Millersville University

P1-192

Assessing anthropogenic chemical bioaccumulation in blue crab tissues in the Cape Fear region
Nicholas Angeli, Joseph Covi
 University of North Carolina at Wilmington

P1-193

Bioaccumulation in insects according to feeding strategy
Phoebe Riser, Jelagat Cheruiyot
 Tulane University

P1-194

Buried secrets: uncovering the impact of formaldehyde on cemetery soil microbes
Madison Rader, Sarah Foltz, Steven McBride
 Radford University

P1-196

Sublethal lead exposure impacts gene expression in the brain of developing songbirds
Casey McLaughlin, Christopher Goodchild, Elizabeth Gilbert, Kendra Sewall
 Virginia Tech, University of Central Oklahoma

P1-197

Impacts of per- and polyfluoroalkyl substances on the behavior and physiology of an estuarine fish
Rachel Cuomo, Isaac Ligocki
 Millersville University

P1-198

Comparison of three methods for quantification of fecal contamination
Kellan Hoffman, Veronica Back, Sarah Wigren, Mark Elliott, Julie Olson
 University of Alabama

P1-199

The effects of pesticides on tissue-specific gene expression in *Bombus impatiens* bumblebees
Jixiang Xu, Sarah Orr, Michael Goodisman, Kayla Murray, Michael Catto
 Georgia Institute of Technology

P1-200

Tadpole development under different exposure routes of TCDD
Camryn Kritzell, Raquel Fernanda Salla-Jacob, Molly Albecker
 University of Houston

P1-201

Minimal radial oxygen loss from tropical seagrasses: a counter paradigm
Nicole Alexiou, Alex Hoey
 Florida Atlantic University

P1-202

Movement strategies under directional drift in environments with heterogenous resource and toxicant
Leah Vitale, Bo Zhang
 Oklahoma State University

P1-203

Characterizing anthropogenic materials in cavity-nesting songbirds' nests in suburban and rural area
Hailey Melvin, Jennifer Uehling
 West Chester University

P1-204

Effects of red tide on sea turtle nest success in Sarasota County, FL
Drew Bailey, Jake Lasala
 Mote Marine Laboratory

P1-205

Quantifying the efficacy of clay treatments at removing red tide *Karenia brevis* in mesocosms
Ivett De-La-Rosa-Montano, John Andres, Michelle R. Gaither, Ashley Reaume, Victoria Devillier, Kris A. Lewis
 Lynn University

P1-206

Trashy birds: a comparison of the use of anthropogenic materials in nests across species
Amber Gordon, Sarah Foltz
 Radford University

Division of Phylogenetics and Comparative Biology Best Student Presentation David and Marvalee Wake Award

P1-207

Genome analysis of *Aeromonas hydrophila* strain S14-452
Zarin Tasnim-Raya
 Mississippi University for Women

P1-208

Beware of water bears: Morphological and molecular identification of tardigrades
Kayla Barrett, Logan Kesner, Elizabeth Struble, Courtney Clark-Hachtel
 University of North Carolina, Oklahoma State University

P1-209

Modularity and rate of phenotypic evolution among Appalachian salamanders (Plethodontidae)
Dartagnan Mullins, Edward Burrell
 University of Alabama

P1-210

Evolution of brain morphology in lizards: Phylogenetic signal of regional volume
Sophie Connolly, Michele Johnson
 Trinity University

P1-212

Investigating the monophyly of Sigambra (Annelida: Phyllodocida: Pilargidae)
Sonja Huč, Kenneth Halanych
 University of North Carolina Wilmington

P1-213

Revisiting lateral line shape evolution in labrid fishes
Marina Carbi, Samantha Price
 Clemson University

P1-214

Exploring Squaliformes dermal denticle morphology diversity and evolution
Arleth Martinez, Elizabeth Sibert, Leah Rubin, Nicholas Wallis-Mauro
 Berea College, Woods Hole Oceanographic Institution, SUNY ESF, University of Florida

P1-215

Metabolic strategies for glass frog transparency
Jake Stevens, Jesse Delia, Carlos Taboada
 Vanderbilt University

Sunday Schedule of Events

Events take place in the Atlanta Marriott Marquis, unless otherwise noted

EVENT	TIME	LOCATION
Poster Session 2 Set Up	7:00 AM – 8:00 AM	Atrium Ballroom
Speaker Ready Room	7:00 AM – 5:00 PM	L503
Registration	7:30 AM – 3:30 PM	Marquis Registration
Coffee Break AM, <i>sponsored by SRE.college</i>	9:30 AM – 10:30 AM	Atrium Ballroom
Exhibit Hall	9:30 AM – 5:30 PM	Atrium Ballroom
Coffee Break PM	3:30 PM – 4:30 PM	Atrium Ballroom
Poster Session 2 Even Numbers Authors Present	3:30 PM – 4:30 PM	Atrium Ballroom
Poster Session 2 Odd Numbers Authors Present	4:30 PM – 5:30 PM	Atrium Ballroom
Poster Session 2 Teardown	5:30 PM – 6:00 PM	Atrium Ballroom
SPECIAL LECTURES		
Howard A. Bern Lecture: Dr. Donna Maney The bird that broke the binary <i>Sponsored by Arbor Assays</i>	7:30 PM – 8:30 PM	Marquis B
SYMPOSIUM ORAL PRESENTATIONS		
S4: From evolution to innovation: bridging biology and engineering through bioinspired design	8:00 AM – 3:30 PM	Marquis C
S5: Organismal systems biology	8:00 AM – 3:30 PM	Marquis A
S6: Pollinator-plant interactions in a changing landscape: embracing integrative approaches across scales	8:15 AM – 3:30 PM	Marquis B
CONTRIBUTED PAPER ORAL PRESENTATIONS		
MORNING		
Complementary session 1 to S1: Cities as a natural experiment: how organisms are finding different solutions to the same urban problems	8:00 AM – 9:45 AM	International Salon 5
Division of Neurobiology, Neuroethology, and Sensory Biology Best Student Presentation	8:00 AM – 10:00 AM	A601
Energetics and metabolism	8:00 AM – 10:00 AM	A704
Environment, immunity, infection	8:00 AM – 9:15 AM	International Salon 9
Form and function smörgåsbord	8:00 AM – 9:45 AM	A706
Genes, populations, conservation	8:00 AM – 9:30 AM	International Salon 8
Injured and aging nervous systems	8:00 AM – 9:45 AM	A703
Life at the water surface	8:00 AM – 9:45 AM	A707
Microbiomes and symbioses	8:00 AM – 9:30 AM	International Salon 4
Offspring development, ontogeny and behavior	8:00 AM – 9:30 AM	International Salon 10
Physiological mechanisms of behavior	8:00 AM – 10:00 AM	International Salon 7
Vertebrate morphogenesis and evolution	8:00 AM – 9:45 AM	International Salon 2-3
What development tells us about evolution (and vice versa)	8:30 AM – 9:30 AM	International Salon 6
Division of Ecology and Evolution Best Student Presentation Huey Award	10:00 AM – 12:00 PM	A706
Getting real low with burrowing	10:00 AM – 12:00 PM	A707
Nests and nesting behavior	10:00 AM – 12:00 PM	International Salon 10
Olfaction	10:00 AM – 12:00 PM	International Salon 9
Science communication and outreach	10:00 AM – 12:00 PM	International Salon 8
Bending on ground	10:15 AM – 11:45 AM	A703
Ecology, evolution, biogeography	10:15 AM – 11:45 AM	International Salon 6
Methods in ecoimmunology	10:15 AM – 11:30 AM	International Salon 2-3
Molecular evolution	10:15 AM – 11:45 AM	International Salon 5
Sound production and acoustic cues	10:15 AM – 12:00 PM	A704
Division of Comparative Physiology and Biochemistry best student presentation	10:30 AM – 12:00 PM	A601

Frontiers of evo-devo	10:30 AM – 12:00 PM	International Salon 7
Heads	10:30 AM – 12:00 PM	International Salon 4
Mechanical and acoustic neurobiology	10:30 AM – 12:00 PM	Marquis D

AFTERNOON

Behavioral thermoregulation	1:30 PM – 3:00 PM	International Salon 6
Bending underwater	1:30 PM – 3:30 PM	A707
Collective behavior and individual roles	1:30 PM – 3:00 PM	International Salon 7
Complementary session 1 to S3: Fleshing it out: recent advances in form, function and motor control of biological hydrostats	1:30 PM – 2:45 PM	International Salon 5
Conservation ecology: movement and monitoring	1:30 PM – 3:30 PM	A703
Division of Comparative Biomechanics Best Student Presentation Wainwright and Koehl Award	1:30 PM – 3:30 PM	A704
Division of Invertebrate Zoology Best Student Presentation Mary Rice Award	1:30 PM – 3:30 PM	A601
Ecophysiology: thermal effects	1:30 PM – 3:45 PM	International Salon 4
Host-parasite interactions	1:30 PM – 3:15 PM	International Salon 9
Mechanisms and biomarkers of senescence	1:30 PM – 3:00 PM	A706
Parental care	1:30 PM – 3:30 PM	International Salon 10
Population and evolutionary ecology	1:30 PM – 3:30 PM	International Salon 2-3
Symbioses among organisms and cells	1:30 PM – 3:30 PM	Marquis D
Transcriptomic responses	1:30 PM – 3:15 PM	International Salon 8

COMMITTEE AND BOARD MEETINGS

Advisory Committee	7:00 AM – 8:00 AM	International Salon A
Educational Council Meeting	7:00 AM – 8:00 AM	International Salon 1
IOB Editorial Board Meeting	7:00 AM – 8:00 AM	A708
TCS Business Meeting	12:00 PM – 1:30 PM	International Salon 1
A report card on Evo-devo: a roundtable discussion on the state of the field	12:15 PM – 1:15 PM	International Salon 10
Discussion on Future of Physiology at SICB	4:45 PM - 5:45 PM	International Salon 5

BUSINESS MEETINGS

DCB Member Meeting	5:45 PM – 6:45 PM	International Salon 1
DCE Member Meeting	5:45 PM – 6:45 PM	International Salon 4
DCPB Member Meeting	5:45 PM – 6:45 PM	International Salon 5
DIZ Member Meeting	5:45 PM – 6:45 PM	International Salon 6
DNNSB Member Meeting	5:45 PM – 6:45 PM	International Salon 8
DOB Member Meeting	5:45 PM – 6:45 PM	International Salon 2-3
DPCB Member Meeting	5:45 PM – 6:45 PM	International Salon 9

WORKSHOPS AND PROGRAMS

Connect with your community: Latine and Hispanic students and researchers in STEM	12:15 PM – 1:15 PM	A601
Early Career Networking Session: Navigating NSF Funding Opportunities biology undergraduate classrooms	12:15 PM – 1:15 PM	Marquis D
How to get involved in affecting science policy	12:15 PM – 1:15 PM	International Salon 5
Student Research Funding Opportunities at the U.S. National Science Foundation	12:15 PM – 1:15 PM	A707

SOCIAL EVENTS

Free Headshot Lounge	9:30 AM – 5:00 PM	Atrium Ballroom
Alumni and Friends of the Shoals Marine Laboratory	5:30 PM - 6:00 PM	Marquis Registration
Broadening Participation Social	6:30 PM – 8:00 PM	International Salons ABC
DAB/DNNSB/DCE Bern Social	8:30 PM – 10:30 PM	Skyline Level

Sunday Program Symposia

8:00 AM – 3:30 PM

S4: From evolution to innovation: bridging biology and engineering through bioinspired design

Marquis C

8:00 am

Accessible Bioinspired Models in Science and Engineering Research

Cassandra Donatelli, Karly Cohen, Meg Vandenberg, Adam Summers
University of Washington, California State University Fullerton, University of Washington

8:30 am

Manta ray filters serve as a model for bio-inspired industrial applications

EW Misty Paig-Tran, James Strother, Shirel Kahane-Rapport, Leandra Hamann, Karly Cohen, Julia Teeple
California State University, Fullerton, Whitney Laboratory for Marine Bioscience, University of Florida, University of Washington

9:00 am

Shark Scales & Tails: morphology, flow, and kinematics investigations at the nostril and caudal fin

Amani Webber-Schultz, Lauren Simonitis, Kayla Hall, Audrey Kellogg, Brooke Flammang
New Jersey Institute of Technology, Florida Atlantic University, University of Washington, Naval Undersea Warfare Center Division Newport

9:30 am

Bio-inspired sensing for disturbance detection on unmanned aerial vehicles

Sarah Bergbreiter, Regan Kubicek, Bram Miller
Carnegie Mellon University

10:00 am ————— Coffee Break

10:30 am

Lessons from armadillos: Tapered osteoderm tiles increase armor flexibility

Julia Teeple, Karly Cohen, Cassandra Donatelli, Theodore Stankowich, EW Misty Paig-Tran
California State University Fullerton, University of Washington, California State University Long Beach

11:00 am

Stepping up softly: transferring animal gaits to soft-robotic walkers

Joscha Teichmann, Lang Gauthier, David Zimmermann, Falk Tauber, Thomas Speck, Sebastian Kruppert
University Freiburg

11:30 am

A conceptual framework can aid the jump from organismal biology to bioinspired design

Jessica Tingle
University of Akron, Brown University

12:00 pm ————— Lunch

1:30 pm

Resourcefulness, robustness, and recovery: tail utilization during climbing behavior in rats

Brian Woronowicz, Noah Graber, Shahin Lashkari, Noah Cowan
Johns Hopkins University

2:00 pm

Drivers of material tradeoffs in vertebrate armor

Karly Cohen, Andrew Schulz, EW Misty Paig-Tran
University of Washington, California State University Fullerton, Haptic Intelligent Department, Max Planck Institute for Intelligent Systems

2:30 pm

The Role of Information Representation in Fostering Bio-Inspired Designs in Engineering

Hadeer Hassan, Astrid Layton
Texas A&M University

3:00 pm

Form-function of biological composites through morphology, mechanics, modeling, and mimicry

Andrew Schulz
Haptic Intelligent Department, Max Planck Institute for Intelligent Systems

8:00 AM – 3:30 PM

S5 session 1: Organismal systems biology

Marquis A

8:00 am

Robustness and resilience of biological systems: Introduction to system thinking

Erica Crespi
Washington State University

8:30 am

What does it mean to think of the organism as a system?

Daniel Nicholson
George Mason University

9:00 am

Rigidity, Resilience, and Robustness in Network-like Biomaterials

Moumita Das
Rochester Institute of Technology

9:30 am

Systems Virology: integrating experimental data to bring virus genomes to life

John Yin
University of Wisconsin-Madison

10:00 am ————— Coffee Break

10:30 am

Tools and concepts for behavioral and neuroendocrinological investigations of mammalian hibernation

Ni Feng, Sebin Park, Alexandra Porczak
Wesleyan University

11:00 am

Bridging animal sociality and cognition with computational methods

Elizabeth Hobson
University of Cincinnati

11:30 am

Social mates dynamically coordinate aggressive behavior to produce flexible territorial strategies

Nicole Moody, Matthew Fuxjager
Brown University

12:00 pm ————— Lunch

1:30 pm

Threats and Opportunities: Control of Embryonic Development by the Environment

Lance Davidson
University of Pittsburgh

2:00 pm

Function Drives the Integration and Modularity of the Fish Skull at Different Evolutionary Scales

*Kory Evans, April Hugi
Rice University*

2:30 pm

The Physiological Underpinning of a Range-Limiting Tradeoff in the Trinidadian Guppy

*Alexander Mauro, Cameron Ghalambor
Norwegian University of Science and Technology*

8:15 AM – 3:30 PM

S6: Pollinator-plant interactions in a changing landscape: embracing integrative approaches across scales

Marquis B

8:30 am

Consequences of sharing pollinators in the Anthropocene

*Tia-Lynn Ashman
University of Pittsburgh*

9:00 am

Effect of network structure and adaptive foraging on ecosystem services of plant-pollinator systems

*Fernanda Valdovinos
University of California Davis*

9:30 am

The effects of competition on individual foraging patterns and within nest behavior across bumble bee

*Matthew Smith, Julia Wiessing, August Easton-Calabria, Madalyn Laskowski, Brett Graham, James Crall
Illinois Institute of Technology, University of Wisconsin-Madison*

10:00 am ————— **Coffee Break**

10:30 am

Arthropod diversity in monocropping vs. intercropping with on-farm floral enhancements

*Ngoc Phan, Neelendra Joshi
University of Arkansas*

11:00 am

Circadian rhythm of flower traits facilitate nocturnal pollination in apple *Malus domestica*

*Sushant Potdar, Madison Jennings, My Ly, Dmitry Kutcherov, Neelendra Joshi, Erica Westerman
Cornell University, University of Arkansas*

11:30 am

Cycad weevils as a model for multi-modal plant-insect signaling

*Shayla Salzman
University of Georgia*

12:00 pm ————— **Lunch**

1:30 pm

Complexities of phenological shifts for plant-pollinator interactions and ways forward

*Nicole Rafferty, Elena Kaminskaia, Alessandro Fisogni, Natasha de-Manincor
University of Melbourne*

2:00 pm

Transcriptional differences in nectar volume between bee and hummingbird pollinated *Penstemon*

*Amanda Katzer, Lena Hileman
National Human Genome Research Institute NIH*

2:15 pm

Do pollen nutrients released by microbes into nectar affect bumble bee behavior?

*Success Ekemezie, Avery Russell, Leo Carpenter, Marco Russo, Charlotte Davis
Missouri State University*

2:30 pm

Course-based Undergraduate Research Courses Involving Solitary Bees Can Be Used in Integrative Studies Involving Ecology and Metabarcoding

*Stokes Baker
University of Detroit Mercy*

3:00 pm

Integrating pollinators' movements into pollination's models

*Mathieu Lihoreau, Juliane Mailly, Louise Riotte-Lambert
CNRS*

Sunday Program Morning Sessions

8:00 AM – 9:45 AM

**Complementary session 1 to S1:
Cities as a natural experiment:
how organisms are finding
different solutions to the
same urban problems**

International Salon 5

Chair: Valentina Alaasam

8:15 am

Climbing performance in urban and natural populations of green anoles and an introduced competitor

*Maxwell Handen, Maya Phillips, Austin Garner
Syracuse University*

8:30 am

Parasites, Fungi, and the Skin Microbiome: Disease Dynamics of Urban Gray Tree Frogs.

*Rafael Baez-Segui, Valentina Alaasam,
Anthony Snead, Kristin Winchell
New York University*

8:45 am

Urbanization and vector-borne disease dynamics in overwintering migratory sparrow assemblages

*Taylor Verrett, Sydney Austin, Anna Fagre,
Bret Demory, Kristin Dyer, Daniel Becker
University of Oklahoma, Colorado State
University*

9:00 am

Diet driven host tolerance to avian conjunctivitis is linked to shifts in global gene expression

*Erin Sauer, Carson Stacy, Weston Perrine,
Ashley Love, Jeffrey Lewis, Sarah DuRant
University of Arkansas, University of
Connecticut*

9:15 am

The role of urbanization on the evolution of an immune gene in house finches, *Haemorrhous mexicanus*

*Emmanuel Okposio, Joel Slade
California State University, Fresno*

9:30 am

Effects of metal contaminants on Eastern bluebird signaling and reproductive success

*Danae Diaz, Sonke Johnsen, Steve Nowicki
Duke University*

8:00 AM – 10:00 AM

**Conducting Research
in the Global South**

Marquis D

Chair: Jasmin Graham

8:00 am

Characterization of data deficient fisheries in Nigeria: The MISS ICONIC approach.

*Omolara Fola-Matthews
Nigerian Institute for Oceanography and
Marine Research, University of Lagos,
Nigeria*

8:15 am

How difficult is it to be ICONIC?

Challenges faced by BIPOC shark scientists in the Global South

*Ingrid Hyrycena, Meghana Binraj, Buddhi
Pathirana, Omolara Fola-Matthews, Lauren
Simonitis, Jasmin Graham
Projeto Tubarão, Ocean Rosy, Nigerian
Institute for Oceanography and Marine
Research, University of Lagos, Nigeria,
Florida Atlantic University, Minorities in Shark
Sciences*

8:30 am

Panel discussion

*Jasmin Graham
Minorities in Shark Sciences*

8:00 AM – 10:00 AM

**Division of Neurobiology,
Neuroethology, and
Sensory Biology Best
Student Presentation**

A601

Chair: Megan Gall

8:00 am

Overturning a century of thought: pupillary light responses in animals with “immobile pupils”

*Parker Hughes, R. Langerhans
North Carolina State University*

8:15 am

Evoked neural activity in chorus frogs reveals candidate mechanisms of species recognition

*Carlie Anderson, Linda Rinaman, Emily
Lemmon
Florida State University*

8:30 am

Dimorphic niches explain sexual dimorphism in the morphology and integration of an orchid bee brain

*Denise Yamhure-Ramirez, Santiago Ramirez
University of California, Davis*

8:45 am

3D EM reconstruction provides evidence for olfactory glomeruli in a nudibranch mollusc

*Alexzander Cook, Harshada Sant, Sarah
DeAmicis, Kriti Dhiman, Cheyenne Tait,
Yuelong Wu, Richard Schalek, Jeff Lichtman,
Paul Katz
University of Massachusetts Amherst,
Marshall University, Harvard University*

9:00 am

Flexible coordination of leg muscles in walking *Drosophila*

*Chhibber Chhibber, Lili Karashchuk, Chris
Dallmann, Elliott Abe, John Tuthill, Bingni
Brunton
University of Washington, Allen Institute for
Neural Dynamics*

9:15 am

Drosophila need green and UV wavelengths for sun orientation but lack a time-compensated sun compass

*Haneal Pae, Jingzhu Liao, Nicole Yuen,
Ysabel Giraldo
University of California, Riverside, University
of California, San Diego*

9:30 am

Optomotor experiments reveal variation in summer flounder (*Paralichthys dentatus*) visual acuity

*Vanessa Moreno, Lorian Schweikert
University of North Carolina Wilmington*

9:45 am

Opsin-expressing cells in the skin of the summer flounder (*Paralichthys dentatus*)

*Russell Ward, Maureen Howard, Lorian
Schweikert
University of North Carolina Wilmington,
Florida International University*

8:00 AM – 10:00 AM

Energetics and metabolism

A704

Chair: Scott McWilliams

8:00 am

How songbirds maintain (oxidative) balance during migratory flights: does diet quality matter?

*Scott McWilliams, Kristen DeMoranville, Wales Carter, Liam Corcoran, Clara Cooper-Mullin, Barbara Pierce
University of Rhode Island, Sacred Heart University*

8:15 am

How are environmental factors influencing hatching failure in house sparrows

*Lindsey Willingham, Britt Heidinger, Heather Mathewson
Tarleton State University, North Dakota State University*

8:30 am

Reduced energy expenditure facilitates mass gain in brown bears

*Amelia Christian, Charles Robbins, Troy Tollefson, Anthony Carnahan, Jessie McCleary-Smith, Perry Barboza
Texas A&M University, Washington State University, Mazuri® Exotic Animal Nutrition*

8:45 am

Effects of migratory strategy on flight muscle mitochondrial physiology in songbirds

*Soren Coulson, James Staples, Christopher Guglielmo
University of Memphis, University of Western Ontario*

9:00 am

The Price is Right: Quantifying the Daily Energetic Budget of Short-Finned Pilot Whales

*William Gough, Brijonnay Madrigal, Jens Currie, Robin Baird, Kristi West, Frank Fish, Lewis Evans, Martin van-Aswegen, Brian Stirling, Grace Olson, Stephanie Stack, Aude Pacini, Lars Bejder
University of Hawaii at Manoa, Pacific Whale Foundation, Cascadia Research Collective, West Chester University, Griffith University*

9:45 am

A non-invasive technique for metabolic rates of free-swimming jellyfish

*Simon Anuszczyk, John Dabiri
Caltech*

8:00 AM – 9:15 AM

Environment, immunity, infection

International Salon 9

Chair: Sarah Budischak

8:00 am

Cross-scale drivers of nematode co-infection in bank voles

*Sarah Budischak, Hannah Chan, Elizabeth Pellegrini, Alyssa Dunn, Finley Melnikoff, Jasmine Veitch, Katy Wearing, Kristian Forbes
Pitzer College, Scripps Colleges, Eckerd College, University of Arkansas*

8:15 am

Mucosal corticosterone mediates chytrid disease dynamics in the Blacksmith tree frog

*Vanessa Marshall, Wesley Neely, Samantha Siomko, Shannon Buttimer, Jack Boyette, Carlos Becker, Ryan Earley
University of Alabama, Texas State University, The Pennsylvania State University*

8:30 am

Higher temperatures lead to faster development of innate immunity in House Sparrow nestlings

*Hailey Freeman, Emily Regier, Angela Riley, Sarah Brown, Elizabeth Cochrane, Jennifer Grindstaff, Lindsey Willingham, Heather Mathewson
Oklahoma State University, Tarleton State University*

8:45 am

Temperature Independent Prodigiosin Reduction by Bd Metabolites

*Morgan Swanson, Jacob Kerby
University of South Dakota*

9:00 am

Global warming, pesticides and amphibian epidemics: what is all the stress about?

*Caitlin Gabor, Barbora Thumsová, Jaime Bosch, Andrea Aspbury, Manuel Ortiz-Santaliestra
Texas State University, Instituto de Investigación en Recursos Cinegéticos (UCLM-CSIC-JCCM)*

8:00 AM – 9:45 AM

Form and function smörgåsbord

A706

Chair: Yara Haridy

8:00 am

Hidden trophic diversity in early ray-finned fishes: evidence from the Carboniferous Sphaerolepis

*Zachary Lyons-Weiler, Sam Giles, Matt Friedman
University of Michigan, University of Birmingham*

8:15 am

Does innovation in morphology increase performance? a case study with misfit fish

*Roi Holzman, Matthew McHenry, Dana Kruger
Tel Aviv University, UC Irvine*

8:30 am

Diverse anatomical arrangements underlie elongate body forms in Zoarcoid fishes

*Summer Duba, David Collar
Christopher Newport University*

8:45 am

Variable patterns of phenotypic evolution among canonical 'living fossil' lineages

*Rafael Rivero-Vega, Jacob Berv, John Clarke, Matt Friedman
University of Michigan*

9:15 am

Extended phenotype affects somatic phenotype in spiders

*Corinthia Black, Jeffrey Shultz, Hannah Wood
Smithsonian Institution*

9:30 am

Morphological diversification in the woodland salamander non-adaptive radiation

*Henry Camarillo, Nathalie Alomar, Kalisa Vazquez-Minas, Anne-Claire Fabre, Eric Riddell, Bhart-Anjan Bhullar, Martha Munoz
Yale University, University of North Carolina Chapel Hill*

8:00 AM – 9:30 AM

Genes, populations, conservation

International Salon 8

Chair: Carolyn Tepolt

8:00 am

Population genomics in the Hawaiian volcano shrimp: cryptic speciation and mitonuclear discordance

Cecilia Fitzgerald-Cook, Justin Havird
The University of Texas at Austin

8:15 am

Dispersal, warming, and adaptation in a rapidly expanding invasive crab population

Carolyn Tepolt, Weifeng (Gordon) Zhang, Jiabi Du, Yan Jia, Emily Grason, P. Sean McDonald
Woods Hole Oceanographic Institution, Texas A&M University at Galveston, Washington Sea Grant, University of Washington

8:30 am

Using directed graphs to test the riverine barrier hypothesis with genetic data

Garett Maag, Austin Bidy, Maya Stokes, Greer Dolby
The University of Alabama at Birmingham, Florida State University

8:45 am

Phylogenetics and museum records reveal misplaced conservation priorities for Pleuroceridae snails

Nathan Whelan, Annika Baldwin, Jeffrey Garner, Paul Johnson, Ellen Strong
US Fish and Wildlife Service & Auburn University, Smithsonian Institution, National Museum of Natural History

9:00 am

Solving the species-boundary puzzle in the clownfish-hosting sea anemones: Clade Heteractinia

Nina Luckas, Aurélien De-Jode, Estefanía Rodríguez, Benjamin Titus
University of Alabama, American Museum of Natural History

8:00 AM – 9:45 AM

Injured and aging nervous systems

A703

Chair: Vikram Chandra

8:00 am

Elderly *Aplysia* have trouble escape-galloping and start losing the ability to remember recent attack

Viral Mistry, Daniel Martinez, William Frost
Rosalind Franklin University of Medicine and Science, Colgate University

8:15 am

Senescence and vestibular-ocular decline in the octopus

Amanda Rokicky, Z Yan Wang
University of Washington

8:30 am

Early motor adaptation to injury revealed in gait signatures with reversible electrical nerve block

Nathan Kirkpatrick, Robert Butera, Young-Hui Chang
Georgia Institute of Technology, Emory University

8:45 am

Hard-head-hitting questions: Multi-level brain analysis in wild woodpeckers and experimental goats.

Nicole Ackermans, Rana Adam, Ayodele Oyadeyi
The University of Alabama

9:00 am

A new neuroscience model for distributed computation, brain regeneration, and evolution

Vikram Chandra, Libby Tseng, Karl Hill, Mansi Srivastava
Harvard University, University of North Carolina at Chapel Hill

9:15 am

Developing snapping shrimp as a model for studying protection against blast-induced neurotrauma

Alexandra Kingston, Rebekah Hansen, Tanner Mierow, Jacob Bolin, Daniel Speiser
University of Tulsa, University of South Carolina

9:30 am

A natural behavioral state that confers nociceptive tolerance in *Manduca sexta*

Gayathri Kondakath, Annushka Veliko-Shapko, Isabel Messinger, Barry Trimmer
Tufts University

8:00 AM – 9:45 AM

Life at the water surface

A707

Chair: Pankaj Rohilla

8:00 am

Characterizing run-and-tumble behavior of the Ripple Bug, *Rhagovelia oriander*

Nithil Nagappan, Ishant Tiwari, Jacob Harrison, Saad Bhamla
Georgia Institute of Technology

8:15 am

Innate control: Jumping Water Striders use leg-mediated aerodynamics for perfect landing

Victor Ortega-Jimenez, Elio Challita, Robert Wood, Robert Dudley
University of California, Berkeley, Harvard University

8:30 am

Escaping like Naruto: Rapid locomotion in semi-aquatic insects using Marangoni propulsion

Pankaj Rohilla, Jace Holmes, Atharva Lele, Sarah Bender, Saad Bhamla
Georgia Institute of Technology

8:45 am

Fire ant water launching via meniscal manipulation

Hosain Bagheri, Haolin Zeng, Surya Narasimhan, Aaliyah James, Michael Goodisman, Takao Sasaki, Daniel Goldman
Georgia Institute of Technology, University of Georgia-Athens, University of Georgia

9:00 am

How springtails survive collisions with raindrops

Sunny Kumar, Pranavamathi Kumaran, Saad Bhamla
Georgia Institute of Technology

9:15 am

Bioinspired, modular, hybrid quadruped robot with multifunctional appendages for enhanced underwater

Abu Nayem Md. Asraf Siddiquee, Yasemin Ozkan-Aydin
University of Notre Dame

9:30 am

Leaping to glory: Characterizing the aquatic take-off of birds

Laura Mendez, Tyson Hedrick
University of North Carolina at Chapel Hill

8:00 AM – 9:30 AM

Microbiomes and symbioses

International Salon 4

Chair: Amy Tan

8:00 am

Microbial communities experienced during early development shape the host immune system and epigenom
*Amy Tan, Katherine Buckley, Marie Strader
Texas A&M University, Auburn University*

8:15 am

Losing the gut feeling: host immunity and infection perturb the bumble bee beneficial gut microbiota
*Logan Sauer, Bryan Sierra-Rivera, Toby Bassingthwaite, Benjamin Sadd
Illinois State University*

8:30 am

Investigation of immune, energetic tradeoffs associated with the coral-algal symbiosis
*Erin Borbee, Lauren Fuess, Roh-Allah Jalil
Texas State University*

8:45 am

Nutritional stress disrupts symbiosis between an anemone and its symbiotic algae during development
*Samuel Bedgood, Virginia Weis, Keyla Plichon
New College of Florida, Oregon State University*

9:00 am

The influence of the microbiome on the developing immune system in amphibians
*Abigail Miller, Douglas Woodhams, Jamie Voyles, Juli Petereit, Jennifer Rodriguez-Reynoso, Myungchul Jo
University of Nevada, Reno, University of Massachusetts, Boston*

8:00 AM – 9:30 AM

Offspring development, ontogeny and behavior

International Salon 10

Chair: Kelly O'Neil

8:00 am

Social interactions and sensory cue use in embryonic fathead minnows (*Pimephales promelas*)
*Jewel Johnson, Matthew Hasenjager, Jessica Ward
Ball State University, University of Tennessee, Knoxville, Ball State University*

8:15 am

Righting, repeatability, and roaming: fitness consequences of turtle behavioral syndromes
*Morgan Clark
Michigan State University*

8:30 am

Are you my mother? Imprinting across bird species from an eco-evolutionary perspective
*Kelly O'Neil, Marcus Lashley, Mark Turner, Alex Potash, Zachary Steele
University of Florida*

8:45 am

Developmental onset and social mechanisms of embryonic predator recognition in a freshwater fish
*Jessica Ward, Brooke Karasch
Ball State University*

9:00 am

Ontogeny of stimulus perception and response in embryonic fathead minnows (*Pimephales promelas*)
*Karly Steinberg, Jessica Ward
Ball State University*

9:15 am

Locomotor rest-activity patterns over ontogeny and between sexes in Lake Malawi cichlid hybrid cross
*Chloe Hoff, Niah Holtz, Evan Lloyd, Alex Keene, Craig Albertson
University of Massachusetts Amherst*

8:00 AM – 10:00 AM

Physiological mechanisms of behavior

International Salon 7

Chair: Stephanie Campos

8:00 am

Is heart rate anticipatory of flight duration in a free-living songbird, the red crossbill?
*Jamie Cornelius, Taylor Chapple, Travis Draud, Thomas Hahn, Jalyne Devereaux, Jessica Karr, Kathleen Hunt, Ben Sonnenberg, Alex Jahn, Martin Wikelski
Oregon State University, Oklahoma City Community College, University of California-Davis, George Mason University*

8:30 am

Impacts of vasotocin on chemical communication in lizards
*Stephanie Campos, Janice Park
Villanova University*

9:00 am

Biological transparency in frogs
*Jesse Delia, Van Tu Nguyen, Carlos Taboada
Vanderbilt University, American Museum of Natural History in New York City, Duke University*

9:15 am

The gift of water: can males improve females' fitness in arid environments?
*Chloé Chabaud, Natasha Tigreros
University of Arizona*

9:45 am

Diving in semi-aquatic *Anolis* lizards results in heat loss with sex-specific cooling tolerance
*Alexandra Martin, Christopher Boccia, Lindsey Swierk
Binghamton University, Queen's University*

8:00 AM – 9:45 AM

Vertebrate morphogenesis and evolution

International Salon 2-3

Chair: Thomas Sanger

8:00 am

The developmental and molecular bases of amniote cranial proportions
*Marta Marchini, Greta Keller, Adriana Saliceti-Galarza, Naaz Kahn, Rushabh Shah, Katherine Starr, Thomas Sanger
Loyola University Chicago*

8:15 am

A reptilian model for the study of the female reproductive tract
*Bonnie Kircher, Richard Behringer
University of Texas MD Anderson Cancer Center*

8:30 am

The developmental mechanisms underlying the evolution of the avian pelvis
*Christopher Griffin, Zachary Morris, Bhart-Anjan Bhullar
Princeton University, Yale University*

8:45 am

Dorsal-ventral patterning mechanisms across the fin to limb transition
*Brent Hawkins
Boston Children's Hospital*

9:00 am

The genetic control of integration across the cichlid pharyngeal skeleton
Leticija Flamuraj, Hewan Weldai, Emily Tetrault, Riley Kussmaul, Andrew Conith, Craig Albertson
University of Massachusetts Amherst, DePaul University

9:15 am

Morphogenesis of the ribs and intercostal muscles with implications for turtle body plan origins
William Foster, Paul Gensbigler, Tyler Lyson, Gabriel Bever
John Hopkins University, Denver Museum of Nature & Science

9:30 am

Pre-gastrulation development and epiblast lumen formation in the veiled chameleon (*C. calypttratus*)
Antonia Weberling, Natalia Shylo, Hannah Wilson, Melainia McClain, Florian Hollfelder, Paul Trainor
Nuffield Department of Women's and Reproductive Health, University of Oxford, Stowers Institute for Medical Research, University of Cambridge

8:30 AM – 9:30 AM

What development tells us about evolution (and vice versa)

International Salon 6

Chair: *Ariel Chipman*

8:30 am

The evolution and development of arthropod tagmata
Ariel Chipman
The Hebrew University of Jerusalem

8:45 am

Effects of parental diet on mormon cricket egg diapause, development rate, and periodic outbreaks
Robert Srygley
USDA-Agricultural Research Service

9:15 am

Neoavian nepobabies: How parental investment in early development supercharges bird evolution
Andrew Orkney, Priscila Rothier, Brandon Hedrick
Cornell University

10:00 AM – 12:00 PM

Division of Ecology and Evolution Best Student Presentation Huey Award

A706

Chair: *Tonia Schwartz*

10:00 am

Examining relationships between pre- and postcopulatory selective traits in male green frogs
Maxwell Girard, Charlotte Clark, Ariel Kahrl
Hamilton College, Clinton

10:15 am

Precipitation moderates the effect of high temperatures on activity in a desert lizard
Savannah Weaver, Emily Taylor, Eric Riddell
University of North Carolina at Chapel Hill, California Polytechnic State University San Luis Obispo, University of North Carolina Chapel Hill

10:30 am

Spatial covariance in GxE interactions influences local adaptation in green anole lizards
Morgan Muell, Kendall Jackson, Daniel Warner
Auburn University

10:45 am

Constraints on thermoregulation explain disruptive selection on body size after an historic heatwave
Jack Little, Kindall Murie, Robin Fales, Emily Carrington
University of Washington, University of California, Irvine

11:00 am

Defying trends: a range-wide assessment of variation in the northernmost *Heliconius* species
Tanner Myers, Angelo Ruggieri, Marysol Trujano-Ortega, Nicolas Miranda-Díaz, Camilo Salazar, Carolina Pardo-Díaz, Riccardo Papa, Brian Counterman
Auburn University, University of Puerto Rico – Rio Piedras, Universidad Nacional Autónoma de México, University of Puerto Rico, Universidad del Rosario

11:15 am

Climate vulnerability is driven by physiological diversity in woodland salamanders
Isabella Burger, Nathalie Alomar, David Adams, Martha Muñoz, Eric Riddell
University of North Carolina Chapel Hill, Yale University, University of Central Arkansas

11:30 am

Songbird telomere length reflects metal exposure and habitat degradation from mining contamination
Bridger Creel, Lillian Krach, Benjamin Colman, Megan Fyelling, Zachary Cheviron, Creagh Breuner
University of Montana

11:45 am

The macroecology of fitness and physiological challenges to upslope shifts in birds
Pranav Gokhale, Benjamin Freeman
Georgia Institute of Technology

10:00 AM – 12:00 PM

Getting real low with burrowing A707

Chair: *Christopher Pierce*

10:00 am

The role of the vertical septum and neural-haemal spines in swimming mechanics of burrowing wrasses
Olivia Guerra, Linnea Lungstrom, Mark Westneat
University of Chicago

10:15 am

The evolution of specialized skull shapes in the burrowing worm lizards
Maxwell Olson, Philip Bergmann
Clark University

10:30 am

Burying Batoidea: impact of body shape, rigidity, and sediment size on batoid burial performance
Kaitlyn Cisz, Charbel El-Khoury, Cassandra Donatelli, Matthew Kolmann, Olivia Hawkins, Sarah Arnette
Virginia Institute of Marine Science, KAUST, University of Washington Tacoma, University of Louisville, Tufts University

10:45 am

Bio-Inspired burrowing dynamics in snake-like robots via machine learning
Sean Even, Yasemin Ozkan-Aydin
University of Notre Dame

11:00 am

Burrowing in Atlantic hagfish (*Myxine limosa*)
Douglas Fudge, Charlene McCord, Cassandra Donatelli, Noah Bressman, Kennedy Guillen, Josh Lee, Luke Arnold, Keolani Kahale-Lua, Christian Quinteros, Peter Ly, Larissa Atkins
Chapman University, California State University, Dominguez Hills, University of Washington Tacoma, Salisbury University, Portola High School (IUSD), Círculos High School at Advanced Learning Academy

11:15 am

Modeling growth and anchoring of plant root-like structures in dry granular media

Deniz Kerimoglu, Nicholas Naclerio, Aradhya Rajanala, Elliot Hawkes, Daniel Goldman
Georgia Institute of Technology, University of California, Santa Barbara

11:30 am

Rice root navigation in heterogeneous substrates

Christopher Pierce, Yusuf Tekes, Daniel Goldman
Georgia Institute of Technology

11:45 am

Cell to organ modeling of circumnutation behaviors in rice roots

Aradhya Rajanala, Mingyuan Zhu, Christopher Pierce, Madison Hales, Deniz Kerimoglu, Daniel Goldman
Georgia Institute of Technology, Duke University

10:00 AM – 12:00 PM

Nests and nesting behavior

International Salon 10

Chair: *Claudia Crowther*

10:15 am

Bird nests made from anti-bird spikes

Auke-Florian Hiemstra, Cornelis Moeliker, Barbara Gravendeel, Menno Schilthuizen
Naturalis Biodiversity Center, Natural History Museum Rotterdam

10:30 am

The evolution of using shed snake skin in bird nests

Jennifer Houtz, Vanya Rohwer, Robyn Bailey, Maren Vitousek, Eliot Miller
Allegheny College, Cornell University

10:45 am

Spatial patterns and behavioral rules of pollen deposition

Prathibha Prasanna-Chandran, Peter Marting, Stephanie Rogers, Michael Smith
Auburn University

11:00 am

The effects of complex nest environments on embryo development and hatchling phenotypes of the brown

John Rodgers, Daniel Warner, Mike Norris
Auburn University

11:15 am

House sparrow nestling size and fledging success are related to the materials making up their nests

Michael Butler, Brooke Weiss, Olivia Asher, Travis Shoemaker, Michael McGuire
Lafayette College

11:30 am

Dynamic differentiation of honey bee nest architecture throughout development

Peter Marting, Ben Koger, Michael Smith
Auburn University, University of Wyoming

11:45 am

Sea turtle nest sand composition and diversity on the Gulf of Mexico

Matthew Senecal, Jake Lasala
New College of Florida, Mote Marine Laboratory

10:00 AM – 12:00 PM

Olfaction

International Salon 9

Chair: *Adam Blake*

10:00 am

Neural correlates of sleep in *Aedes aegypti*: implications for olfactory processing

Spruha Rami, Joshua Benoit, Clement Vinauger
Virginia Tech, University of Cincinnati

10:15 am

Olfactory rhythms and sleep patterns in *Aedes aegypti*.

Lan Lou, Karthikeyan Chandrasegaran, Joshua Benoit, Zhijian Tu, Chloe Lahondere, Clement Vinauger
Virginia Tech, University of Cincinnati

10:30 am

Snapping shrimp utilize vision and olfaction to identify mutualistic goby partners

Tanner Mierow, Alexandra Kingston
University of Tulsa

10:45 am

Olfactory mechanisms underlying mosquito foraging on sources of plant sugar

Sandeep Jandu, Jeff Riffell
University of Washington

11:00 am

Smelling beetles on the fly: decoding longhorn beetle pheromone receptors in *Drosophila*

Roeskva Torhalsdottir, Gregory Pask, Clara Sandberg, Xander Ritsch, Tobias Ziemke, Robert Mitchell
Middlebury College, The Pennsylvania State University

11:15 am

The spectral sensitivity of mosquito photoreceptors can explain preferences for colored stimuli

Adam Blake, Jeff Riffell, Gregor Belušič
University of Washington, University of Ljubljana

11:30 am

Multimodal predator recognition and defense behavior in a rove beetle

Noelle Huget, Jessleen Kanwal, David Miller, Mina Yousefelahiyeh, Joseph Parker
California Institute of Technology

11:45 am

Predator-driven shifts in lizard chemical signals in free-living populations

Simon Baeckens, José Martín, Anthony Herrel, Panayiotis Pafilis, Guillem Casbas, Colin Donihue, Oriol Lapiedra
Ghent University, Institute at Brown for Environment and Society, Brown University, CREAM

10:00 AM – 12:00 PM

Science communication and outreach

International Salon 8

Chair: *Dara Orbach*

10:00 am

Weaving science into the lives of our neighbors

Sarah McAnulty
Skype a Scientist

10:15 am

OCEANS: A Place-based Educational Approach

Dara Orbach, Lorenzo Fiori, Katie Doyle, Larisa Ford
Texas A&M University- Corpus Christi, Flour Bluff Intermediate School, Friends of Redhead Pond

10:30 am

Tide turners & littoral learners: marine science exploration & communication

Dany Ko
Minorities in Shark Sciences

10:45 am

Improving shark knowledge through conservation education and capacity for fisherfolks in Nigeria

*Omolara Fola-Matthews, Oladimeji Obidairo
Nigerian Institute for Oceanography and Marine Research, University of Lagos, Nigeria*

11:00 am

An easy way to introduce students to scientific research: Science Journal for Kids and Teens

*Miranda Wilson, Tanya Dimitrova
Science Journal for Kids and Teens*

11:30 am

Brockton Kids Lead the Way: A Sustainable Investment in Connecting Urban Kids to Nature

*Molly Jacobs, Anushree Bopardikar, Clare Cunningham
Manomet Conservation Sciences, TERC*

11:45 am

Immortal organisms: The evolution of natural history specimen collections

*Meaghan Sorce
Museum of Comparative Zoology, Harvard University*

10:15 AM – 11:45 AM

**Bending on ground
A703**

Chair: Christine Vega

10:15 am

Elucidating the control mechanisms of snake slithering during perturbations

*Christine Vega, Kelsey Garner, Henry Astley
University of Akron*

10:30 am

Steering multilegged robots by body undulation modulation

*Esteban Flores, Daniel Soto, Dan Tatulescu, Christopher Pierce, Daniel Goldman, Baxi Zhong
Georgia Institute of Technology, University of Texas at Austin*

10:45 am

Muscle shortening and vertebral column curvature during propulsive vertical bending in snakes

*Jacob Sherman, Kelsey Garner, Jessica Tingle, Henry Astley
University of Akron, Brown University*

11:00 am

Reconstructing self-righting behaviors in centipedes via robophysics

*Erik Teder, Baxi Zhong, Daniel Soto, Massimiliano Iaschi, Juntao He, Daniel Goldman
Georgia Institute of Technology*

11:15 am

Only skin deep: a novel biomimetic control strategy for rectilinear locomotion in snake robots

*Henry Astley
University of Akron*

11:30 am

Addition of a peristaltic wave to a multilegged robot improves locomotion performance

*Massimiliano Iaschi, Baxi Zhong, Daniel Soto, Jianfeng Lin, Tianyu Wang, Daniel Goldman
Georgia Institute of Technology*

10:15 AM – 11:45 AM

**Ecology, evolution, biogeography
International Salon 6**

Chair: Tom Iwanicki

10:15 am

The biogeography of avian abundance along elevational gradients

*Maria Jose Arias, Abhimanyu Lele, Jacob Drucker, Benjamin Freeman, Elisa Bonaccorso
Georgia Institute of Technology, University of Chicago, Universidad San Francisco de Quito*

10:30 am

Behavior, hybridization, and range expansion

*Karin Pfennig, Catherine Chen, Patrick Kelly, Sedona Ryan, Bryson Loflin
University of North Carolina*

10:45 am

The Living Sailor: Using iNaturalist and Zooniverse to Unlock a Mystery in High Seas Biogeography

*Tom Iwanicki, Rebecca Helm
Georgetown University*

11:00 am

Using museum specimens to document historical contamination

*Sarah Hileman, Jason Belden
University of Central Oklahoma, Oklahoma State University*

11:15 am

Using Experimental Invasions to Measure Natural Selection During Island Colonization in a Lizard

*Anthony Gilbert, Amélie Fargevielle, David Delaney, Andrew Durso, Joshua Hall, Ariel Kahrl, Tim Mitchell, Philip Pearson, Aaron Reedy, Robert Cox, Daniel Warner
Auburn University, Clinton, DataClassroom, University of Virginia*

11:30 am

From jars to data: transforming natural history collections into research assets

*Alana Rivera
Harvard University*

10:15 AM – 11:30 AM

**Methods in ecoimmunology
International Salon 2-3**

Chair: Franziska Sandmeier

10:15 am

Exploring the utility of ecoimmunology of Bighorn Sheep as a conservation tool.

*Luke Weinstein
Oregon State University*

10:30 am

Expanding bacteria-killing assays to be more functionally relevant in a reptile host

*Franziska Sandmeier, Christopher Hall, Bec Reynolds, Mariah Painter
Colorado State University - Pueblo*

10:45 am

The use of biomedical tools in marine frontiers: Immunity and stem cell transplantation for corals

*Benjamin Rosental
Ben Gurion University of the Negev*

11:00 am

Assessing leukocyte populations in watersnakes from Arkansas using flow cytometry

*Natalie Haydt, Grant Dawson, Jeremy Chamberlain, Daniel McDermott, Lori Neuman-Lee
Arkansas State University, Southern Arkansas University*

11:15 am

Adapting flow cytometry methods for studying immune tradeoffs in migratory bats

*Meagan Allira, Kristin Dyer, Bret Demory, Kaylee Norman, Mark Lang, Daniel Becker
University of Oklahoma*

10:15 AM – 11:45 AM

**Molecular evolution
International Salon 5**

Chair: *Kenneth Halanych*

10:15 am

Assessing the genome of pterobranch hemichordates to explore deuterostome evolution

Kenneth Halanych, Kevin Kocot, Andrew Mahon

University of North Carolina Wilmington, The University of Alabama, Central Michigan University

10:30 am

The Mitochondrial Constellation: Mitogenomic Perspective on Phylogeny and Evolution of Sea Stars

Harrison Mancke, Lauren Baena, Andrew Mahon, Kenneth Halanych

University of North Carolina Wilmington, Central Michigan University

10:45 am

Genetic polymorphism and the early amniote fossil record

Fernando Torres, EJ Huang, Gabriel Bever Johns Hopkins University

11:00 am

A paralog switch rejects the Ortholog Conjecture in ostracod bioluminescence

Nicholai Hensley, Emily Lau, Jessica Goodheart, Todd Oakley

University of Cambridge, University of Chicago, American Museum of Natural History, UC Santa Barbara

11:15 am

Time-calibrated functional phylogenomic analyses of the metazoan pangenome

David Plachetzki, Jennifer Spillane, M Pankey, Joseph Ryan, Matthew MacManes

University of New Hampshire, Smithsonian Institution, The University of Florida

11:30 am

Diversity of dicyemids (Dicyemida:Mesozoa) in Atlantic and Pacific oceans based on 18S marker

Marie Drabkova, Tijana Cvetkovic, Masoud Nazarizadeh, Jan Stefka

University of Hradec Kralove, State University of New York at Buffalo, University of South Bohemia, Biology Centre CAS

10:15 AM – 12:00 PM

Sound production and acoustic cues

A704

Chair: *Chris Clark*

10:15 am

Are song sequencing rules learned by song sparrows?

Steve Nowicki, Susan Peters, Jill Soha, William Searcy

Duke University, University of Miami

10:30 am

Complex song in Bachman's sparrows: examining relationships between vocal performance and quality

Hans Gonzembach, Rindy Anderson

Florida Atlantic University

10:45 am

Deformation of the upper vocal tract of birds by passive motion: implications for sound production

Pauline Provini

Muséum National d'Histoire Naturelle

11:00 am

Effects of Acoustic Disturbance on the Auditory System of Atlantic Croaker (*Micropogonias undulatus*)

Ariel Alonso, Kelly Boyle

University of New Orleans

11:15 am

Wing sounds of the Bearded Tachuri: flutter with a twist

Chris Clark, Juan Areta, Emilio Jordan

UC Riverside, Instituto de Bio y Geociencias del Noroeste Argentino, CONICET

11:30 am

Impact of schooling on flow-generated noise in fish: fin synchronization and spatial patterns

Ji Zhou, Jung-Hee Seo, Rajat Mittal

Johns Hopkins University

11:45 am

Comparative larval settlement responses of Caribbean and Pacific corals to replayed sound cues

Nadege Aoki, Benjamin Weiss, Sierra Jarriel, Nathan Formel, Youenn Jézéquel, Chris Keller, Alexandra Gutting, Jessica Ward, Amy Apprill, T. Aran Mooney

Woods Hole Oceanographic Institution, Maui Ocean Center, The Nature Conservancy

10:30 AM – 12:00 PM

Division of Comparative Physiology and Biochemistry best student presentation

A601

Chair: *Jason Podrabsky*

10:30 am

Effects of maternal water restriction on offspring energetics and renal morphology in *Octodon degus*

Sarah Heissenberger, Sarah DuRant, Maya Tipton, Daniela Kim, Kaja Arusha, Luis Luis, Daniela Rivera, Francisco Bozinovic, Grisel Cavieres, Daniela Vera, Pablo Sabat, Carolyn Bauer

University of Arkansas, Swarthmore College, Pontifical Catholic University of Chile, Universidad Mayor Chile, Universidad de Concepción

10:45 am

Ocean acidification causes bivalve shell deformation via intracellular Ca²⁺ signaling dysregulation

Chi Huang, Joseph Matt, Christopher Hollenbeck, Wei Xu

Texas A&M University-Corpus Christi

11:00 am

Methyl farnesoate, MEKRE93, and molting: a crustacean transcriptional network

Vanessa Bentley, Jorge Perez-Moreno, David Durica, Donald Mykles

Colorado State University, University of Massachusetts Amherst, University of Oklahoma

11:15 am

Repeated evolutionary recruitment of dehalogenases in luminous brittle stars and octocorals

Emily Lau, Todd Oakley

University of Chicago, UC Santa Barbara

11:30 am

Measuring mitochondrial performance in closely related migrant and non-migrant avian species

Emma Rhodes, Geoffrey Hill, Wendy Hood Auburn University

11:45 am

Heat shock factor binding site variation across cnidarian genomes: patterns and potential function

Janki Bhalodi, Adam Reitzel

The University of North Carolina at Charlotte

10:30 AM – 12:00 PM

**Frontiers of evo-devo
International Salon 7**

Chair: Alan Love

10:30 am

Reflections on evo-devo as a mature scientific discipline: looking back and peering forward

*Alan Love
University of Minnesota, Twin Cities*

10:45 am

Developmental genetic basis of seasonal wing pattern plasticity in butterflies

*Robert Reed
Cornell University*

11:00 am

Addressing continuous and discrete morphological variation in computational anatomy

*Rachel Roston, Sara Rolfe, Maddie Bell, Di Mao, Murat Maga
Seattle Children's Research Institute, University of Washington*

11:15 am

The genetic and developmental basis of extreme jaw morphologies in a Lake Malawi cichlid fish

*Andrew Conith, Milan Malinsky, Craig Albertson
DePaul University, University of Bern*

11:30 am

Manipulation of a polyphenism-switch network reveals the molecular canalization of a threshold trait

*Justin Bryant, Erik Ragsdale
Indiana University*

11:45 am

Nothing in EvoDevo makes sense except in the light of cell biology

*Gunter Wagner
University of Vienna*

10:30 AM – 12:00 PM

Heads

International Salon 4

Chair: Stephanie Palmer

10:30 am

Scaling of head morphology and the four bar linkage in seahorses (Hippocampus)

*Samantha Borruso, Jonathan Huie, Meg Vandenberg, Olivia Hawkins, Cassandra Donatelli, Graham Short
University of California, Irvine, The George Washington University, University of Washington, Tufts University, California Academy of Sciences*

10:45 am

Transformations in the main and accessory olfactory systems in secondarily aquatic carnivorans

*Stephanie Palmer, Thomas Kirkwood, William Foster, Margot Michaud, James Rule, Julia Schwab, Siobhán Cooke
Johns Hopkins University, The University of Manchester, University of Liège, Natural History Museum London*

11:00 am

Physiological adaptations to secondarily aquatic lifestyles in mosasaurs and sauropterygians

*Donald Morgan, Lawrence Witmer
Johns Hopkins, Ohio University*

11:15 am

Bowfin spin prey right 'round: kinematics of prey transport and swallowing in *Amia ocellicauda*

*Katrina Whitlow, Emily Volpe
Saint Mary's College, Northern Arizona University*

11:30 am

Morphological and kinematic novelties underlie proficient herbivory in surgeonfishes, Acanthuridae

*Peter Wainwright, Michalis Mihalitsis
University of California*

10:30 AM – 12:00 PM

Mechanical and acoustic neurobiology

Marquis D

Chair: Megan Gall

10:30 am

Seasonal changes in brain activation patterns in plainfin midshipman fish

*Brooke Vetter, Jonathan Perelmuter, Nicholas Lozier, Joseph Sisneros, Paul Forlano
University of St. Thomas, Cornell University, University of Pittsburgh, University of Washington, National Science Foundation*

10:45 am

Effects of vegetation density on noise profiles and signal propagation

*Megan Gall
Vassar College*

11:00 am

Mapping 3D sensitivity of otolith organs of the plainfin midshipman

*Julian Davis, Elijah Berger, Joseph Sisneros, Loranzie Rogers
University of Southern Indiana, University of Washington, Harvard University*

11:15 am

Large leg spines serve as mechanosensilla in Hawaiian spiders (Tetragnatha)

*Kathryn Nagel, Carsten Müller, Gabriele Uhl, Rosemary Gillespie
University of California Berkeley, Universität Greifswald*

11:30 am

Mechanosensors in the bluegill dorsal fin encode fin ray displacement

*Amanda Solano, Zulay Izazaga, Eric Tytell, Margot Schwalbe, Anabela Maia
Rhode Island College, Tufts University, Lake Forest College*

11:45 am

Innovations and changes in artificial vagina designs

*Jacqueline Rich, Dara Orbach
Texas A&M University - Corpus Christi*

Sunday Program Afternoon Sessions

1:30 PM – 3:00 PM

Behavioral thermoregulation

International Salon 6

Chair: Rindy Anderson

1:30 pm

Influence of thermoregulatory posture on predictions of lizard activity and body temperature

David Adams, Matthew Gifford
University of Central Arkansas

1:45 pm

Dunk-and-spin: a dragonfly cooling behaviour

Samuel Fabian, Alexandra Yarger, Huai-Ti Lin
Imperial College London

2:00 pm

Testing the effects of variation in avian thermal window size on territory defense behavior

Rindy Anderson, William Abbott
Florida Atlantic University, The Nature Conservancy

2:15 pm

Behavioral mechanisms underlying thermal acclimation of metabolism in eusocial bumble bees

Tamara Tyner, Eric Riddell, Amy Toth
Iowa State University, University of North Carolina Chapel Hill

2:30 pm

Revisiting thermal gradient experiments: Effects of thermal heterogeneity on salamander behavior

Julia Barbosa, Raissa Rainha, Martha Muñoz, Carlos A Navas
Yale University, National Institute of Amazonian Research, Yale University, University of São Paulo

1:30 PM – 3:30 PM

Bending underwater

A707

Chair: Elizabeth Gregorio

1:30 pm

Mechanically intelligent undulatory robotic locomotion in complex aquatic environments

Tianyu Wang, Matthew Fernandez, Galen Tunnicliffe, Donovan Dortilus, Daniel Goldman
Georgia Institute of Technology

1:45 pm

Turn yourself around: analysis of a swimming snake's turn

Elizabeth Gregorio, Ramiro Godoy-Diana, Anthony Herrel
PMMH, CNRS, ESPCI, Paris-PSL, Sorbonne Université, Université Paris Cité

2:00 pm

Effects of local and coupled body elasticity in overdamped undulatory locomotion

Jianfeng Lin, Christopher Pierce, Tianyu Wang, Baxi Zhong, Daniel Goldman
Georgia Institute of Technology

2:15 pm

Swimming in early vertebrates: exploring the hydrodynamics of Sacabambaspis

Samuel Coatham, Lauren Sallan, Marco Rosti, Alan Pradel, Ivan Sansom
Okinawa Institute of Science and Technology, Muséum National d'Histoire Naturelle Paris, University of Birmingham

2:30 pm

Turn around: every now and then fish turn a little bit differently

Andrew Clark, Eric Tytell
Tufts University

2:45 pm

Bluegills are stable in horizontal cross-flow vortices without their visual or lateral line systems

Margot Schwalbe, Hannah Stinson, Kyle Lassen, Jeremy Levin, Reed Connor, Eric Tytell
Lake Forest College, Tufts University

3:00 pm

Turning and control of a tethered, Tuna-Inspired underwater vehicle*

Owen McKenney, Joseph Zhu, Hilary Bart-Smith
University of Virginia

3:15 pm

Binary search for generating multi-segment kinematic models from fish midlines

Otar Akanyeti, Theodore Castro-Santos, Robert Sterling, Maxim Buzdalov, Elsa Goerig
Aberystwyth University, United States Geological Survey, Harvard University

1:30 PM – 3:00 PM

Collective behavior and individual roles

International Salon 7

Chair: Haolin Zeng

1:30 pm

Do ant colonies collectively learn to improve pavement construction?

Haolin Zeng, Jonathan Bowles, Takao Sasaki
University of Georgia

1:45 pm

Mechanisms and functions of collective behavior in diverse neotropical *Lepidoptera* larvae

Avaneesh Narla, Thalia Corahua-Espinoza, Jacob Harrison, Suraj Shankar, Saad Bhamla
Stanford University, Universidad Nacional Amazónica de Madre de Dios, Georgia Institute of Technology, University of Michigan

2:00 pm

The onset of laziness: intrinsic motivation and local cues interact to mitigate traffic in fire ants

Laura Treers, Michael Goodisman, Daniel Goldman
University of Vermont, Georgia Institute of Technology

2:15 pm

Teamwork in the torrent: collective behaviors of flood survival in social insects

Andrew Robertson, Daniel Goldman, Michael Goodisman
Georgia Institute of Technology

2:30 pm

How do ants avoid traffic jams?

Kimberly Bowal
Harvard University

1:30 PM – 2:45 PM

**Complementary session 1 to S3:
Fleshing it out: recent advances
in form, function and motor
control of biological hydrostats
International Salon 5**

Chair: Peishu Li

1:30 pm

Deadly Embrace: Predating Fast-Escaping Aquatic Worms from Leech Spirals to Planarian Wraps

*Harry Tuazon, Hiteshri Chudasama, Saad Bhamla
Georgia Institute of Technology*

1:45 pm

Eversion Mechanics of Bloodworms
*SooHwan Kim, Atsingnwi Tuma, David Qin, Essy Behraves, Aqua Asberry, Joseph Thompson, Stanislav Emelianov, David Hu
Georgia Institute of Technology, Franklin & Marshall College*

2:00 pm

Using a digital endocast to evaluate feeding performance during suckling in mammalian infants

*Hannah Shideler, Thomas Stroud, Emily Volpe, Dylan Anderson, Skyler Wallace, Maressa Kennedy, Ani Smith, Holly Sabato, Shanique Yazzie, Elska Kaczmarek, Christopher Mayerl, Harlow Smith
Northern Arizona University*

2:15 pm

Exploiting Surface Tension: Aquatic Worms and the Formation of Large Floating Buoys

*Harry Tuazon, Emily Kaufman, Tuhin Chakraborty, Vishal Patil, Saad Bhamla
Georgia Institute of Technology, University of California, San Diego*

2:30 pm

Magic Angles and Force Transmission in Helically-Wrapped, Pressurized, Cylindrical Worms

*Olaf Ellers, Amy Johnson, Matthew McHenry
Bowdoin College, UC Irvine*

1:30 PM – 3:30 PM

**Conservation ecology:
movement and monitoring
A703**

Chair: Mattina Alonge

1:30 pm

Risk analysis of elasmobranch species as biovectors using satellite telemetry
*Alyssa Walter, Elizabeth Duncan, Morgan Youngblood, Chris Caldwell, Christopher Lowe, Ryan Logan, Emily Spurgeon, Kady Lyons, Ryan Freedman, Varenka Lorenzi
California State University, Monterey Bay, Channel Islands National Marine Sanctuary, University of Hawai'i at Hilo, Georgia Aquarium*

1:45 pm

Characterizing the feeding patterns of gray whales (*Eschrichtius robustus*) in Puget Sound

*Darian Pierre, Christine Mantegna, Alexis Morigan, Camille Gaynus, Tiara Moore
University of Nebraska-Lincoln, University of Washington, The Whale Museum, Black In Marine Science*

2:00 pm

Disruptions to the trait-environment relationships of African mammals
*Jenny McGuire, A. Michelle Lawing, Daniel Lauer, Leila Siciliano-Martina, Julia Schap, Maria Hurtado-Materon, Rachel Short
Georgia Institute of Technology*

2:15 pm

The use of multidimensional endocrine panels in navigating curious complexities of pseudopregnancy

*Mattina Alonge, Creagh Breuner, Helen Chmura
University of Montana, Rocky Mountain Research Station, United States Forest Service*

2:30 pm

Integrating non-invasive endocrine sampling into conservation monitoring

*Helen Chmura, Mattina Alonge, Creagh Breuner
Rocky Mountain Research Station, United States Forest Service, University of Montana*

2:45 pm

Comparing 2023 and 2024 intertidal monitoring surveys conducted on Yellow Island

*Noah Krebs, Christine Mantegna, Tiara Moore, Camille Gaynus
University of Washington, Black In Marine Science*

3:00 pm

Testing concentric circular plots using mark-recapture techniques in a coastal marine environment

*Megan Sims, Heather Mason, Emily Rose
Valdosta State University, The University of Tampa*

3:15 pm

Enhancing microclimate models with AI: from bias correction to spatial Interactions

*Idan Sulami, Alon Itzkovitch, Shimon Shahar, Michael Kearney, Ofir Levy
Tel Aviv University, University of Melbourne*

1:30 PM – 3:30 PM

**Division of Comparative
Biomechanics Best Student
Presentation Wainwright
and Koehl Award**

A704

Chair: Glenna Clifton

1:30 pm

Rapid propulsion and maneuver by aquatic whirligig beetles (Gyrinidae)

*Yukun Sun, Emily Palmer, Aspen Shih, Christopher Dougherty, Chris Roh
Cornell University*

1:45 pm

Toe tips and tricks: climbing kinematics and morphology of *Aneides* salamanders

*Jonathan Huie, R. Pyron, Sandy Kawano
The George Washington University*

2:00 pm

An insect-inspired soft antenna reveals the role of mechanics and contact speed in touch sensation

*Lingsheng Meng, Parker McDonnell, Kaushik Jayaram, Jean-Michel Mongeau
Penn State University, University of Colorado Boulder*

2:15 pm

A generative model of the hinge muscle in *Aplysia californica* using Approximate Bayesian Computation

*Michael Benington, Victoria Webster-Wood
Carnegie Mellon University*

2:30 pm

The allometry of cutting efficiency in *Atta cephalotes* leaf-cutter ants

*Olivia Walthaus, Finn Wagner-Douglas, Lina Rhmari-Tiemcani, David Labonte
Imperial College London, Hochschule Bremen*

2:45 pm

Skeletal muscle energy use: accounting for subject-specific neuromechanical contributions

*Ryan Konno, Glen Lichtwark, Taylor Dick
The University of Queensland*

3:00 pm

Scorpions use flexible, multi-jointed tails for rapid defensive strikes

*Sophie Hanson, Jacob Harrison, Saad Bhamla
University of California, Berkeley, Georgia
Institute of Technology*

3:15 pm

Why spiders dynamically crouch their legs on webs to sense prey—evidence from robophysical modeling

*Eugene Lin, Yishun Zhou, Hsin-Yi Hung, Luke Moon, Andrew Gordus, Chen Li
Johns Hopkins University*

1:30 PM – 3:30 PM

**Division of Invertebrate Zoology
Best Student Presentation
Mary Rice Award**

A601

Chair: Robert Podolsky

1:30 pm

Unveiling mutable collagenous tissue modulators in the brittle star *Ophiomastix wendtii*

Reyhaneh Nouri, Vladimir Mashanov, Denis Jacob-Machado

*University of North Carolina at Charlotte,
Wake Forest Institute for Regenerative Medicine*

1:45 pm

Predation and multifunctionality in the macroevolution of ant mandibles

*Julian Katzke, Evan Economo
Okinawa Institute of Science and Technology*

2:00 pm

How chitons coexist: metabolic rates and thermal tolerances differ among New World Tropical Chiton

Adriana Halvonik-Sanchez, Amy Maas, Daniel Speiser

*University of South Carolina, Bermuda
Institute of Ocean, Arizona State University*

2:15 pm

Cyclical gene expression under different light conditions in the fiddler crab, *Leptuca pugilator*

Caitlin BrabbleRose, Quinton Krueger, Adam Reitzel, Paola López-Duarte

*University of North Carolina at Charlotte,
Portland State University*

2:30 pm

What Good Are Soldiers During Peacetime? Foraging Efficiency of Fire Ant Soldiers

*Darmon Kahvazadeh, Kaushik Rahman, Dal Hyung Kim, Clint Penick
Auburn University*

2:45 pm

Opsin localization using HCR-FISH in scallop larvae provides new insights into larval photoreception

*Md Shazid Hasan, Jorge Audino, Kyle McElroy, Jeanne Serb
Iowa State University, University of São Paulo*

3:00 pm

Exploring Regional Diversity in Solenogastres (Mollusca, Aplacophora): Insights from Icelandic Water

Chandler Olson, M. Carmen Cobo, Kevin Kocot

*University of Alabama, The Smithsonian
Institute*

3:15 pm

Thermal responses in Hawaiian volcano shrimp: active vs. passive plasticity across genetic lineages.

Mariangel Correa-Orellana, Ash Romero, Kendra Zwonitzer, Troy Sakihara, Cassidy Hawk, Erik Iverson, Justin Havird

*The University of Texas at Austin, State
of Hawai'i Division of Aquatic Resources,
University of Texas at Austin*

1:30 PM – 3:45 PM

**Ecophysiology: thermal effects
International Salon 4**

Chair: Michael Moore

1:30 pm

Hot or not? The effects of temperature on anuran glucocorticoid regulation

*Eleanor Shell, Cris Ledón-Rettig
Indiana University*

2:00 pm

Rattlesnake thermo-hydroregulation as a model for understanding responses to climate change

*Derek Benson, Dale DeNardo
Arizona State University*

2:15 pm

Acclimation effects on cutaneous evaporative water loss in chameleons living in dynamic environments

Madison McIntyre, Etti Cooper, Graham Alexander, Krystal Tolley, Christopher Anderson

*University of South Dakota, University of
the Witwatersrand, South African National
Biodiversity Institute*

2:30 pm

Aerobic constraints limit the territorial behavior of dragonflies at high elevations

*Michael Moore, Allison Pierce
University of Colorado Denver*

2:45 pm

Squid mutualisms running hot – symbiotic bacteria as a proxy of host fitness under climate stress

*Malcolm Thieme, Brent Zeyus Valdez, Michele Nishiguchi, Diya Vakil
University of California, Merced*

3:00 pm

Finding common ground: a discussion of methodological standardization in lizard thermal physiology

*Charles Watson
Texas A&M University - San Antonio*

3:15 pm

Impacts of warming temperatures and symbiont density on crayfish behavior.

*Tara Cronin, Michael Childress, Sabrina Fernandez, Megan Taylor, Tess Abrams
Clemson University*

3:30 pm

How do wild nestlings respond to repeated heat exposure? An integrative approach

*Atalanta Ritter, Emily Levy, Kimberly Rosvall
Indiana University*

1:30 PM – 3:15 PM

**Host-parasite interactions
International Salon 9**

Chair: Sarah DuRant

1:30 pm

Yolk steroids but not antibodies vary with prior maternal disease exposure and diet.

Sarah DuRant, Erin Sauer, Ashley Love, Ryan Paitz

*University of Arkansas, University of
Connecticut, Illinois State University*

1:45 pm

The Immunological Trajectory of Chytridiomycosis in the Highly Susceptible Panamanian Golden Frog
Julian Urrutia-Carter, Lauren Peiffer, James Steeil, Leon Grayfer, Brian Gratwicke, Patricia Walsh, Carly Muletz-Wolz, Sara Hasenstab, Matthew Evans, Owen Osborne, Amy Ellison
Smithsonian National Zoo and Conservation Biology Institute, Wildlife Health Sciences, George Washington University, Smithsonian National Zoological Park, Bangor University

2:15 pm

Heterogeneity in gene expression during infection is augmented by host prior pathogen exposure
Anna Perez-Umphrey, Jeremy Miller, Edan Tulman, Jesse Garrett-Larsen, James Adelman, Steven Geary, Dana Hawley
Virginia Tech, University of Connecticut, The University of Memphis

2:30 pm

Differential gene expression in two marine turtle species variably impacted by a tumor disease
Katherine Martin, Kate Mansfield, Anna Savage
University of Central Florida

2:45 pm

Transcriptomic analysis of immune system ontogeny in a temperate coral
Isabella Changsut, Erin Borbee, Lauren Fuess, Koty Sharp
Texas State University, Roger Williams University

3:00 pm

Surveillance and histopathological evaluation of acanthocephalan parasites in turtles
Ryan Koch, Matthew Bolek

1:30 PM – 3:00 PM

Mechanisms and biomarkers of senescence

A706

Chair: Randy Klabacka

1:30 pm

What's my age again? A comparison of bottlenose dolphin aging techniques
Sophia Brice, Wayne McFee, Jamie Torres
Florida Southern College

1:45 pm

A novel carnivorous diet reduces brain telomere length in spadefoot toads
Alex Shephard, Cris Ledón-Rettig
Indiana University

2:00 pm

Evaluating Aging Markers in Blood: Stable Telomeres and Sex-specific Changes in mtDNA Copy Number
Anet Filipova, Kimberley Glenn, Tonia Schwartz, Robert Cox, Aaron Reedy
Auburn University, University of Virginia, DataClassroom

2:15 pm

Using DNA methylation to explore the environmental drivers of senescence in the wild wood mouse
Sarah Wolf, Amy Pedersen, Simon Babayan, Riccardo Marioni, Tom Little
University of Edinburgh, University of Glasgow

2:30 pm

Uncoiling senescence: Using garter snakes to understand the genetics of aging
Randy Klabacka, Anne Bronikowski, Jessica Judson, Daniel Nettleton, Laurie Stevison, Suzanne McGaugh, Andrew Lithio, Dawn Reding, Tonia Schwartz
Brigham Young University, Michigan State University, Auburn University, University of Minnesota, Iowa State University, Luther College

2:45 pm

Testing the influence of chronic radiation exposure on biological aging trajectories in Medaka fish
Ethan Shealy, Steven Gardner, Marilyn Mason, Benjamin Parrott
University of Georgia

1:30 PM – 3:30 PM

Parental care International Salon 10

Chair: Liam Taylor

1:30 pm

The influence of boating noise on parental care behaviors of smallmouth bass (*Micropterus dolomieu*)
Alexandria West, Paul Moore, Alexandria West
Bowling Green State University

2:00 pm

Behavioral and molecular mechanisms of sex-reversed parental care in poison frogs
Jeanette Moss, Eva Fischer
Virginia Tech, University of Illinois at Urbana-Champaign

2:15 pm

Scheduling problems and the energetics of biparental care in an imperiled seabird
Liam Taylor, Patricia Jones, Mark Haussmann, Robert Mauck
Bowdoin College, Bucknell University, Kenyon College

2:30 pm

Mechanisms driving behavioral responses to invasive species in threespined stickleback
Eric Arredondo, Laura Stein, Brendon Byrd
University of Oklahoma

2:45 pm

Gonad transcriptomes of both sexes are shaped by recent loss of male parental care in stickleback
Victoria Farrar, Alison Bell
University of Illinois Urbana-Champaign

3:00 pm

Paternal absence alters milk proteome in the biparental prairie vole (*Microtus ochrogaster*)
Jesus Madrid, Travis Covitz, Abbey Kampel, Ehren Bentz, Alexander Ophir
Cornell University, University of Rochester

3:15 pm

Effects of extra-pair paternity on provisioning effort in male house wrens (*Troglodytes aedon*)
Avery Dart, Charles Thompson, Scott Sakaluk, Pirmin Nietlisbach
Illinois State University

1:30 PM – 3:30 PM

Population and evolutionary ecology International Salon 2-3

Chair: Tony Williams

1:30 pm

Should we care about pre-adult mortality?
Tony Williams
Simon Fraser University

1:45 pm

Utilizing agent-based modeling to understand amphibian life cycle ecology and evolution

Jesus Lopez, Ashley Teufel, Robert Page
Texas A&M University-San Antonio,
Northwestern State University

2:00 pm

Mapping differential adaptation on landscape with multivariate analysis and machine learning

Mikhail Matz, Kristina Black
University of Texas at Austin

2:15 pm

Cryptic diversity and conservation: A case study of Chamberlain's Dwarf Salamander

Raquel Gonzalez, Padraic Robinson, David Beamer, Stacey Lance, Todd Pierson
Kennesaw State University, University of Georgia SREL, East Carolina University

2:30 pm

Conservation genomics of the eastern indigo snake

Matthew Buehler, Jamie Oaks, Brian Counterman
Auburn University

2:45 pm

Exploring genetic diversity in green salamanders (*Aneides aeneus*) at Bays Mountain Park

Brianna Drake, Joe Bidwell, Trevor Chapman
East Tennessee State University

3:15 pm

The outcome of total sexual selection in the leaf footed cactus bug

James Boothroyd, Michael Forthman, Christine Miller
University of Florida, California State Collection of Arthropods, University of Cambridge

1:30 PM – 3:30 PM

Symbioses among organisms and cells

Marquis D

Chair: Kaden McKenzie Muffett

1:30 pm

Host and microbiome response to a two-month heat gradient in the cnidarian model *Exaiptasia*

Kaden Muffett, Emilia Sogin, Mara Schwiesow
University of California Merced

1:45 pm

Interkingdom dynamics in the gut microbiome of an amphibian model system

Jason Dallas, Kylie Moe, Mitra Ghotbi, Kaitlyn Murphy, Lluvia Vargas-Gastélum, Kerry McPhail, Joseph Spatafora, Jason Stajich, Donald Walker
Middle Tennessee State University

2:00 pm

The influence of symbiosis and heterotrophy on energy reserves in *Aiptasia* pedal lacerates

Erick White, Virginia Weis
Oregon State University

2:15 pm

Acquisition of neurotoxin-producing bacteria by newt hosts

Samantha Westcott, Joshua Iizuka, Gary Bucciarelli, Elizabeth Heath-Heckman, Heather Eisthen
Michigan State University, University of California-Davis

2:30 pm

Divergence in microbe-driven life history responses in a fig-associated nematode

Austin Link, Kimberly Moser, Gavin Woodruff
University of Oklahoma

2:45 pm

Phagocytosis of bacterial bioparticles by *Cassiopea* mesogleal cells

Cody Miner, Mark Martindale
The University of Florida

3:00 pm

Protozoan animal ancestors: Multicellularity and colony form of choanoflagellates affect performance

Mimi Koehl, Tom Hata, Hoa Nguyen, Lisa Fauci
University of California, Berkeley, Trinity University, Tulane University

1:30 PM – 3:15 PM

Transcriptomic responses

International Salon 8

Chair: Eric Randolph

1:30 pm

Dormant but Stressed: Transcriptomic Responses of Diapausing Embryos Exposed to Anoxia

Patrick Clouser, Jason Podrabsky
Portland State University

1:45 pm

Identifying common sex-specific aging markers across species in RNA-seq data

Eric Randolph, Yifei Fang, Jingyue Duan, Peggy Biga, Nicole Riddle
University of Alabama at Birmingham, Cornell University

2:00 pm

Laser capture microdissection reveals tissue-specific gene expression patterns of two coral species

Zoe Dellaert, Hollie Putnam
University of Rhode Island

2:15 pm

Gene adaptation and response to hydrostatic pressure in adult zebrafish

Jaralynn Tammi Morellano, Katelyn Mika
Mika Lab, University of Tulsa

2:30 pm

Tickled Zinc: Characterizing A-to-I RNA Edits in *O. Rubescens* in response to ocean acidification

Meg Mindlin, Ricky Wright, Kirt Onthank
Walla Walla University

2:45 pm

Characterizing the aging transcriptome of Japanese medaka fish

Megan Deeter, Ethan Shealy, Marilyn Mason, Benjamin Parrott
University of Georgia

3:00 pm

Evolution of transcriptional responses to host plant in two saguaro specialists

Andrew Legan, Carson Allan, Sergio Castrezana, Luciano Matzkin
University of Arizona

7:30 PM – 8:30 PM

Howard Bern Lecture:

Dr. Donna Maney

Marquis B

Sponsored by
Arbor Assays

7:30 pm

The bird that broke the binary

Donna Maney
Emory University

Sunday POSTER SESSION P2

Atrium Ballroom • 3:30-5:30 PM

Poster Set Up: 7:00-8:00 am • Poster Teardown: 5:30-6:00 pm

Even # - Authors present from 3:30-4:30 pm • Odd # - Authors present from 4:30-5:30 pm

Division of Ecology and Evolution Best Student Presentation Huey Award

P2-1

The Andes are a driver of physiological diversity in *Anolis* lizards

Jhan C. Salazar-Salazar, Gustavo Londoño, Martha Muñoz, Donald Miles, Maria del Rosario Castañeda
Washington University in St. Louis, Universidad Icesi, Yale University, Ohio University

P2-2

The Snake Fungal Disease pathogen influences the evolution of the skin microbiome

Ian Wilson, Tatyana Martinez, Kaitlyn Murphy, Jason Dallas, Marc Chevrette, Donald Walker
Middle Tennessee State University

P2-3

Plant-pollinator interactions influence pathogenic disease transmission in bumblebees

Emelia Kusi, Lynn Adler
University of Massachusetts, Amherst

P2-4

Shrinking sparrows: How climate change impacts avian morphology and fitness

Rachel Bockrath, Britt Heidinger, David Westneat
North Dakota State University

P2-5

The new owners of your trash: characterizing the microbial plastisphere in the deep ocean

Emma Edwards, S. Ruff, Rut Pedrosa-Pamies, Molly Moynihan, Emeline Vidal, Roo Weed, Eleanor Greene, Chase Glatz
The University of Chicago

P2-6

Urbanization and the gut microbiome: insights from Anna's Hummingbirds (*Calypte anna*) in California

Olivia Weklar, Tiana Bishop, Valentina Alaasam, Kristin Winchell, Jenny Hazlehurst
New York University, California State University - East Bay

P2-6a

Replicated tests for urban thermal adaptation in the green anole lizard *Anolis carolinensis*

Shannan Yates, Alex Gunderson
Tulane University

All about birds: physiology, ecology, and behavior

P2-7

Under the weather: interactions between stress physiology and storms in wild passerines

Annie Riffée, Jason Davis
Radford University

P2-8

Activation of the sympathetic-adrenal-medullary system increases DNA damage during the transition to captivity

Denyelle Kilgour, L. Michael Romero
Tufts University

P2-9

CNTNAP2 is consistently expressed during the song learning period in zebra and bengalese finches

Mallie Roley, Riley Dodd, Nicole Baran
Davidson College

P2-11

Do the migratory parrots pack light for their domestic flights?

Aubrey Keirnan, Vera Weisbecker, Andrew Iwaniuk
Flinders University, University of Lethbridge

P2-12

Damage control: does telomere length explain individual variations in survival?

Ilona Grentzmann, Gilles Gauthier, Cristoforo Silvestri, Frédéric Angelier, Pierre Legagneux
Université Laval

P2-13

Epigenetic potential changes over 100 years in five introductions of introduced house sparrow

Danielle Dawkins, Mark Ravinet, Kevin Kohl, Lynn Martin, Aaron Schrey
Georgia Southern University, University of Oslo, University of Pittsburgh, University of South Florida

P2-14

Corticosterone rapidly alters ketone dynamics in young seabird chicks

Morgan Benowitz-Fredericks, Sierra Pete, Maria Pisciotto, Eadaoin Kelly, Shannon Whelan, Alexander Kitaysky
Bucknell University, University of Alaska Fairbanks

P2-15

Comparing stress physiology in brood parasitic and non-parasitic blackbirds

Alexandria Baum, Kathleen Lynch, Kathleen Lynch
Hofstra University

P2-16

Flight energetics of Anna's hummingbirds

Mauricio Cruz, Derrick Groom, Alejandro Rico-Guevara
San Francisco State University, University of Washington, Seattle

P2-17

Improving with age? The influence of age on testosterone and parental behavior in a wild songbird.

Samuel Lane, Bethany Bespoyasny, Holland Galante, Jaxsyn Delorme, Timothy Greives, Britt Heidinger
North Dakota State University, United Tribes Technical College

P2-18

Stress-induced changes in corticosterone and mitochondrial efficiency affect DNA oxidative damage in Leach's storm-petrels (*Hydrobates leucorhous*)

Kayla Lichtner, Nicole Joseph, Sarah Chapman, Tori Chace, Robert Mauck, Patricia Jones, Mark Haussmann
Bucknell University, Kenyon College, Bowdoin College

P2-19

Variation in food delivery and early-life telomere dynamics in a long-lived seabird

Sarah Chapman, Kayla Lichtner, Tori Chace, Nicole Joseph, Patricia Jones, Robert Mauck, Mark Haussmann
Bucknell University, Bowdoin College, Kenyon College

P2-21

Stress changes DNA methylation over 8 hours in house sparrow (*Passer domesticus*)

Oluremi Ige, Aaron Schrey, Kevin Kohl, Lynn Martin

Georgia Southern University, University of Pittsburgh, University of South Florida

P2-22

The seasonality of energy balance strategies in Anna's hummingbird (*Calypte anna*)

Chelsea Johnson, Sam Sandoval, Jesus Ovalle, Derrick Groom

San Francisco State University

Complementary session to Cities as a natural experiment: how organisms are finding different solutions to the same urban problems

P2-23

Which factors affect thermoregulatory decisions in urban common wall lizards (*Podarcis muralis*)?

Gabrielle Plunkett, Tyler Williard, Logan Fraire, Sierra Spears, Emma Foster, Devon Haley, Alyssa Head, Maya Moore, Brittney Parks, Jasmyn Zimmerman, Shala Hankison, Allison Litmer, Eric Gangloff

Ohio Wesleyan University

P2-24

Variation in the gut microbiota among urban and rural populations of wild house mice

Samantha Giancarli, Renè Clark, Adrienne Kasprovicz, Stephen Kupchella, Logan Lacy, Megan Phifer-Rixey

Drexel University

P2-25

Effects of urbanization on the immunophysiology in Cardueline finch species

Xue Her, Joel Slade

California State University, Fresno

P2-26

Morphological variation among urban and rural populations of wild house mice

Stephen Kupchella, Anne Kort, Megan Phifer-Rixey

Drexel University, Indiana University Bloomington

P2-27

Indications of short- and long-term urbanization stress in deer mice

Elizabeth Addis, Lauren Acuff, Louis Nipp, Eva Guzman, Brooke Robertson, Sydney Suggs, Ashley Beck, Laurie Dizney

Gonzaga University, Carroll College, University of Portland

P2-28

The effects of feeding regime on energetics in common wall lizards (*Podarcis muralis*)

Brittney Parks, Ashley Mollett, Eric Gangloff, Allison Litmer

Ohio Wesleyan University

P2-29

Influences of artificial selection and captivity on raccoon cranial morphology

Christina Sluka, Mark Clementz, Sarah Benson-Amram, Merav Ben-David

University of Wyoming, University of British Columbia

P2-30

Urban oases: bird diversity, wetlands, and the urban heat island

Emerald Lin, Olivia Weklar, Kristin Winchell

New York University

P2-31

Rapid phenotypic change in wing color and shape in invasive spotted lanternfly

Gaia Rueda-Moreno, Kristin Winchell, Fallon (Fang) Meng

New York University

P2-32

Winds of Change: Chicago's Urban Impact on Mammalian Evolution

Luna Bian, Alyssa Stringer, Stephanie Smith, Anderson Feijo

Adlai E. Stevenson High School, Knox College, Field Museum of Natural History

P2-33

Genetic Connectivity of Invasive Spotted Lanternfly Populations Across an Urbanization Gradient

Nicolas Largotta, Brenna Levine

Kean University

P2-34

Comparing Cold Tolerance in Urban and Non-Urban Caribbean Rain Frogs in the Dominican Republic.

Reveca Ramírez-Gómez, Nathalie Alomar, Martha Muñoz, Isabela Hernandez-Rodriguez

Universidad Autónoma de Santo Domingo, Yale University

P2-35

Effects of urbanization and temperature on the bill morphology of an insectivorous bird

Aziza Carrillo, Sage Madden, Ian Haliburton, Thomas Hahn, Gail Patricelli

University of California, Davis

Ecological physiology and functional morphology of plants

P2-36

Do carnivorous bladderworts funnel prey into their traps - reexamining trap entrance structures

Celia Arzola, Lukyon Mendrin, Ulrike Muller,

Luz Gonzalez-Ponce, Otto Berg

California State University Fresno

P2-37

Characterizing root system diversity in Australian bush tomatoes

Rebecca Beneroff, Chris Martine

Bucknell University

P2-38

A dynamically scaled model to study form-function relations in bladderwort, a carnivorous plant

Nari Chang, Ulrike Muller, Otto Berg

California State University Fresno

P2-39

How bulbs get swole: resource allocation patterns across bulbous plants.

James Davis, Cody Howard

Oklahoma State University

P2-40

Anatomical mapping of leaf water content.

Ogonna Eli

Northern Arizona University

Flight mechanisms and behaviors

P2-42

Biomechanics of campaniform sensilla: a functional interpretation of strain sensing on insect wings

Myriam Uhrhan, Huai-Ti Lin

Imperial College London

P2-44

Furling, morphing, or both? Feather muscle structure in bird wings using contrast-enhanced microCT

Tobin Hieronymus, Jasmin Wong, Margaret Kilbane, Ishani Pandit, Shane Windsor

Northeast Ohio Medical University, University of Bristol

P2-46

Characterisation of wing morphing in manoeuvring avian flight

Davina Thandi, Lydia France, Henry Cerbone, Graham Taylor
University of Oxford

P2-47

Axial twist: A flying snake's secret weapon for jumping?

Joshua Taylor, Jeffery Anderson, Joshua Pulliam, Jake Socha
Virginia Tech

The neurobiology of migration

P2-48

Fall migratory photoperiod responses in a facultative migrant, the Anna's hummingbird (*Calypte anna*)

Sam Sandoval, Chelsea Johnson, Jesus Ovalle, Derrick Groom
San Francisco State University

P2-49

Antennal posture in spiny lobsters during orientation

Elizabeth O'Melia, Hazel Havens, Kenneth Lohmann
University of North Carolina at Chapel Hill

P2-50

Does the experience of leaving home trigger magnetic orientation in hatchling sea turtles?

Isabelle Sechrest, Jadya Sethna, Stella Sherrill, Catherine Lohmann, Kenneth Lohmann
University of North Carolina at Chapel

P2-51

Do solar storms impact hatchling sea turtle magnetic orientation behavior?

Dana Lim, Catherine Lohmann, Kenneth Lohmann
University of North Carolina at Chapel Hill

P2-52

Do blacktip sharks (*Carcharhinus limbatus*) travel in groups?

Denise Garcia-Salas, Beth Bowers, Stephen Kajiura, Mathew Ogburn
Florida Gulf Coast University, Smithsonian Environmental Research Center, Florida Atlantic University

Behavior and physiology across environments

P2-53

Automated quantification of parental behaviors to uncover differences in two estrildid finch species

Alex Meyers, Nicole Baran, Grace Smith-Vidaurre
Davidson College, Michigan State University

P2-54

What affects honeybee (*Apis mellifera*) recruitment to pollen sources?

Madeline James, Peculiar Emmanuel-king, Erian Stewart, Morgan Carr-Markell
Saint Mary's College

P2-55

Effects of anthropogenic sound on bluegill (*Lepomis macrochirus*) nesting behavior

Macey MacLean, Leah Glimsdal, Allen Mensinger
University of Minnesota Duluth, The Marine Biological Laboratory

P2-56

Studying animal behavior underwater with remotely deployed video

Korrie Brown, Catheline Froehlich, Miranda Gibson, Rachel Gunn, Ryan Earley, Alex O'Brien, Benjamin Titus
University of Alabama

P2-57

Early life wheel exercise and anxiety behaviors in laboratory mice

Jeremy Almazan, Ramiro Barajas, Emily Grace Pineda, Yesenia Avalos, Apolo Ibanez-Rincon, Angela Horner
California State University San Bernardino

P2-58

Parental neophobia and innate immune function in House Sparrows (*Passer domesticus*)

Sarah Brown, Hailey Freeman, Emily Regier, Elizabeth Cochrane, Samuel Lane, Britt Heidinger, Lindsey Willingham, Alexander Hoxie, Heather Mathewson, Jennifer Grindstaff
Oklahoma State University, North Dakota State University, Tarleton State University

P2-59

Larger fledglings may get the worm; the relationship between nestling size and fledging order

Kathryn Stewart, Addi Lusk, Jasmine Morris, Olivia Saari, Troy Murphy
Louisiana State University, Trinity University

P2-60

Assessing the impact of biologging devices on hummingbird flight performance and survivorship

Mary Tucker, Chris Clark
UC Riverside

P2-61

Analyzing opportunistic whale-watch data: variables impacting humpback sightings & behavior

Eman Khwaja, Kathryn Kavanagh
University of Massachusetts Dartmouth

P2-62

Habitat complexity influences anti-predatory behavior of *Ancanthurus nigrofiscus*

Dkaria Bascom, Kai Davis, Adrianna Johnson, Anthony Philbois, Paul Barber, Alex Davis, Caitlin Fong, Peggy Fong
Minorities in Shark Sciences, East Carolina University

P2-63

Variation in activity as a function of lunar phases in an intertidal fish

Sameen Hossain, Riley Wood, Ryan Earley
University of Alabama

P2-64

Range expansion phenotypes in a non-native population of *Gambusia affinis*

Skyler Woodley, Isaac Ligocki
Millersville University

P2-65

Impact of ambient light levels on silver and bighead carp schooling behavior

Amelia Berry, Michael Frett, Brooke Vetter, Allen Mensinger
University of St. Thomas, University of Minnesota, The Marine Biological Laboratory

Environmental pollutants and toxicants: microplastics

P2-66

Identifying microplastics in the diets of cavity-nesting songbirds

Sage Forsythe, Victoria Moreira, Megan Fork, Jennifer Uehling
West Chester University

P2-67

Exploring microplastics in a flock of migrating songbirds: cedar waxwings (*Bombycilla cedrorum*)

Katie Wheeler, Sara O'Brien, Brian Walker, Andrew White, Brianna DiMaggio, Karen Powers, Matthew Close, Jamie Lau
Radford University, Fairfield University

P2-68

Microplastic abundance in fish species with differing feeding habits in a large midwestern river

Michael Louison
McKendree University

P2-70

Quantifying and characterizing microplastic contamination in the greater Philadelphia area

Emily Lybashev, Alex Korbobo, John Belmonte, Colleen Bove
Ursinus College

P2-71

Exposure to polyethylene microplastics effects dragonfly (*Tramea* sp.) nymph respiration

Kai Takenaga, Anna Gregg, Steven Lane
Malone University

P2-72

Physiological impacts of chronic microplastic exposure on zebrafish (*Danio rerio*)

Samantha Leigh, William Nguyen
California State University Dominguez Hills

P2-73

Detection and depuration of microplastics in American oyster collected from Gulf of Mexico coast

Rebecca Muniz, MD Rahman
University of Texas Rio Grande Valley

Chemoreception

P2-74

Pirates of sensory biology: mapping the olfactory receptor neuron density in Pacific spiny dogfish

Gabriella Castillo, Aubrey Clark, Marianne Porter, Tricia Meredith, Lauren Simonitis
Florida Atlantic University

P2-75

Quantifying structural and sensory olfactory morphology in the Blacktip Shark

Nicole Demaras, Lauren Simonitis, Aubrey Clark, Marianne Porter, Tricia Meredith
Florida Atlantic University

P2-76

How do flies get trapped? Identifying the genetic basis of trappability evolution in *D. melanogaster*

Sophia LaRoche, Julia Saltz, Lea Pollack
Rice University

P2-77

Plug and play: using vinegar flies to generate decoder systems for insect odorant receptors

Clara Sandberg, Roeskva Torhalsdottir, Gregory Pask, Lisa Brady, Tobias Ziemke
Middlebury College

P2-78

Chemically mediated behavioral responses of early benthic juvenile Caribbean spiny lobsters

Yuriy Bobkov, J. Strickler, Charles Derby
University of Florida, University of Texas, Georgia State University

P2-80

Optimizing the workspace: Internal nasal anatomy in roundleaf bats

Tim Smith, Vaibhav Chhaya, Nicholas King, Abigail Curtis, Thomas Eiting, Sharlene Santana
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Auburn University

P2-224a

Nudibranch novelty: Spatial-transcriptional characterization of cerata in *Berghia stephanieae*
Rebecca Lopez-Anido, Teresa Attenborough, Kate Rawlinson, Jessica Goodheart
American Museum of Natural History, University of Glasgow, University of Chicago

Monday Schedule of Events

Events take place in the Atlanta Marriott Marquis, unless otherwise noted

EVENT	TIME	LOCATION
Poster Session 3 Set Up	7:00 AM – 8:00 AM	Atrium Ballroom
Speaker Ready Room	7:00 AM – 5:00 PM	L503
Registration	7:30 AM – 3:30 PM	Marquis Registration
Coffee Break AM	9:30 AM – 10:30 AM	Atrium Ballroom
Exhibit Hall	9:30 AM – 5:30 PM	Atrium Ballroom
Coffee Break PM	3:30 PM – 4:30 PM	Atrium Ballroom
Poster Session 3 Even Numbers Authors Present	3:30 PM – 4:30 PM	Atrium Ballroom
Poster Session 3 Odd Numbers Authors Present	4:30 PM – 5:30 PM	Atrium Ballroom
Poster Session 3 Teardown	5:30 PM – 6:00 PM	Atrium Ballroom
SPECIAL LECTURE		
George A. Bartholomew Lecture: Dr. Kathryn Wilsterman A missing piece of the whole: reproductive traits and local adaptation <i>Sponsored by Sable Systems International</i>	7:30 PM – 8:30 PM	Marquis B
SYMPOSIUM ORAL PRESENTATIONS		
S7: Integrative organismal biology at HBCUs: highlighting the effectiveness of HBCUs in training the next generation of organismal biologists	8:00 AM – 9:00 AM	Marquis A
S8: Applied ecoimmunology in wildlife health and conservation	9:00 AM – 9:45 AM	Marquis B
S9: Cnidarian sensory systems as comparative models for the evolution of complexity	8:30 AM – 9:30 AM	Marquis C
CONTRIBUTED PAPER ORAL PRESENTATIONS		
MORNING		
Biology education research	8:00 AM – 9:30 AM	International Salon 4
Complementary session 1 to S4: From Evolution to innovation: Bridging biology and engineering through bioinspired design	8:00 AM – 9:45 AM	International Salon 8
Division of Phylogenetics & Comparative Biology chair's special session: What mammals have taught us through organism-focused evolution	8:00 AM – 9:45 AM	A601
Eco-physiology of reproduction	8:00 AM – 9:45 AM	International Salon 6
Hydrostats	8:00 AM – 10:00 AM	International Salon 5
Mechanisms of movement	8:00 AM – 10:00 AM	International Salon 2-3
Moving Through Water	8:00 AM – 10:00 AM	Marquis D
Muscles, Movement & Evolution: Commemorating Andrew Biewener's contributions to vertebrate biomechanics part 1	8:00 AM – 9:30 AM	A703
Neural development and anatomy	8:00 AM – 10:00 AM	International Salon 10
Phylogenetics of invertebrates	8:00 AM – 9:45 AM	International Salon 7
Physiological tradeoffs	8:00 AM – 10:00 AM	A707
Population genetics	8:00 AM – 9:45 AM	International Salon 9
Thermal effects on growth	8:00 AM – 9:45 AM	A704
Complementary session 1 to S6: Pollinator-plant interactions in a changing landscape: embracing integrative approaches across scales	10:00 AM – 12:00 PM	International Salon 4
Hard thing hydrodynamics	10:00 AM – 12:00 PM	International Salon 9
Muscles, Movement & Evolution: Commemorating Andrew Biewener's contributions to vertebrate biomechanics part 2	10:00 AM – 11:30 AM	A703
'Tis the season: seasonal changes and organismal effects	10:15 AM – 12:00 PM	International Salon 10
Complementary session 2 to S4: From Evolution to innovation: Bridging biology and engineering through bioinspired design	10:15 AM – 12:00 PM	International Salon 8
Environmental impacts on biodiversity	10:15 AM – 12:00 PM	International Salon 7
Evolution of body plans and complex traits	10:15 AM – 12:00 PM	A704
Complementary to the Bern lecture: moving beyond binary sex categories	10:30 AM – 12:00 PM	International Salon 6
Let's get intraspecific: within-species variation	10:30 AM – 11:30 AM	A601

Provisioning young with milk and eggs	10:30 AM – 12:00 PM	A707
Sensory systems under pollution	10:30 AM – 12:00 PM	International Salon 5
Convergent and parallel evolution	10:45 AM – 11:45 AM	International Salon 2-3

AFTERNOON

Amphibious and mud walkers	1:30 PM – 3:00 PM	International Salon 2-3
Complementary session 2 to S6: Pollinator-plant interactions in a changing landscape: embracing integrative approaches across scales	1:30 PM – 3:30 PM	International Salon 4
Complementary to the Bern lecture: remarkable advances for remarkable behaviors	1:30 PM – 3:15 PM	International Salon 6
Conservation ecology: species interactions and population dynamics	1:30 PM – 3:30 PM	International Salon 10
Division of Vertebrate Morphology Best Student Presentation D. Dwight Davis Award	1:30 PM – 2:30 PM	International Salon 9
Effects of climate on ocean species and communities	1:30 PM – 3:15 PM	International Salon 7
Fitness consequences of plasticity	1:30 PM – 3:30 PM	A601
Group movement dynamics	1:30 PM – 3:00 PM	A704
Hydrodynamics	1:30 PM – 3:30 PM	International Salon 8
Macroevolution	1:30 PM – 3:45 PM	A703
Thermal ecology in the cold times	1:30 PM – 3:00 PM	A707
Wingstop	1:30 PM – 3:30 PM	International Salon 5
Hanging on by a thread	2:30 PM – 3:30 PM	International Salon 9

COMMITTEE AND BOARD MEETINGS

Division Secretaries Meeting	12:15 PM – 1:15 PM	A708
2026 Symposium Organizers Meeting	12:15 PM – 1:15 PM	A702
Department Chairs Mentoring & Support	4:30 PM – 5:30 PM	A602

BUSINESS MEETINGS

SICB Society Member Meeting & Awards Presentation	6:00 PM – 7:00 PM	Marquis C
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WORKSHOPS AND PROGRAMS

Non-academic Scientific Careers Workshop	12:15 PM – 1:15 PM	Marquis A
Strategies for disrupting division	12:15 PM – 1:15 PM	A703
Disabled and Neurodivergent Experiences and Community Upcoming Symposium Hybrid Planning Meeting	5:00 PM – 6:00 PM	International Salon 1
TAL-X Workshop: Cosplay for Science: Leveling Up Your Science Outreach	7:00 PM – 9:00 PM	A601

SOCIAL EVENTS

Primarily Undergraduate Institution Social	7:00 AM – 8:30 AM	A701
Free Headshot Lounge	9:30 AM – 5:00 PM	Atrium Ballroom
Behind-the-scenes tour at the Amphibian Foundation	4:00 PM – 6:00 PM	Offsite
Meeting of the Minds	4:00 PM – 7:00 PM	International Salons ABC
DVM/DCB/DEDB Social	8:00 PM – 10:00 PM	Skyline Level
DCPB/BART Social	8:30 PM – 10:30 PM	Marquis Ballroom Foyer
Outgroup LGBTQ+ Social (21+)	8:30 PM – 10:30 PM	Offsite
DEDE Symposium Social	8:30 PM – 11:00 PM	A705

Monday Program Symposia

8:00 AM – 3:30 PM

S7: Integrative organismal biology at HBCUs: highlighting the effectiveness of HBCUs in training the next generation of organismal biologists

Marquis A

8:00 am

The Field and Function of the Historically Black Colleges and Universities in STEM, 2024

Joseph Graves

North Carolina A&T State University

8:30 am

Plants and their microbiomes: from integrative organismal biology to student engagement and training

Mentewab Ayalew

Spelman College

9:00 am ————— Coffee Break

10:30 am

Comparative Performance of Different Survey Methods for Monitoring Tropical Fish Assemblages

Lotanna Nneji, Segun Oladipo, Kehinde Adelakun

Howard University, Federal College of Wildlife Management, New Bussa, Niger State

11:00 am

Convergent soft tissue structure dictates patterns of skull shape evolution in teleosts

JoJo West, Rose Faucher, Kory Evans,

Ricardo Betancur-R, Dahiana Arcila, Elizabeth Miller, Stacy Farina

Howard University, Rice University, University of Oklahoma, Scripps Institution of Oceanography, University of California Irvine

11:30 am

Epistasis and GXE Interactions Drive Microbial Adaptation and Antimicrobial Resistance

Misty Thomas, Brittany Sanders, Joseph Graves

North Carolina Agricultural and Technical State University

12:00 pm ————— Lunch

1:30 pm

The Neurodegeneration Computational Fellows Program: A model for computational training at HBCUs

Dominique Pritchett, Kebreten Manaye, Vilas Menon

Howard University, Columbia University

2:00 pm

Exploring Microbial Communities of an Urban Ecosystem and Culturally Responsive Science Teaching

Ethell Vereen

Morehouse College

2:30 pm

DNA metabarcoding reveals the diet of an economically important fish - *Chrysichthys nigrodigitatus*

Segun Oladipo, Kehinde Adelakun, Ifeanyi Nneji, Olabisi Atofarati, Lotanna Nneji

Howard University, Federal College of Wildlife Management, New Bussa, Niger State

2:37 pm

Analysis of biosynthetic gene clusters (BGCs) from rhizosphere-derived bacteria

Katherine Ulbricht, Mentewab Ayalew, Tobias Hoffmann

Spelman College

2:44 pm

The gut microbiome of the African Forktail Catfish (*Chrysichthys nigrodigitatus*) revealed by 16S rRNA

Olabisi Atofarati, Segun Oladipo, Ifeanyi Nneji, Kehinde Adelakun, Lotanna Nneji

Howard University, Federal College of Wildlife Management, New Bussa, Niger State

2:51 pm

Global Patterns of Species Richness and Phylogenetic Endemism in Chameleons

Chukwudi Ikegwu, Josue Azevedo, Lotanna Nneji, Segun Oladipo

Howard University

3:00 pm

Moving away from memorization: Strategies for organismal biology instruction

Stacy Farina

Howard University

9:00 AM – 3:00 PM

S8: Applied ecoimmunology in wildlife health and conservation

Marquis B

9:00 am

Systemic effects of pesticides on insectivorous bats: a proteomics approach

Natalia Sandoval-Herrera, Linda Lara-Jacobo, Paul Faure, Denina Simmons, Kenneth Welch

Swedish University, San Diego State University, McMaster University, Ontario Tech University, University of Toronto Scarborough

9:15 am

Ungulate body condition as a predictor of immune defenses

Cynthia Downs

SUNY College of Environmental Science and Forestry

9:30 am

Urban living improves defenses against invasive parasites in the Galápagos Islands

Sarah Knutie

University of Connecticut

10:00 am ————— Coffee Break

10:15 am

Ecological and evolutionary predictors of Neotropical bat immunity

Amanda Vicente-Santos, Caroline Cummings, Gábor Czirájk, Paula Ledezma-Campos, Lilla Jordán, Lauren Lock, Jorge Carrera, Kristin Dyer, Sonia Altizer, Daniel Streicker, Brock Fenton, Nancy Simmons, Thomas Gillespie, Daniel Becker

University of Oklahoma, Leibniz Institute for Zoo and Wildlife Research, University of Costa Rica, Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, University of Georgia, University of Glasgow Centre for Virus Research, Western University, Emory University

University of Oklahoma, Leibniz Institute for Zoo and Wildlife Research, University of Costa Rica, Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, University of Georgia, University of Glasgow Centre for Virus Research, Western University, Emory University

10:30 am

Characterizing immune responses in a reptile

Jen Terry, Isabella Davis, Virginie Rolland, Lori Neuman-Lee

Arkansas State University

10:45 am

From pond to Lab: the Impact of stressors on Amphibian immune response

Vania R Assis, Stefanny C Titon

University of South Florida

11:00 am

Cold temperatures and infection with a bacterial pathogen affect avian immune responses

Jesse Garrett-Larsen, Steven Geary, Edan Tulman, Anna Perez-Umphrey, Kate Langwig, Dana Hawley
Virginia Tech, University of Connecticut

12:00 pm ————— Lunch

1:30 pm

The impacts of simultaneous stressors on North American bat cellular immunity

Molly Simonis, Sarah Ciarrachi, Kristin Dyer, Meagan Allira, Dakota Van-Parys, Kimberlee Whitmore, Matthew Chumchal, Catherine Haase, Jeffrey Foster, Daniel Becker
University of Oklahoma, Northern Arizona University, University of Oklahoma, Austin Peay State University, Texas Christian University, Northern Arizona University

1:45 pm

A transdisciplinary framework for studying climate change impacts on wildlife health

Anna Fagre
Colorado State University

2:00 pm

The importance of immunology in conservation science: the example of cheetahs in Namibia

Gábor Czirják, Bettina Wachter
Leibniz Institute for Zoo and Wildlife Research

2:15 pm

Opportunities and challenges to incorporate ecoimmunology strategies into conservation action

Teague O'Mara, Tina Cheng, Luz de-Wit, Winifred Frick
Bat Conservation International

8:00 AM – 3:30 PM

S9: Cnidarian sensory systems as comparative models for the evolution of complexity

Marquis C

8:30 am

That stinging sensation: the cnidocyte as a model for sensory cell evolution

Leslie Babonis
Cornell University

9:00 am

Legacy-plus-innovation: Cnidarian visual systems exemplify a ubiquitous macroevolutionary pattern

Todd Oakley
UCSB

9:30 am ————— Coffee Break

10:00 am

Cnidarian-algal symbioses in a changing world

Ryan Hulett, Natalie Swinhoe, Emily Meier, Victoria Brown, Phillip Cleves
Carnegie Institution for Science

10:30 am

Symbiotic sensory systems: The complex interactions that enable coral resilience

Shayle Matsuda, Kelsey Johnston-Sapp, Olivia Williamson
Shedd Aquarium, Revive and Restore

11:00 am

Is the hydrozoan actinula larva locally tuned to chemical cues from microbial biofilm?

Sydney Birch, Adam Reitzel
UNC Charlotte

11:30 am

Cnidarian circadian clocks model how animals find predictability in a complex world

Ann Tarrant, Cory Berger
Woods Hole Oceanographic Institution, University of California, Santa Barbara

12:00 pm ————— Lunch

1:30 pm

Cholinergic regulation of sleep in the jellyfish *Cassiopea*

Michael Abrams
UC Berkeley – MCB

2:00 pm

Development and evolution of mechanosensory hair cells in Cnidaria

Nagayasu Nakanishi
University of Arkansas

2:30 pm

How internal states affect behavior and gene regulation in *Hydra vulgaris*

Kelly Kim, Jacob Robinson
Rice University

3:00 pm

How single-cell transcriptomics of *Hydractinia* is informing evolution of cnidarian sensory systems

Christine Schnitzler, Jingwei Song, Danielle de-Jong, Justin Waletich
Whitney Laboratory for Marine Bioscience, University of Florida

Monday Program Morning Sessions

8:00 AM – 9:30 AM

Biological education research International Salon 4

Chair: *Cindy Harley*

8:00 am

Conceptualizing project ownership in a research VIP course

*Kasey Wozniak, Devaleena Pradhan, Heather Ray, Anna Grinath
Idaho State University*

8:15 am

Student-focused, career-driven, exploration in natural history museums via experiential education

*Adania Flemming
University of Florida*

8:30 am

A Quest for Biological Accuracy and Design Utility in Biomimicry Frameworks: a quantitative study

*Dimitri Smirnoff, Anita Schuchardt, Mary Guzowski, William Weber, Jessica Rossi-Mastracci, Alan Love, Ruth Shaw, Mike Travisano, Mark Borrello, Gillian Roehrig, Emilie Snell-Rood
University of Minnesota, Twin Cities*

8:45 am

Contextualizing Imposter Phenomenon within Biology Doctoral Education

*Ariel Steele, Kelly Lane
University of Minnesota*

9:00 am

Replacing exams with comics: Moving toward universally designed assessment.

*Cindy Harley
Metropolitan State University*

9:15 am

What's in a 'Game'? A video game improves undergraduate learning outcomes in evolution education

*Jacob Botello, Matthew Wolak
Auburn University*

8:00 AM – 9:45 AM

Complementary session 1 to S4: From Evolution to innovation: Bridging biology and engineering through bioinspired design

International Salon 8

Chair: *Cassandra Donatelli*

8:00 am

Beyond the Hexagon: Meso-structures in the Bee's Honeycomb for Bioinspired Design

*Jacqueline Lehner, Dhruv Bhate, Cahit Ozturk, Clint Penick
Arizona State University, Auburn University*

8:15 am

Bend it like butterflies: Buckling dynamics of ridge grating morphologies in developing wing scales

*Kwi Shan Seah, Shankar Venkataramani, Antonia Monteiro, Vinod Kumar Saranathan
Mechanobiology Institute, National University of Singapore, University of Arizona, L'Institut de Recherche sur la Biologie de l'Insecte (IRBI)*

8:30 am

Robots for Neuroethology: Robotic Infiltration of Poison Frog Families

*Tony Chen, Lauren O'Connell, Billie Goolsby, Mark Cutkosky, Loranzie Rogers, EmJ Rennich
Georgia Institute of Technology, Stanford University, Harvard University*

8:45 am

Bush crickets shift to increasingly stable gaits when moving on challenging substrates

*Rebecca Thompson, Calvin Riiska, Jacob Harrison, Jennifer Rieser, Saad Bhamla
Georgia Institute of Technology, Emory University*

9:00 am

Gait transitions from land to shallow water in aquatic hexapods

*Snigdha Shiuly Tikader, George Kuney, Alex Handwork, Margaret Byron
Penn State University*

9:15 am

Leonardo, Murray, and Hack: A Computational Investigation of Flow Distribution in Branching Networks

*Yash Mistry, Morgan Nunez, Zubin Mistry, Chad Westover, Puneet Achpal, Dhruv Bhate
Arizona State University, LAM Research*

9:30 am

Computational Design and Additive Manufacturing of Bioinspired Architected Materials

*Dhruv Bhate
Arizona State University*

8:00 AM – 9:45 AM

Division of Phylogenetics & Comparative Biology chair's special session: What mammals have taught us through organism-focused evolution

A601

Chair: *Samantha A. Price*

8:00 am

Intraspecific variation in the vestibular system of North American river otter

*Leigha Lynch, Dominik Valdez, Celeste Delap, Heather Smith
Midwestern University*

8:15 am

Morphometric analysis of Palaeogale: a possible case study of sexual dimorphism in fossil mammals

*John Orcutt, Nicholas Famoso
Gonzaga University, John Day Fossil Beds National Monument*

8:30 am

Evolution and structure-function relationships of pollical unguis types in Rodentia

*Rafaela Missaglia, Anderson Feijo, Lauren Johnson, Maximilian Allen, Bruce Patterson, Paula Jenkins, Gordon Shepherd
Field Museum of Natural History, Northwestern University*

8:45 am

Two Tails of the Same Coin: A Shared Release from a Locomotor Constraint

*Christine Lee, Gabby Guillhon, Michael Granatosky
New York Institute of Technology*

9:00 am

Trabecular bone confers different functional advantages across small mammals

Stephanie Smith, Kenneth Angielczyk, Tristan Stayton
Field Museum of Natural History, Bucknell University

9:15 am

Lions and Tigers and Bears, oh my: a new data-driven ecological and behavior categorization scheme

Hartrich Zack, Alexa Wimberly, Graham Slater
University of Chicago

9:30 am

The consequences of life history for mammal cranial evolution

Anjali Goswami, Julien Clavel, Eve Noiraault, Robin Beck, Russell Engelman, Nicole Barber, James Mulqueeney, Lucy Roberts, Roberto Portela-Miguez, Anne-Claire Fabre
Natural History Museum, Case Western Reserve University, University College London, University of Southampton

8:00 AM – 9:45 AM

Eco-physiology of reproduction

International Salon 6

Chair: Kristi Montooth

8:00 am

Breeding sex ratio of prolific sea turtle nesters on the Gulf of Mexico

Jake Lasala
Mote Marine Laboratory

8:15 am

Testing for adaptive plasticity in the thermal performance of lizard sperm

Wen-Yeu Wang, Alex Gunderson
Tulane University, EEB

8:30 am

How do you like your eggs? Individual quality of *Harmonia axyridis* in a warming world

Genavieve Desjardin, Tony Williams
Simon Fraser University

8:45 am

The thermal sensitivity of parental effects on offspring survival in a model ectotherm

Kristi Montooth, Maathir Basi, Hamdiya Mumade, John DeLong, Ibrahim ElShesheny, Ian Keeseey
University of Nebraska-Lincoln

9:00 am

Fitness consequences of maternal nest site choice in a widespread invasive lizard

Sydney Wayne, Mike Norris, Anthony Gilbert, Daniel Warner
Auburn University

9:15 am

Environmental impacts and adaptations on *Uniola paniculata* L, an ecologically important species

Andrew Egesa, Hector Perez, Kevin Begcy
University of Florida

9:30 am

Lay date and egg size in a long-term dataset: intersections of behavior and physiology

Patricia Jones, Robert Mauck
Bowdoin College, Kenyon College

8:00 AM – 10:00 AM

Hydrostats

International Salon 5

Chair: Saad Bhamla

8:00 am

Assessing the capabilities of biohybrid robotic jellyfish for vertical ocean profiling

Kelsi Rutledge, John Dabiri
US Navy, Caltech

8:15 am

Muscular hydrostats mechanics under gravitational loading

Bokun Zheng, Noel Naughton
Virginia Tech

8:30 am

Three-dimensional in situ measurements of octopus crawling reveals elements of simplified control

Joost Daniels, Christine Huffard, Paul Roberts, Kakani Katija
MBARI

8:45 am

Octopus arm flexibility facilitates complex behaviors in diverse natural environments

Chelsea Bennice, Kendra Buresch, Jennifer Grossman, Tylar Morano, Roger Hanlon
Florida Atlantic University, Marine Biological Laboratory

9:00 am

Comparative analysis of collective cohesion and its mechanical origin in aquatic oligochaetes

Joseph Wiltanger, Emre Guller, Ishant Tiwari, Saad Bhamla
Georgia Institute of Technology

9:15 am

The mechanics and behavior of knotting in California blackworms: Part 1

Ishant Tiwari, Vishal Patil, Ghufraan Bhatti, Saad Bhamla
Georgia Institute of Technology, University of California, San Diego

9:45 am

Worm drop : Emergent flow behavior in shape-shifting worm collective.

Paulami Sarkar, Ishant Tiwari, Prathyusha Kokkoorakunnel-Ramankutty, Saad Bhamla
Georgia Institute of Technology

8:00 AM – 10:00 AM

Mechanisms of movement

International Salon 2-3

Chair: Ian Bartol

8:00 am

Mice in motion: swimming and climbing kinematics of salt marsh harvest mice compared to house mice

Sharon O'Connor, Dulce Robles-Martinez, Arianna Ramirez, Diego Sustaita
California State University San Marcos

8:15 am

Sea turtle-inspired adaptive gait strategies for multi-terrain robotic locomotion

Nnamdi Chikere, John McElroy, Yasemin Ozkan-Aydin
University of Notre Dame, University College Dublin

8:30 am

Predictive simulation of quadrupedal gaits using proximal policy optimization

Jacob Hackett, Katrina Moore, Monica Daley, Christian Hubicki
Florida State University, University of California, Irvine

8:45 am

Multi-dimensional kinematic data reveal efficient swimming and migrations in a keystone squid

Seth Cones, Kenneth Shorter, T. Aran Mooney, Pedro Afonso, Jorge Fontes
University of Michigan, Woods Hole Oceanographic Institution, University of the Azores

9:00 am

Active tail modulation in snailfishes reduces drag

Catherine Eno, Hungtang Ko, Charbel El-Khoury, Miguel Montalvo, Spencer Truman, Cassandra Donatelli, Brooke Flammang, Jonathan Huie
New Jersey Institute of Technology, Princeton University, KAUST, University of Washington Tacoma, The George Washington University

9:15 am

Squid paralarvae turn with high agility using a range of jet flows

Ian Bartol
Old Dominion University

9:30 am

Kinematic evaluation of descent slowing behavior during falls in lizards

Victor Munteanu, Savannah Swisher, Amanda Kellerhals, Trevor Brewington, Richard Blob
Clemson University

9:45 am

Three-dimensional kinematics of tail twisting during vertical maneuvering in largemouth bass

Ming Gong, Yordano Jimenez, Eric Tytell
Tufts University, Providence College

8:00 AM – 10:00 AM

Moving Through Water

Marquis D

Chair: Jasmin Graham

8:15 am

Burial behavior and kinematics of the Little Skate (*Leucoraja erinacea*)

Noah Bressman, Angela Cordoba-Flores
Salisbury University

8:30 am

The tail of myliobatid stingrays: function for controlling body stability

Julia Chaumel-Cerda, Connor White, George Lauder
Harvard University

8:45 am

Adult caudal fin shape is imprinted in the embryonic fin fold

Sarah McMenamin, Eric Surette, Joan Donahue, Crisvely Soto-Martinez, Nicolas Cumplido-Salas
Boston College

9:00 am

Kinematic diversity and determinants of swimming performance in lizards

Philip Bergmann, Emma McLellan
Clark University

9:15 am

Vertebral mechanics and joint morphology in two divergent dogfish species

Marianne Porter, John Long, Candido Diaz, Harald Kryvi
Florida Atlantic University, Vassar College, University of Bergen

9:30 am

Genotype-to-morphology-to-performance mapping for tail shape in African cichlid fishes

Sofia McNatton, Aldo Carmona-Baez, Reade Roberts, Emily Moore
North Carolina State University, University of Nebraska – Lincoln

9:45 am

Thermal performance curves for grounded running in two congeneric sea stars of differing flexibility

Amy Johnson, Cara Fields, Jolie Ganzell, Abby Steinwachs, Olaf Ellers
Bowdoin College

8:00 AM – 9:30 AM

Muscles, Movement & Evolution:

Commemorating Andrew Biewener's contributions to vertebrate biomechanics part 1

A703

Chair: Tyson L. Hedrick

8:00 am

Center of mass manipulation and its effect on walking control

John Bertram, Ryan Schroeder, James Croft
University of Calgary, Brock University

8:15 am

Legs as linkages to legs as machines

Jim Usherwood
The Royal Veterinary College

8:30 am

The evolution of the muscle-tendon unit in mice selected for high levels of voluntary wheel running

Alberto Castro, Allyn Nguyen, Theodore Garland, Saad Ahmed, Natalie Holt
University of California, Riverside

8:45 am

Forelimb muscle activity in alligators and the evolution of limb posture and powered flight

Masaya Iijima, Christopher Mayerl, Victor Munteanu, Richard Blob
Royal Veterinary College, Northern Arizona University, Clemson University

9:00 am

Characterizing the variation in muscle force-length dynamics during in vivo non-steady locomotion

Monica Daley, M. Janneke Schwaner, Caitlin Bemis, Kiisa Nishikawa
University of California, Irvine, Northern Arizona University

9:15 am

Linking pectoralis muscle dynamics to wing motion in two bird species over a range of flight speeds

Tyson Hedrick, Bret Tobalske, Andrew Biewener
University of North Carolina at Chapel Hill, University of Montana, Harvard University

8:00 AM – 10:00 AM

Neural development and anatomy

International Salon 10

Chair: James Newcomb

8:00 am

Regeneration in *Berghia stephanieae*: cell proliferation and the necessity of the nervous system

James Newcomb, Lourdes Ricks, William Scala, Haleigh Bilodeau, Dominic-Naomi Thoroughgood, Emily Wightman, Becca Pouliot, Rebecca Soulia, Abigail Chapin
New England College

8:15 am

Cell proliferation in the nervous system during development and early ontogeny in the chain catshark

Emily Peele, Jennifer Wyffels, Kara Yopak
University of North Carolina Wilmington, Ripley's Aquariums

8:30 am

Three-dimensional immunofluorescence brain atlas of the hackled orb weaver spider, *Uloborus diversus*

Gregory Artiushin, Abel Corver, Andrew Gordus

Johns Hopkins University

8:45 am

Localization and identification of insulin-like peptides in the brain of a nudibranch

Laurenzia Cairo, Kate Otter, Paul Katz
University of Massachusetts Amherst

9:00 am

3D reconstructions of peptidergic terminals suggest synaptic pruning in an adult molluscan brain

Harshada Sant, Sarah DeAmicis, Alexzander Cook, Srimaan Sridharan, Sanmadhi Periyasamy, Yuelong Wu, Richard Schalek, Jeff Lichtman, Paul Katz

University of Massachusetts Amherst, Harvard University

9:15 am

Investigating sensory system evolution through functional and anatomical studies in ctenophores

Cezar Borba, Fredrik Hugosson, Natalia E-Padillo-Anthemides, Joseph Ryan, Mark Martindale, James Strother

NEPA, The University of Florida

9:30 am

Hypothalamic Dio3 is a neuroendocrine substrate controlling the timing of the seasonal response in S

Calum Stewart, Tyler Stevenson, Timothy Liddle, Francis Ebling, Jo Lewis, Peter Morgan, Christopher Marshall, Elisabetta Tolla, Neil Evans

University of Glasgow, University of Nottingham, University of Cambridge, University of Aberdeen, University of Bristol

9:45 am

The role of glucocorticoid receptors in mediating neophobia behavior in a wild bird

Marquise Henry, Melanie Kimball, Ella Cochran, Blake Dusang, Will Frazier, Keegan Stansberry, Tosha Kelly, Emily Stelling, Christine Lattin

Louisiana State University, Texas State University

8:00 AM – 9:45 AM

Phylogenetics of invertebrates

International Salon 7

Chair: *Elizabeth Borda*

8:00 am

CSI- Cryptic Species Investigation: The Case of Octopus americanus

Colleen Hecker, Chelsea Bennice, Michelle Cavallo, W. Brooks

Florida Atlantic University

8:15 am

Illuminating the deep: Revealing the bioluminescent history of deep-sea shrimps

Stormie Collins, Heather Bracken-Grissom
Florida International University

8:30 am

Repeated core circadian gene loss across polar and deep sea fishes

Daniel Wright, Jacob Daane
University of Houston

8:45 am

Silk genetics of orb weaving spiders and kin

Sarah Stellwagen
UNC Charlotte

9:00 am

Insights from genome skimming of Remipedia (*Xibalbanus* spp.)

Elizabeth Borda, Max Sahi, Fernando Calderon-Gutierrez

Texas A&M University - San Antonio

9:15 am

Arthropod phylogenomics refute the monophyly of Panarthropoda

Jacob Gorneau, Sarah Crews, Edward Myers, Michelle Trautwein, Lauren Esposito
California Academy of Sciences

9:30 am

Genomic analysis of gamete recognition proteins in a broadcast spawning echinoderm

Pearl Rivers-Key, Darin Rokyta, Yueling Hao, Don Levitan
Florida State University

8:00 AM – 10:00 AM

Physiological tradeoffs

A707

Chair: *Phoebe Edwards*

8:00 am

Investigating the relationship between fuel use and metabolic state in brown-banded bamboo sharks.

Johanne Lewis, Chestina Craig, Melanie Salinas

Georgia Southern University

8:15 am

The use of blood metabolites to examine the energetic state of an ectotherm (*Elaphe bimaculata*)

Norman Hunter, Isabella Davis, Lori Neuman-Lee

Arkansas State University

8:30 am

Rethinking enemy release: sex-specific infection risk and urban influences in House Sparrow populations

Kailey McCain, Lynn Martin, Aaron Schrey, Kevin Kohl, Elizabeth Sheldon, Gabriela Mansilla, Roi Dor, Henrik Jensen, Jorgen Soraker, Kim Mathot, Thinh Vu, Blanca Jimeno, Kate Buchanan, Massamba THIAM, Jim Briskie, Cédric Zimmer, Melissa Rowe, Ho Thu Phuong

University of South Florida, Georgia Southern University, University of Pittsburgh

8:45 am

Hybrid breakdown and Haldane's rule in ZW taxa: A physiological perspective

Natalie Harris, Kaylene Yamada, Geoffrey Hill, Brian Counterman, Wendy Hood
Auburn University

9:00 am

Neural correlates of increased aggression in an urban songbird: A focus on arginine vasotocin (AVT)

Taylor Fossett, Samuel Lane, Isaac VanDiest, Sakshi Kaul, Veronica Cole, Elizabeth Gilbert, Kendra Sewall

Virginia Tech, North Dakota State University

9:15 am

Glucocorticoids across the ovarian cycle in vertebrates: patterns and function

Phoebe Edwards, Kerry Fanson

Iowa State University, La Trobe University

9:30 am

GasTRICK: genes, biochemistry, & morphology show gastric dietary specialization in prickleback fish

Donovan German, Michelle Herrera, Jordan Buckner, Joseph Heras, Nefertiti Smith, Matthew Hileman
University of California, Irvine, California State University, San Bernardino

9:45 am

Quantifying Dental Proteome Variation caused by Dietary Change

Robert Burroughs, Natasha Vitek
Stony Brook University

8:00 AM – 10:00 AM

Population genetics

International Salon 9

Chair: Gabrielle Vaughn

8:00 am

Genetic signatures of a very isolated Clark's anemonefish population

Jann Zwahlen, Manon Mercader, Saori Miura, Marcela Herrera-Sarrias, Hiroki Takamiyagi, James Reimer, Vincent Laudet
Okinawa Institute of Science and Technology, University of the Ryukyus

8:15 am

Comparing population structure of a mud crab host and its invasive parasitic barnacle

Carter Stancil, April Blakeslee, Michael Brewer, Charlotte Bickley
East Carolina University

8:30 am

Genomic analyses suggest growth and development under selection across climates in a lizard species

Matthew McTernan, Christopher Parkinson, Michael Sears
Clemson University, Arizona State University

8:45 am

Genetic adaptation to climate change among nursery habitats of the bull shark (*Carcharhinus leucas*)

Shannon Barry, Mathew Ajemian, Charles Bangle, Marcus Drymon, Bryan Frazier, Laura Garcia-Barcia, Jayne Gardiner, James Gelsleichter, Dean Grubbs, Neil Hammerschlag, Mike Heithus, Bradley Strickland, Tonya Wiley, Toby Daly-Engel
Florida Institute of Technology, FAU Harbor Branch Oceanographic Institute, South Carolina Dept. of Natural Resources, Florida International University, New College of Florida, University of North Florida, FSUCML, Shark Research Foundation, Inc., Havenworth Coastal Conservation

9:00 am

The mitochondrial genomics of the Channel Islands gopher snake supports subspecies status

Alexis Lindsey, Tonia Schwartz, Amanda Sparkman
Auburn University, Westmont College

9:15 am

Population dynamics & genetic connectivity of established and newly colonized bull shark nurseries

Iliza Aguiar, Alyssa Andres
Florida State University, Minorities in Shark Science

9:30 am

Population Genetics and Distribution of the cave-dwelling *Typhlatya* spp of the Yucatan Peninsula

Gabrielle Vaughn, Elizabeth Borda, Fernando Calderon-Gutierrez, Lauren Ballou, Thomas Illiffe, David Brankovits, Nuno Simões, Efrain Chavez-Solis
Texas A&M University San Antonio, Florida International University

8:00 AM – 9:45 AM

Thermal effects on growth

A704

Chair: Eric Riddell

8:15 am

Desert tails: caudal regeneration trades off with lizard performance in the wild

Akhila Gopal, Guillermo Garcia-Costoya, Noa Ratia, Karla Alujevic, Madison Glenwinkel, Shea McKendree, Kaitlyn Napier, Ethan Carmona-Hockstedler, Cody Chapman, Allison Dorny, Michael Logan
University of Nevada Reno

8:30 am

Effects of thermal gradient on the age and growth characteristics of *Bufo bufo*.

Amber Mazzola, Michael Newbrey, Ashley Desensi
Columbus State University, Chattahoochee Riverkeeper

8:45 am

Thermal impacts on growth and metabolism in larval *Tautoga onitis*

Emily Ignatoff, R. Chambers, Delan Boyce, Ehren Habeck
University of California, San Diego, NOAA NEFSC

9:00 am

How the environment affects nutrient uptake mechanisms in two carnivorous pitcher plants species

Richard Wong, Katrina DeWitt, Jean Gibert, Justin Wright
Duke University

9:15 am

From pause to play: how temperature affects dormant zooplankton development

Hunter Arrington, Joseph Covi
University of North Carolina at Wilmington

9:30 am

Experimentally increased thermal variation but not average temperature reduces avian offspring size

William Kirkpatrick, Sarah DuRant
University of Arkansas

10:00 AM – 12:00 PM

Complementary session 1 to S6: Pollinator-plant interactions in a changing landscape: embracing integrative approaches across scales

International Salon 4

Chair: Jordanna Sprayberry

10:00 am

Landscape bee-behavior: Automated monitoring to understand dynamics of plant-pollinator interactions

James Crall, Matthew Smith, Olivia Bernauer, Rafael Salas, Acacia Tang, Ben de-Bivort, Claudio Gratton, Brian Spiesman
University of Wisconsin-Madison, Kansas State University

10:15 am

The seasonally dynamic foraging landscape: impacts on honey bees, wild bees, and their interactions

Clare Rittschof

University of Kentucky

10:30 am

Automating bumble bee tracking to study sublethal impacts of pesticides on behavior

Anupreksha Jain, James Crall

University of Wisconsin, Madison

10:45 am

Pollinator Response to Drought-Tolerant Landscape Perennials Under Water Restrictions

Addison Singleton, Adam Mitchell, Heather Mathewson

Tarleton State University

11:00 am

Sense and scent stability in agricultural crops: assessing honeybee responses to air pollutants

Jordanna Sprayberry, James Blande, Ben Langford, James Ryalls, Robbie Girling
Muhlenberg College, University of Eastern Finland, UK Centre for Hydrology and Ecology, University of Reading, University of Southern Queensland

11:15 am

Bee-yond the Buzz: Unveiling the Mechanics of Pollination Vibrations

Mark Jankauski, Jenna McNally, Mitchell Alvord, Caelen Boucher-Bergstedt, Hayden Sofie, Cailin Casey, Alexandra Houseworth, Erick Johnson, Lewis Cox, Stephen Buchmann

Montana State University

11:30 am

Micro- and Nanoscale Morphological Features in the Hair of *Apis Mellifera*

Itzel Chavez-Martinez, Cahit Ozturk, Dhruv Bhate

Arizona State University

11:45 am

Buzzed and Bothered: Investigating the Impact of Psychoactive Floral Alkaloids on Bumblebee Behavior

Skylar Mathieson, Joshua Foley, Melissa Whitaker

East Tennessee State University

10:00 AM – 12:00 PM

Hard thing hydrodynamics

International Salon 9

Chair: Lorenzo Martinez

10:00 am

The survivability onion: tradeoffs in armored fishes, and the cranial pit of *Bothragonus swanii*

Daniel Geldof

Louisiana State University

10:15 am

A quantitative analysis of the morphology-function relationship in *Polypterus senegalus* armour

Linfang Han, Emily Standen

Department of Biology, Faculty of Science, University of Ottawa, Canada

10:30 am

From armor to action: mechanically constrained stereotypy in Agonid escape responses

Avalon Feiler, Philip Anderson

University of Illinois Urbana-Champaign

10:45 am

Simply the best; how armor morphologies reduce drag in poachers (Agonidae)

Meg Vandenberg, Olivia Hawkins, Bart Boom, Adam Summers, Cassandra Donatelli
University of Washington, Tufts University

11:00 am

Variation in hydrodynamic performance among boxfish carapace shapes

Merel Van-Gorp, Igor Bij-de-Vaate, Pim Boute, Eize Stamhuis, Sam Van-Wassenbergh

University of Antwerp, University of Groningen

11:15 am

The role of skeletal morphology on thrust dynamics in batoids

Bart Boom, John Michael Racy, Spencer Truman, Charbel El-Khoury, Tadd Truscott, Adam Summers, Ed Habtour

University of Washington, Illimited Lab, KAUST

11:30 am

Comparative hydrodynamics of the shells of aquatic, semi-aquatic and terrestrial turtles

David Kramer, Frank Fish, Rebecca Bottiglio-Kramer

West Chester University

11:45 am

Hydrodynamic consequences of horns and spines on the nauplius of the barnacle *Lepas anserifera*

Will Ballentine, Mimi Koehl, Karen Chan

University of Washington, University of California, Berkeley

10:00 AM – 11:30 AM

Muscles, Movement & Evolution: Commemorating Andrew Biewener's contributions to vertebrate biomechanics part 2

A703

Chair: Tyson L. Hedrick

10:00 am

On-wing sensing contributes to control of movement in bats

Brooke Quinn, Jade Bajic, Santiago Romo, Ariel Wu, Alberto Bortoni, Kenny Breuer, Sharon Swartz

Brown University

10:15 am

A new approach for direct aerodynamic work loop recordings in bird flight

David Lentink, Marc Deetjen, Diana Chin, Ashley Heers, Bret Tobalske

University of Groningen, Stanford, California State University, Los Angeles, University of Montana

10:30 am

Work loops of the primary flight muscles of birds

Bret Tobalske

University of Montana

10:45 am

Muscle architectural gearing dynamics during unconstrained locomotion

Nicolai Konow, Chris Tijs, Samuel Delap, Andrew Biewener

University of Massachusetts Lowell, Harvard University

11:00 am

Muscle-tendon unit function in response to surface slope perturbations in hopping kangaroo rats

Craig McGowan, Mary Pena, David Lin

University of Southern California, Washington State University

11:15 am

Hands-on approaches for mammal tails

Talia Moore, Margaret Zhang, Juri Miyamae
University of Michigan

10:15 AM – 12:00 PM

'Tis the season: seasonal changes and organismal effects
International Salon 10
Chair: Sayantan Sur

10:15 am

Molecular regulation of seasonal adiposity in Japanese quails (*Coturnix japonica*)
Sayantan Sur, Calum Stewart, Timothy Liddle, Irem Denizli, Tyler Stevenson
University of Glasgow

10:30 am

Transcriptomic seasonality in the hippocampus and amygdala/nucleus taeniae of quail and hamsters
Timothy Liddle, Simone Meddle, Calum Stewart, Tyler Stevenson
University of Glasgow, The Roslin Institute, The University of Edinburgh

10:45 am

The physiological mechanisms regulating spring fattening in the greater snow goose.
Maeïlle Colin, Ilona Greutzmann, Frédéric Angelier, Charline Parenteau, Nicolas Flamand, Elizabeth Dumais, Gilles Gauthier, Cristoforo Silvestri, Pierre Legagneux
Université Laval, Centre d'Études Biologiques de Chizé (CEBC), Centre de Recherche de l'Institut Universitaire de Cardiologie et Pneumologie du Québec (IUCPQ)

11:00 am

Impacts of capture-handling on reproductive success and behavior in western bluebirds
Valerie Brewer, Jamie Cornelius, Suzanne Austin
Oregon State University

11:15 am

Does migration constrain glucocorticoid phenotypes?
Jennifer Uehling, Emma Regnier, Maren Vitousek
West Chester University, Cornell University

11:30 am

Birds groom more during molt
Parker Guzman, Sarah Bush, Dale Clayton, Matthew Waller, Nicole Amadee, Ruby Linnell, Hannah Warr
University of Utah, UC Berkely

11:45 am

Seasonality of ectoparasites in a migratory bat colony
Kristin Dyer, Meagan Allira, Bret Demory, Mackenzie Hightower, Jackson Wingert, Jeremy Ross, Daniel Becker
University of Oklahoma-

10:15 AM – 12:00 PM

**Complementary session 2 to S4:
 From Evolution to innovation:
 Bridging biology and engineering
 through bioinspired design**
International Salon 8
Chair: Karly Cohen

10:15 am

From Roots to Rafts: Ecological Strategies of Aquatic Worms in Tangling on Duckweed Roots - Part I
Harry Tuazon, Ivy Li, Prathyusha Kokkoorakunnel-Ramankutty, Nicholas Correcha, Saad Bhamla
Georgia Institute of Technology

10:30 am

From Roots to Rafts: Insights from the Biomimetic Simulations of Aquatic Worm Climbing - Part II
Prathyusha Kokkoorakunnel-Ramankutty, Harry Tuazon, Nicholas Correcha, Ivy Li, Saad Bhamla
Georgia Institute of Technology

10:45 am

Cteno-bot: a free-swimming, ctenophore-inspired robot with magnetoactive metachronal propulsors
David Peterman, Margaret Byron
Penn State University

11:00 am

Impact energy propagation in diving bird vertebrae inspired segmented structures
Claire Fisher, Bart Boom, Thijs Masmeijer, Adam Summers, Ed Habtour
University of Washington

11:15 am

Shape and Locomotion Dynamics in Batoids
John Michael Racy, Bart Boom, Thijs Masmeijer, Adam Summers, Ed Habtour
University of Washington, Illimited Lab

11:45 am

Echinoder-bot-a: A sea urchin-inspired camera
Julia Notar, Hazel Havens
Duke University, UNC Chapel Hill

10:15 AM – 12:00 PM

Environmental impacts on biodiversity
International Salon 7
Chair: Anna Thonis

10:15 am

Tidepool tales: ecological insights from Yellow Island
Kai Miller, Camille Gaynus, Tiara Moore, Christine Mantegna
Texas A&M University, Black In Marine Science, University of Washington

10:30 am

A comparative analysis of bacterial growth rates between anthropogenically disturbed and non-disturb
Mark Daniel, Jason Davis, Joyce Caughron
Radford University

10:45 am

Avoiding perils and pitfalls when modeling species richness
Anna Thonis, Resit Akcakaya
New York University, Stony Brook University

11:00 am

SSARP: an R package for easily creating species- and speciation-area relationships
Kristen Martinet, Luke Harmon, Cristian Román-Palacios
University of Arizona, University of Idaho

11:15 am

Movement alters ecological dynamics in heterogeneous environments
Bo Zhang, Jamaal Jacobs
Oklahoma State University

11:30 am

Understanding the abiotic impacts of land development on soil micro diversity
Robert Garcia
Texas A&M University San Antonio

11:45 am

Impacts of land development on soil microdiversity and antibiotic production
Dennis Guillen-Castro
Texas A&M University-San Antonio

10:15 AM – 12:00 PM

Evolution of body plans and complex traits

A704

Chair: Marc Mapalo

10:15 am

Genomics of developing scale cells between sexes of *Zerene cesonia* butterflies

*Vincent Ficarrota, Brian Counterman, Hannah Walton
Auburn University*

10:30 am

Understanding early embryonic development in *Ixodes scapularis*

*Isaac Hinne, Ben Faustino, Michael Pham, Arvind Sharma, Jakub Wudarski, Prashant Sharma, Monika Gulia-Nuss
University of Nevada, University of Wisconsin-Madison*

10:45 am

Expression of distal limb patterning genes in the tardigrade, *Hypsibius exemplaris*

*Marc Mapalo, Mandy Game, Frank Smith, Javier Ortega-Hernandez
Harvard University, University of Connecticut, University of North Florida*

11:00 am

Investigating the role of the transcription factor *Cut* in the development of insect camera-type eyes

*Amartya Mitra, Elke Buschbeck, Shubham Rathore
University of Cincinnati*

11:15 am

Deep history of the MAPK signaling network: Phylogenetic relationships and functional specialization

*EJ Huang, Jeeun Parksong, Amy Peterson, Sergi Regot, Gabriel Bever
Johns Hopkins University*

11:30 am

Within arms reach: understanding the evolution of a cephalopod novelty

*Jennifer McCarthy-Taylor, Jenna Moor, Carrie Albertin
Marine Biological Laboratory, University of Chicago*

11:45 am

Stingray spine diversity reflects trade-offs in breakability, puncture, and removal performance

*Emily Poulin, Matthew Kolmann, Melanie Stiasny, Christopher Martinez
UC Irvine, University of Louisville, American Museum of Natural History*

10:30 AM – 12:00 PM

Complementary to the Bern lecture: moving beyond binary sex categories

International Salon 6

Chair: Ignacio Moore

10:30 am

What is biological sex?

*Ignacio Moore
Virginia Tech*

10:45 am

Multivariate models of animal sex: Breaking binaries in the brain, hormones, and behavior

*Sara Lipshutz
Duke University*

11:00 am

Deconstructing Sex: Ungendering Sex Variables

*Megan Massa
Emory University*

11:15 am

How to model the evolution of transcriptomes to understand neural sex differences

*Isaac Miller-Crews, Sara Lipshutz, Ben Fulton, Jason Bertran, Mathew Hahn, Kimberly Rosvall
Indiana University, Duke University, Western University*

11:30 am

Developmental endocrinology before gonads: Do extraembryonic membranes initiate sex differences?

*Ryan Paitz, Mark Haussmann, Ken Field
Illinois State University, Bucknell University*

11:45 am

Sex on a Spectrum: plasticity in hormones, genitalia, and social behavior in a marine fish

*Devaleena Pradhan
Idaho State University*

10:30 AM – 11:30 AM

Let's get intraspecific: within-species variation

A601

Chair: Kara Erin Yopak

10:30 am

Battle of the sexes: sexual dimorphism in the brain of the smooth butterfly ray, *Gymnura micrura*

*Haley Morman, Kara Yopak
University of North Carolina Wilmington*

10:45 am

Intraspecific variability in vertebral formulae in marsupials and monotremes

*Magdalen Mercado, Graham Slater
University of Chicago*

11:00 am

Morphological variation in mink mandibles (*Neogale vison*) not structured by continent-wide factors

*Alexandra Pamfilie, Natasha Vitek
Stony Brook University*

11:15 am

The scaling of anatomy and biomechanics in morphologically disparate domestic dog breeds

*James Charles, Eithne Comerford, Lucy Roberts, Anjali Goswami, Karl Bates
University of Liverpool, Natural History Museum, London*

10:30 AM – 12:00 PM

Moving Through Water
Marquis D

Chair: Jasmin Graham

10:30 am

Motion of *D. Magna* from the perspective of the agent

*David Spade, J. Strickler
University of Wisconsin-Milwaukee, University of Texas Marine Science Institute*

10:45 am

Dolphins save energy by bow-riding on vessels

*Dara Orbach, Lorenzo Fiori, Randall Davis, Bernd Würzig
Texas A&M University*

11:00 am

Non-invasive 3D tracking of Water-Hopping Mudskippers in natural habitats

DAEHYUN CHOI, Nami Ha, Ulmar Grafe, Saad Bhamla

Georgia Institute of Technology, University of Brunei Darussalam

11:15 am

Making a little splash: Porpoising and plunge diving at an acute angle

Frank Fish, Sunghwan Jung, Tadd Truscott, Megan Leftwich

West Chester University, Cornell University, George Washington University

11:30 am

Eye size evolution in sharks

Phillip Sternes, Kenshu Shimada, Lars Schmitz
Shark Measurements, DePaul University, Claremont McKenna College

11:45 am

Pursuit and evasion in aquatic systems

Lars Koopmans, Benjamin Martin
University of Amsterdam

10:30 AM – 12:00 PM

Provisioning young with milk and eggs

A707

Chair: Marc Mapalo

10:45 am

Size of one egg drives that of another: evidence for performance-based feedback in a wild bird

Nicolas Frasson, Keith Sockman, Emma Reinhardt

University of North Carolina at Chapel Hill

11:00 am

Costs of gestation in intrauterine milk secreting rays

Annaïs Muschett-Bonilla, Dean Grubbs
Florida State University, MISS

11:15 am

Gene expression, embryogenesis, and ecology in frogs

Becca Young

University of Texas at Austin

11:30 am

Changes in ambient [Ca²⁺] levels impact egg production and development of *Lymnaea stagnalis*

Carolyn Pope, Martin Grosell
University of Miami

11:45 am

Interactive effects of the social environment and habitat quality on maternal hormone allocation

Anna James, Alexandra Bentz
University of Oklahoma

10:30 AM – 12:00 PM

Sensory systems under pollution

International Salon 5

Chair: Jeff Riffell

10:30 am

Olfaction in the Anthropocene: atmospheric pollutants negatively impacts floral scent and nocturnal pollination

Jeff Riffell, J. Chan, J. Thornton
University of Washington

10:45 am

Impacts of air pollution on the auditory physiology of house sparrows (*Passer domesticus*)

Shae Johnston, chisom Okogbue, John Wenderski, Liam Hanlon, Natalia Gonzalez-Pech, Kelly Ronald
Hope College

11:00 am

Avian physiological and behavioral responses to an annual nighttime event at Zoo Atlanta

Celeste Walton, Marieke Gartner
Georgia State University

11:30 am

Barn swallows do not select nests according to experimental artificial light at night

Iris Levin, Audrey Gibson, Toshi Tsunekage, Omar Morosse
Kenyon College

11:45 am

Wild Eastern bluebirds are resilient to anthropogenic noise: insights from a novel cognition assay

Sara Isgate, Caitlin Honus, Bailey Betcher, Gabriel Casanova, Julian Avery, Jason Keagy
Indiana University, The Pennsylvania State University

10:45 AM – 11:45 AM

Convergent and parallel evolution

International Salon 2-3

Chair: Nick Barts

10:45 am

Functional convergence in the gastric lysozymes of ruminants, Colobine monkeys, and Cricetid rodents

Nick Barts, Kevin Kohl, Wynn Meyer
University of Central Missouri, University of Pittsburgh, Lehigh University

11:00 am

Comparative anatomy of catfish venom glands

Stephanie Krueger, Mark Terasaki, Andrew Gillis
University of Chicago, UConn Health, Marine Biological Laboratory

11:15 am

Lithology predicts repeated adaptive radiation of cichlid fishes

Edward Burrell, Maya Stokes, Maria Napolitani, Frederico Henning
University of Alabama, Florida State University, Universidade Federal do Rio de Janeiro

11:30 am

Phylogenomics provides insights into the repeated evolution of medusozoan eyes

Cory Berger, Pauly Cartwright, Marina Stoilova, Maria Pia Miglietta, Rebecca Varney, Todd Oakley
University of California, Santa Barbara, The University of Kansas, Texas A&M University at Galveston

Monday Program Afternoon Sessions

1:30 PM – 3:00 PM

Amphibious and mud walkers International Salon 2-3

Chair: Mikayla Struble

1:30 pm

Locomotor strategies in terrestrial and aquatic life stages of *Notophthalmus viridescens*

Mikayla Struble, Christopher Mayerl, Alice Gibb

Northern Arizona University

1:45 pm

Using robophysical models to study the performance landscape of terrestrial fish locomotion

Gargi Sadalgekar, Divya Ramesh, Chen Li
Johns Hopkins University

2:00 pm

Use of body lifting by elongate amphibious fishes to move on mud

Divya Ramesh, Hongbo Zhang, Dami Kim, Alex Nath, Na Dai, Daniel Collum, Abdulla Ubaydullaev, Chiadika Vincent, Catherine Pollard, Gargi Sadalgekar, Chen Li
Johns Hopkins University

2:15 pm

How do mudskippers and mudskipper-inspired robots taxi?

Kai Lauren Yung, DAEHYUN CHOI, Nami Ha, Halley Wallace, Kenny Zhang, Saad Bhamla
Georgia Institute of Technology, Lambert High School

2:30 pm

Implications of tetrapod trackways of the Albert Formation for the locomotion of early tetrapods

Eleanor Spence, Matthew Stimson, Tetsuto Miyashita, Hillary Maddin, Emily Standen, Danielle Fraser
Carleton University, New Brunswick Museum, Canadian Museum of Nature, University of Ottawa

2:45 pm

Moo-ving Mountains: An Agent-Based Exploration of Grazing Terracette Formation

Benjamin Seleb, Saad Bhamla
Georgia Institute of Technology

1:30 PM – 3:30 PM

Complementary session 2 to S6: Pollinator-plant interactions in a changing landscape: embracing integrative approaches across scales

International Salon 4

Chair: James Crall

1:30 pm

Ecological and evolutionarily consequences of buzz pollination

Avery Russell
Missouri State University

1:45 pm

Tax the rich (bees): Individual-level niche dynamics of bumble bee pollen loads

Kaysee Arrowsmith, Madeleine Strait, Manogya Chandar, Berry Brosi, Shalene Jha
University of Texas at Austin, University of Washington

2:00 pm

Fruit for thought: how plant genotype affects pollination ecology of American elderberry

Jenny Burrow, Caleb O'Neal, Andrew Thomas, Avery Russell
Missouri State University, University of Missouri

2:15 pm

Pollinator thermal preferences in an early-blooming crop

Nicole DesJardins, James Crall
University of Wisconsin-Madison

2:30 pm

The diversity of butterfly flower color preferences in the Ozark ecoregion

Dmitry Kutcherov, Erica Westerman
University of Arkansas

2:45 pm

Comparison of the Environmental Temperature Heterogeneity and Model Bee Temperature System in *Vitex*

Marco Ramirez-Ramirez, John Hranitz, Victor Gonzalez, Michael Dillon, John Barthell
Donnelly College, Commonwealth University of Pennsylvania Bloomsburg, University of Kansas, University of Wyoming, University of Central Oklahoma

3:00 pm

Family matters: environment influences butterfly abundance and behavior but in lineage-specific ways

Grace Hirzel, Ashlyn Anderson, Erica Westerman

University of Arkansas, North Dakota State University

3:15 pm

Domestication alters signals used by specialist pollinators to detect squash flowers (*Cucurbita* sp.)

Avehi Singh, Andrew Myrick, Nathaniel McCartney, Kristen Brochu-De-Luca, Swayamjit Ray, Jared Ali, Margarita Lopez-Uribe
Pennsylvania State University

1:30 PM – 3:15 PM

Complementary to the Bern lecture: remarkable advances for remarkable behaviors

International Salon 6

Chair: Jennifer R. Merritt

1:30 pm

Differences in social phenotype between and within a wildtype and a domesticated songbird species

Nicole Baran
Davidson College

1:45 pm

Prolactin and parental care in a sparrow with a behavioral polymorphism

Mackenzie Prichard, Isabel Fraccaroli, Frédéric Angelier, Donna Maney
University of North Dakota, Emory University

2:00 pm

Using wild songbirds to study interval timing in vocal communication

Carlos Rodriguez-Saltos
Illinois State University

2:15 pm

Neural serotonin receptor expression and social behavior in the polymorphic white-throated sparrow.

Brent Horton, Nate Wilson, Donna Maney
Millersville University, Emory University

2:30 pm

The genetic causes and behavioral consequences of glucocorticoid evolution in monogamous mice

Jennifer Merritt

Columbia University

2:45 pm

Neural circuitry of peer group affiliation in male and female spiny mice

Aubrey Kelly

Emory University

3:00 pm

Acute effects of estradiol on behavioral responses associated with group living in male and female zebrafish

Richmond Thompson

Oxford College of Emory University

1:30 PM – 3:30 PM

**Conservation ecology:
species interactions and
population dynamics**

International Salon 10

Chair: *Chloe Lahondere*

1:30 pm

Fatal attraction: exploring the interaction between *Aedes japonicus* and *Amianthium muscitoxicum*

Irving Upshur, James Moloney, Simone de-Montigny, Chloe Lahondere

Virginia Tech, Truman State University, Beloit University

2:00 pm

Life in the fast lane? Demography of a relatively short-lived Emydid turtle

Dylan Wichman, Ethan Hollender, Donald McKnight, Day Ligon

Missouri State University, University of Arkansas-Fayetteville

2:15 pm

Population viability analysis of *Pan troglodytes schweinfurthii* in Gombe National Park

Pamod Liyanagedara

University of Florida

2:30 pm

Using two chemotypes of invasive *Melaleuca* to compare herbivory on opposite coasts of South Florida

Blake Blaskowski, Peter Stiling, Melissa Smith, Andrea Carmona-Cortes, Anthony Garcia

University of South Florida, USDA ARS

2:45 pm

Dietary niche variation between island and mainland *Anolis* lizards

Edita Folfas, Luke Frishkoff

University of Texas at Arlington

3:00 pm

Estimating discard mortality of undersized and ovigerous crabs in the Gulf Blue Crab fishery

Micayla Cochran, M. Zachary Darnell

The University of Southern Mississippi

3:15 pm

Predicting the future, mechanisms of anticipatory reproduction in North American red squirrels

John Williams-Soriano, Stan Boutin, Jeffrey Lane, Andrew McAdam, Ben Dantzer

University of Michigan, University of Alberta, University of Saskatchewan, University of Colorado Boulder

1:30 PM – 2:30 PM

**Division of Vertebrate
Morphology Best Student
Presentation D. Dwight
Davis Award**

International Salon 9

Chair: *Andrea Ward*

1:30 pm

Early ontogenetic allometry and shifting modularity in skull development of the red sea anemonefish

Kaleigh Arnold, HoWan Chan, Mayara Neves, John Majoris, Kory Evans

Rice University, The University of Texas at Austin Marine Science Institute

1:45 pm

Exploring morphologies of shark skin denticles across a shape gradient with geometric morphometrics

Isabella Campos, Ella Nicklin, Gianna Mitchell, Gareth Fraser

Florida Southern College, University of Florida

2:00 pm

Microfossil spiraling teeth reveal paleocene origin of cyclothone (bristlemouths)

Karinne Tennenbaum, Karly Cohen, Immanuel Bissell, Elizabeth Sibert

Yale University, University of Washington, California State University Fullerton, Woods Hole Oceanographic Institution

2:15 pm

Optimizing dietary reconstruction in fossil primates: a multivariate, machine learning approach

Savannah Cobb, Darrell La, Siobhán Cooke

Johns Hopkins University

1:30 PM – 3:15 PM

**Effects of climate on ocean
species and communities**

International Salon 7

Chair: *Racine Rangel*

1:45 pm

Characterizing drivers of marine community calcification under ocean acidification and warming

Racine Rangel, Kristy Kroeker, Matthew Bracken, Luke Miller, Cascade Sorte

University of California, San Diego State University

2:00 pm

Dietary impacts on larval sand dollar performance under marine heatwave conditions

Ruby Novogrodsky, Karen Chan

Swarthmore College, University of Washington

2:15 pm

Effects of ocean acidification on larval bay scallops *Argopecten irradians* across generations

Dianna Padilla, Samuel Gurr, Shannon Meseck, Genevieve Bernatchez, Lisa Guy, Mark Dixon, Dylan Redman, George Sennfelder, Lisa Milke, Gary Wikfors, Katherine McFarland

Stony Brook University, National Research Council, NOAA

2:30 pm

Genetically integrated phenotypes define tolerance to ocean acidification in a coastal fish species

Thea Cole, Alexis Lundquist, Darren Johnson

California State University Long Beach

2:45 pm

Present and future distribution modeling of the Olympia oyster (*Ostrea lurida*)

Luis Hurtado, Kristin Privitera-Johnson, Christine Mantegna, Camille Gaynus, Tiara Moore

Texas A&M University, University of Washington, Black In Marine Science

3:00 pm

Combined effects of temperature and food on ribbed mussel (*Geukensia demissa*) larvae

Nicolas Anderson, Dianna Padilla, Julia Dovi
Stony Brook University

1:30 PM – 3:30 PM

Fitness consequences of plasticity

A601

Chair: Andrew Stoehr

1:30 pm

Transgenerational plasticity as a mechanism of heat wave adaptation in porcelain crabs

Liliana PRUETT, Jonathon Stillman
SFSU

1:45 pm

Fitness consequences of natural incubation environments: A test of the EMH

Mike Norris, Sydney Wayne, John Rodgers, Anthony Gilbert, Daniel Warner
Auburn University

2:00 pm

Better predicting multi-trait evolution to climate change by incorporating predation and plasticity

Miyauna Incarnato, DeAnthony Rothwell, Kyle Coblentz, John DeLong, Kristi Montooth
University of Nebraska-Lincoln

2:15 pm

Melanism, temperature and density in the cowpea beetle *Callosobruchus maculatus*

Andrew Stoehr, Liam Donahue
Butler University

2:30 pm

Fitness plasticity tradeoffs under temperature extremes: linking epigenetics and microbial load

Mikayla Clark, Marie Strader
Texas A&M University

2:45 pm

Acclimation effects on thermal dependence of tongue projection performance in chameleons

Etti Cooper, Madison McIntyre, Krystal Tolley, Graham Alexander, Christopher Anderson
University of South Dakota, South African National Biodiversity Institute, University of the Witwatersrand

3:00 pm

Does trophic plasticity lead to thermal tolerance? Gorgonian responses to rising temperatures

Michael Drummond, Alyssa Stark, Asja Radja
Villanova University, Bryn Mawr College

3:15 pm

Evolution of transmissible cancers: an adaptive, plastic strategy of selfish genetic elements?

Kern Reeve, David Pfennig
Cornell University, University of North Carolina

1:30 PM – 3:00 PM

Group movement dynamics

A704

Chair: Yu Pan

1:30 pm

The effect of flow conditions and group size on the 3-D dynamics of a schooling carangid fish

James Liao, Ishani Mukherjee
University of Florida

1:45 pm

Robotic fish swimming with the school: unlocking insights into collective behavior dynamics

Yu Pan, George Lauder
Harvard University

2:00 pm

Information networks underlie divergent schooling behaviors of Neotropical tetras

Nathan Swanson, Ashley Peterson, Christopher Martinez, Matthew McHenry
University of California Irvine

2:15 pm

Using transfer entropy to discover how wild gray bats use sound for sensing in groups

Megan Grey, Eighdi Aung, Nicole Abaid
Virginia Tech

2:30 pm

Controlling noisy herds

Tuhin Chakraborty, Saad Bhamla
Georgia Institute of Technology

2:45 pm

The role of vision and flow sensing in the schooling behavior of fish in flow

Ashley Peterson, Matthew McHenry
UC Irvine

1:30 PM – 3:30 PM

Hydrodynamics

International Salon 8

Chair: Hungtang Ko

1:30 pm

Effects of bidirectional deformation on colony-scale flow around a sea fan

Adetokunbo Awonusi, Arvind Santhanakrishnan
Oklahoma State University

2:00 pm

Comparison of hydrodynamic characteristics of salt marsh harvest mice and co-occurring rodents

Julian Banaelos-Torres, Arianna Ramirez, Diego Sustaita
California State University San Marcos

2:15 pm

Fish swimming in a shear layer: the dynamics of energy conservation

yangfan zhang, Robin Thandiackal, Connor White, Yu Pan, George Lauder
Harvard University

2:30 pm

Vibrating with flow: flexible bodies of dead fish enable passive undulation behind obstacles

Hungtang Ko, Meg Vandenberg, Olivia Hawkins, Adam Summers, Radhika Nagpal, Cassandra Donatelli
Princeton University, University of Washington, Tufts University

2:45 pm

Hydrodynamic roles of fore and hindflippers in harp and harbor seals

Sophia Sebo, Frank Fish, Megan Leftwich
West Chester University, George Washington University

3:00 pm

Self-righting behavior of benthic crabs in freefall

Yohan Sequeira, Emily Carrington, Jake Socha
Virginia Tech, University of Washington

3:15 pm

Mastering the manu: how humans create large splashes

Pankaj Rohilla, Daehyun Choi, Halley Wallace, Kai Lauren Yung, Atharva Lele, Juhi Deora, Saad Bhamla
Georgia Institute of Technology

1:30 PM – 3:45 PM

**Macroevolution
A703**

Chair: *Cameron Ghalambor*

1:30 pm

Comparison of hydric and thermal landscapes in closed-canopy vs. open-canopy Hispaniolan anoles

Isabela Hernandez-Rodriguez, Nathalie Alomar, Brooke Bodensteiner, Martha Muñoz
Yale University

1:45 pm

Relevance of fruits for understanding morphological change of Araceae in the fossil record

Jeronimo Morales-Toledo, Selena Smith
University of Michigan

2:00 pm

Geographic variation in physiological traits: are there macrophysiological patterns?

Cameron Ghalambor, Alexander Mauro, Alfredo Escanciano-Gomez, Aksel Fosse, Hanna Kissener
Norwegian University of Science & Technology

2:15 pm

The escalator to extinction in tropical mountains

Benjamin Freeman
Georgia Tech

2:30 pm

Shifts in salamander body sizes in response to 60 years of climate change

Morgan Fleming, Kimberly Sheldon
University of Tennessee

2:45 pm

Downsizing: latitudinal and temporal Bergmann's clines in the butterfly, *Vanessa cardui*

Amanda Carter, Fabio Machado, Erika Hingst-Zaheer, Mikayla Struble, Ashlyn Trujillo, Jonathan Branco, Colton Roberts-Zaffiro
Oklahoma State University, Instituto Butantan, Northern Arizona University

3:00 pm

The evaporation sensitivity of large-bodied North American mammalian herbivores

Katherine Slenker, Jenny McGuire, Mark Clementz
Georgia Institute of Technology, University of Wyoming

3:15 pm

How do physiology, competition and micro-habitat drive abundance patterns of tropical montane birds?

Samuel Jones, Steven Portugal
Georgia Institute of Technology, Royal Holloway University of London

3:30 pm

Does body mass drive limb shape disparity and locomotor diversity in mammals?

Brandon Hedrick, Priscila Rother
Cornell University

1:30 PM – 3:30 PM

**Moving Through Water
Marquis D**

Chair: *Jasmin Graham*

1:30 pm

Bacterial upstream motility regulates multispecies niche construction in flow networks

Arnold Mathijssen, Ran Tao
University of Pennsylvania

1:45 pm

Drag reduction and locomotory power in dolphins: Gray's paradox revealed

Randall Davis, Dara Orbach, Lorenzo Fiori, Bernd Würzig
Texas A&M University

2:00 pm

Connecting individual body mechanics with swimming performance in scup *Stenotomus chrysops*

Eric Tytell, Jordano Jimenez, Martha Sutter, Erik Anderson
Tufts University, Providence College, Grove City College, Woods Hole Oceanographic Institute

2:15 pm

Design and development of a fully autonomous bio-inspired underwater vehicle for extended missions

Lena Haefele, James Richard, Owen McKenney, Connor McKenzie, Joseph Zhu, Hilary Bart-Smith
The Lawrenceville School, University of Virginia

2:30 pm

Predicting changes in diatom density through unsteady sinking

Phoenix Savage, Kevin Du-Clos
Louisiana Universities Marine Consortium

2:45 pm

Sprinters to marathoners: an ontogenetic comparison of leatherback sea turtle swimming kinematics

Samantha Trail, Jeanette Wyneken
Florida Atlantic University

3:00 pm

Frequency impact on swimming mechanics of robotically-controlled jellyfish

Noa Yoder, John Dabiri
California Institute of Technology

3:15 pm

Tag-based estimates of full-body swimming kinematics for bottlenose dolphins (*Tursiops truncatus*)

Gabriel Antoniak, Enric Xargay, Tyson Lin, Kira Barton, Bogdan-Ioan Popa, Kenneth Shorter
University of Michigan, CSTAR Pte Ltd

1:30 PM – 3:00 PM

**Thermal ecology in the cold times
A707**

Chair: *Catherine Bevier*

1:30 pm

Incubation and overwintering conditions influence hatchling turtle righting ability

Molly Caldwell, Daniel Warner, Matthew Wolak
Auburn University

1:45 pm

Transcriptomic resilience of a winter-acclimated marine gastropod under elevated temperature stress

Colleen Bove, Jan Pechenik, Sarah Davies
Ursinus College, Tufts University, Boston University

2:00 pm

Constant and fluctuating cold temperatures increase mitochondrial respiration in birds

Chidambaram Ramanathan, Sampath Anandan, Chelsi Marolf, Reihane Eric, Leyli Mammedowa, David Swanson, Yufeng Zhang
University of South Dakota, University of Memphis

2:15 pm

Hydrothermal physiology limits distribution of the Mink Frog, *Rana septentrionalis*, in North America

Catherine Bevier
Colby College

2:30 pm

Migratory monarchs only use magnetic cues for orientation with orientation recalibrated by coldness

*Samuel Moore, Steve Matter, Patrick Guerra
University of Cincinnati*

1:30 PM – 3:30 PM

Wingstop

International Salon 5

Chair: Pranav Khandelwal

1:30 pm

Are pterosaurs special? Comparing bone distribution in pterosaur humeri to birds

*Stephanie Baumgart, Michael Habib, Matthew Brown, Andrew Moore, Emma Schachner
University of Florida, UCLA Cardiac Arrhythmia Center, The University of Texas, Stony Brook University*

1:45 pm

A hairy situation: the diversity of bat wing pelage and its functional implications

*Alexandria Tennant, Andrea Rummel
Rice University*

2:00 pm

Birds of a feather: Linking the evolution of emarginated primary feathers to flight function

*Lilia Burtonpatel, Hannah Wiswell, Aimy Wissa
Princeton University*

2:15 pm

Tuning of wing flexibility to intraspecific variance in body size in the mango stem borer

*Gal Ribak, Ori Stearns, Kiruthika Sundararajan, Duvall Dickerson-Evans, Roi Gurka
Tel-Aviv University, Coastal Carolina University*

2:30 pm

Response to sudden wing damage in flying flies reveals the robustness of flapping-wing flight

*Yue Zhu, Lingsheng Meng, Wael Salem, Jean-Michel Mongeau
Penn State University*

2:45 pm

The biomechanics of wing coupling in cicadas

*Pranav Khandelwal, Trevor Bryan-II, Alan Mach, Joshua Taylor, Jake Socha
Virginia Tech, Morehouse College, Brown University*

3:00 pm

Wingtips with a twist: flow physics of Harris's Hawk inspired wingtips

*Hannah Wiswell, Girguis Sedky, Aimy Wissa
Princeton University*

3:15 pm

Flapping wing insect inspired buckling joints for micro-robotic resilience

*Jenna McNally, Mark Jankauski
Montana State University*

2:30 PM – 3:30 PM

Hanging on by a thread

International Salon 9

Chair: Tyler Brown

2:30 pm

New & used: the exaptation of silk spinning systems in amphipods

*Siena McKim
University of California Santa Barbara*

2:45 pm

Tunable moisture loss by spider egg sac design

*Ravi Schwartz, Katherine Karkosiak, Hunter King, Todd Blackledge
University of Akron, Rutgers University*

3:00 pm

A comparison of the flexural strength of *Parasteatoda tepidariorum* and *Argiope aurantia* spider silks

*Ella Kellner, Sarah Stellwagen
University of North Carolina at Charlotte*

7:30 PM – 8:30 PM

George A. Bartholomew Lecture:

Dr. Kathryn Wilsterman

Marquis B

Sponsored by

Sable Systems International

7:30 pm

A missing piece of the whole:

Reproductive traits and local adaptation

*Kathryn Wilsterman
Colorado State University - Fort Collins*

Monday POSTER SESSION P3

Atrium Ballroom • 3:30-5:30 PM

Poster Set Up: 7:00-8:00 am • Poster Teardown: 5:30-6:00 pm

Even # - Authors present from 3:30-4:30 pm • Odd # - Authors present from 4:30-5:30 pm

Complementary session to From evolution to innovation: bridging biology and engineering through bioinspired design

P3-1

Can Large Language Models Help
Generate Comparative Structure-
Function Relationships?

Itzel Chavez-Martinez, Dhruv Bhate
Arizona State University

P3-2

Clinging for shear life: modulation of
suction performance in the northern
clingfish

*Sarah Arnette, Cassandra Donatelli, Olivia
Hawkins, Jack Rosen, Jonathan Huie*
University of Louisville, University of
Washington Tacoma, Tufts University, The
George Washington University

P3-3

Squeezing in tight spaces: How does
worm move faster in confined channel?

*Justin Xu, Prathyusha Kokkoarakunnel-
Ramankutty, Paulami Sarkar, Saad Bhamla*
Georgia Institute of Technology

P3-4

Designing bioinspired robotic flowers
that incorporate both attractant and
deterrent floral signals

*Joshua Foley, Skylar Mathieson, melissa
whitaker*
East Tennessee State University

P3-5

Testing the Limits: Functional Strengths
and Weaknesses of Poacher (Agonidae)
Armor

*Lorenzo Martinez, Meg Vandenberg, Adam
Summers, Karly Cohen, Cassandra Donatelli*
Rhodes College, University of Washington,
California State University Fullerton

P3-6

A View to a Keel: the form and function
of ventral keels in fishes

*Charles Amazon, Matthew Kolmann,
Cassandra Donatelli, Spencer Truman,
Charbel El-Khoury*
University of Texas, University of Louisville,
University of Washington Tacoma, KAUST

P3-6a

How do worms climb duckweed roots?

*Nicholas Correcha, Prathyusha
Kokkoarakunnel-Ramankutty, Harry Tuazon,
Ivy Li, Saad Bhamla*
Georgia Institute of Technology

Development and growth

P3-7

Influence of urbanization on
developmental instability and
endurance in the Common Wall Lizard

Audrey Friestad, Donald Miles, Eric Gangloff
Ohio University, Ohio Wesleyan University

P3-8

Using rotifers as a model for
zooplankton visual development and
susceptibility to chemicals

Camron Hens, Joseph Covi
University of North Carolina at Wilmington

P3-9

Comparative skeletogenesis of Ranidae
frogs in central Appalachia

Stephanie Keer
Lincoln Memorial University

P3-10

A comparison of reptile and mammal
embryonic curvature and organ growth
during early development

*Tiya Mistry, Katherine Starr, Suzannah
Williams, Paul Trainor, Thomas Sanger,
Antonia Weberling*
University of Oxford, Loyola University
Chicago, Stowers Institute for Medical
Research

P3-11

Can we rescue planaria from BPA using
PCL and carbon nanotubes?

*Eli Koboski, Bhushan Dharmadhikari, Michael
Minicozzi*
Minnesota State University-Mankato

P3-12

'Alternative' flame retardants alter avian
embryonic heart development and
function

*Alex Webb, Melville Vaughan, Christopher
Goodchild*
University of Central Oklahoma

P3-14

Comparing anterior and posterior
regeneration in the annelid *Streblospio
benedicti*

*Zachary Benfield, Robert Walsmith, Christina
Zakas*
North Carolina State University

P3-15

Early-life social regulation of size,
growth, and sex steroid hormones in
developing cichlid fish

*Alyssa (Aly) Alvey, Cameron Hamson,
June Lee, Samuel Chan, Cristi Cruz, Kiren
Kanazawa, Blake Migden, Emma Thompson,
Tessa Solomon-Lane*
Scripps College, Pitzer College, Claremont
McKenna College

P3-16

What kind of claws do you need to
survive? An opossum perspective

*Gabby Guilhon, Brian Beatty, Christine Lee,
Michael Granatosky*
New York Institute of Technology

P3-17

Quantifying variation in the CNS of
Lithobates heckscheri tadpoles

*Megan Hostetter, Dominik Valdez,
Christopher Heesy, John Phillips, Leigha
Lynch*
Midwestern University, Valdosta State
University

P3-18

Sprint speed, hematology, and active
metabolic rate of juvenile collared
lizards

*Megan Wilson, Troy Baird, Christopher
Goodchild*
University of Central Oklahoma

Vertebrate morphology: evolution, development and function

P3-19

Effect of attachment on exertion
capacity in the green anole (*Anolis
carolinensis*)

*Natalie Robinson, Benjamin Wasiljew, Austin
Garner*
Syracuse University

P3-20**Comparative Analysis of Ovarian Biomaterials in Juvenile and Adult Shiner Perch (*C. aggregata*)**

Jordan Graves, Janine Ziermann-Canabarro, Jaquan Horton, Stacy Farina, Paola Correa-Alfonzo
Howard University

P3-21**A new dinosaur from Ghost Ranch expands end-Triassic dinosaur diversity in equatorial Pangea**

Simba Srivastava, Sterling Nesbitt
Virginia Tech

P3-22**Combining morphological survey approaches to identify phenotypic variation in seahorses (*H. erectus*)**

Emily Rose, Graham Short, Hannah Holland, Heather Mason
Valdosta State University, The University of Tampa

P3-23**Body shape diversification in Betta fishes**

Luke Rose, Matt Friedman, Matthew Kolmann
University of Louisville, University of Michigan

P3-24**Transcriptome Data Analysis of Parrotfish Beak Evolution**

Sebastian Alvarez-Luna, Kory Evans
Rice University

P3-26**The evolution of an owl-like auditory system in harriers**

Sara Citron, Cristian Andres Gutierrez-Ibanez, Aubrey Keirnan, Vera Weisbecker, Douglas Wylie, Andrew Iwaniuk
University of Lethbridge, University of Alberta, Flinders University

P3-27**Does fish passage select for American eel size?**

Miriam Yushavaiev, Amanda Horung, Rita Mehta, Andrea Ward
Adelphi University, University of California at Santa Cruz

P3-28**Quantitative Micro-CT Analysis of Murine Bone: Investigating Menopause-Related Osteoporosis**

Mohit Shah, Supriya Baskara, David Matatov, Maria Sepulveda, Akinobu Watanabe
New York Institute of Technology

P3-29**Polish Crested Chickens: a big-headed breed as a promising model system for hydrocephalus**

Roenell Heerbrandt, Akinobu Watanabe, Scott Landman, Abdullah Ansari, Mohit Shah, Meredith Taylor
New York Institute of Technology

P3-30**No evidence of sexual dimorphism in tidepool sculpin pectoral fin morphology**

Emily Kane, Shubham Vijay Kumar Yadav, Emalie Abshire, Andrew Moura, Austin Garner
University of Louisiana at Lafayette, Syracuse University

P3-31**Uropygial gland size increases isometrically with body size in 35 North American bird species**

Austin Dotta, Caitlin McNamara, Alex Huynh, Mercille Nguyen, Brandon Swayser
DeSales University

P3-32**Soft-tissues Predict Bone Shape and Modularity in the Cichlid Feeding Apparatus**

Maurn Tyack, Craig Albertson, David Matthews
University of Massachusetts Amherst

P3-33**Adhesive pad usage in Argentine ants when facing high centrifugal forces**

Agasthya Valluri, Yakun Cao, Andrew Chacon, Nick Gravish
University of California, San Diego

P3-34**Comparative biomechanics and osteohistology reveal details of small mammal locomotor ecology**

Henry Fulghum
University of Chicago

P3-35**Differences in vertebral shape due to nonflight locomotion in Old World and New World fruit bats**

Jessica Upham, Richard Carter
East Tennessee State University

P3-36**How different body configurations affect perturbation resistance in arboreal lizards**

Savannah Swisher, Amanda Kellerhals, Trevor Brewington, Victor Munteanu, Richard Blob
Clemson University

P3-37**Mechanical properties of fast fish vertebral columns**

Jacqueline Wilson, Marianne Porter, Aubrey Clark, Maria Laura Habegger
University of North Florida, Florida Atlantic University

Interesting integuments: evolution of skin, scales, and shells**P3-38****Visualizing shell thickness variation in bird eggs with ImageJ**

Avi Berger
University of Illinois, Urbana Champaign

P3-43**Zooming in on Bonnetheads: Quantifying sexual dimorphism in denticle morphology**

Hannah Epstein, Madeleine Hagood, Jamie Knaub, Marianne Porter
Florida Atlantic University

Locomotion: dynamic movements and complex surfaces**P3-40****Comparative depth perception in arboreal lizards**

Amanda Kellerhals, Savannah Swisher, Trevor Brewington, Victor Munteanu, Richard Blob
Clemson University

P3-40a**Analyzing turning dynamics of a sea turtle-inspired robot on terrestrial environments**

Nnamdi Chikere, Frank Fish, Yasemin Ozkan-Aydin
University of Notre Dame, West Chester University

P3-42**Hop 'til You Drop: Impact of Limb Loss on Locomotion in Spotted Lanternflies (*Lycorma delicatula*)**

Ariba Islam, Anand Kanumuru, Pranav Krish, Jonathan Shadan, Kyle Dixson, Christine Lee, Ashley Choi, Gabby Guilhon, Michael Granatosky
New York Institute of Technology

P3-44**Influence of heterogeneous cell motility and adhesion in biofilm spatiotemporal patterning**

Kimberly Bowal
Harvard University

P3-46

Hold Tight: The Impact of Limb Loss on Spotted Lanternfly (*Lycorma delicatula*) Grasping Strength

Anand Kanumuru, Ariba Islam, Kyle Dixon, Jonathan Shadan, Ashley Choi, Gabby Guilhon, Christine Lee, Pranav Krish, Michael Granatosky
New York Institute of Technology

P3-48

Lateralization of righting response in arboreal chameleons

Gene Glover, Michael Curran, Christopher Anderson
University of South Dakota

P3-49

Assessing Tradeoffs Between Tail-Flip Jump Distance and Critical Swimming Speed in Fish

Corvus Murphy, Michael Minicozzi
Minnesota State University Mankato

P3-50

Comparative jumping performance of the critically endangered dusty gopher frog (*Lithobates sevosus*)

Kelly Diamond, Catherine Alton, Catherine Hanks, Sinlan Poo
Rhodes College, Memphis Zoo

P3-51

Modulations in locomotor behavior during climbing waterfalls in *Galaxias fasciatus*

Takashi Maie, Aneeq Mir, Gerard Closs
St. Olaf College, University of Otago

P3-51a

Kinematics of walking and climbing in two species of plethodontid salamanders

Mary O'Donnell, Jenna Soukaseum, Cara Parsell
Lycoming College

P3-52

How wolf spiders get through rough patches: running kinematics and paths on different granular media

Haitong Lian, Jack Vice, S. Tonia Hsieh, Suzanne Kane
Haverford College, Temple University

Equity and inclusion in biology education

P3-53

How to use biological collections in course-based research to address coloniality and equity issues

Ulrike Muller, Sharndeeep Kaur, Viridiana Rivera-Flores, Alexandria Hansen
California State University Fresno, Fresno State University

P3-54

BCEENET: Bringing digitized natural history collections CURES into ecology and evolution courses

Janice Krumm, Elizabeth Shea, Cecily Bronson, Carly Jordan
Widener University, Delaware Museum of Nature and Science, George Washington University

P3-55

Bringing inclusive fieldwork practices to malacology

Elizabeth Davis-Berg, Teresa Rose Osborne, Kevin Kocot, Elizabeth Shea, Jingchun Li, W. A. Nimanthi Abeyrathna, Kelly Martin
Columbia College Chicago, Villanova University, The University of Alabama, Delaware Museum of Nature and Science, Clarkson University, University of Colorado Boulder

P3-56

STEM Experiences for All: inclusive outreach through biological activities

Kasey Wozniak, Claire Wasniewski, Beverly Victoria, Makenzie Reed, Devaleena Pradhan
Idaho State University

Ecoimmunology and disease ecology, part 2

P3-57

First characterization of MHC II β Exon 2 Diversity in Andean Pristimantis Frogs

Veronica Urgiles, Anna Savage, Katherine Martin, Juan Sanchez-Nivicela
University of Central Florida, Instituto Nacional de Biodiversidad del Ecuador

P3-58

The impact of experimental heat on Tree Swallow investment trade-offs

Nelly Stafford, Jennifer Houtz
Allegheny College

P3-59

Evaluating historical and contemporary rates of black-spot disease in fishes in an Arkansas stream

Thomas Naylor, Austin Bailey, Brook Fluker
Arkansas State University

P3-60

Disentangling the relationship between personality, sickness behaviors, and pathogen transmission

Julia Weil, James Adelman
University of Memphis

P3-61

B. glabrata shows differential CNS transcriptomics in parasite-susceptible vs. -resistant strains

Aparna Gajulapalli, Acacia Ackles, Judith Humphries
Lawrence University

P3-62

TNF and N:L ratio changes in edge and core populations of invasive cane toads in Florida

Mary Mendonca, Jennie Ha
Auburn University

P3-63

The Link Between Male Aggression and Immunity: A Critical But Neglected Life-History Trade-Off

Sydney Szwed, Benjamin Sadd, Scott Sakaluk
Illinois State University

P3-64

Chronic stress results in greater pathology during MG infection in canaries

Vansh singhal, Erin Sauer, Kamiah Turner, Salvador Barraza-Del-Barco, Sarah DuRant
University of Arkansas

P3-65

Comparative Immune and Stress Responses in Red-Eared Sliders and Western Painted Turtles

Santi Groat-, Lori Neuman-Lee, Mike LeMaster, Gareth Hopkins, Antonette Tilgner
Western Oregon University, Arkansas State University

P3-66

Sick Bees at SICB: The Effects of Supplemental Feeding on Viral Burden in the Western honey bee

Josiah Kaderis
University of Georgia

P3-67

Characterization of leukocyte differentials in a hantavirus reservoir host species

Xander Molina, Richard Dolman, Michelle Haynie, Christopher Goodchild
University of Central Oklahoma

P3-69

Impact of warming and acidification on bivalves exposed to *Pseudo-nitzschia pungens* i/

Jessica Leal, Cecilia Brothers, Ryan Kenton, Christine Weillhoefer, Rosa León-Zayas, Zachary Blood
Walla Walla University, University of Portland, Willamette University

Microbial diversity and interactions**P3-70**

Using whole genome sequencing by-catch to find blood microbes across populations of gopher snake

Stephen Tansie, Tonia Schwartz
Auburn University

P3-71

Microbiome of chained catsharks throughout development

Emma Grace Anderson, Katelyn Mika, Elizabeth Parsons, Cody Neal
University of Tulsa

P3-72

The presence of microbes on adult chondrichthyan skin

Elizabeth Parsons, Katelyn Mika
University of Tulsa

P3-73

A new perspective to oral microbial ecology: sliding motility in human dental plaque bacteria

Marta Pantin, Scott Chimileski, Jessica Mark-Welch
University of Chicago

P3-74

Genome based identification of novel bacterial predators: exploring *Micavibrionacea* sp. LS7A1

Victoria Jones, Hugo Doré, Emily Junkins, Lizzy Wilbanks
University of California- Santa Barbara

P3-75

Microbes as manipulators of egg size and developmental evolution

Tyler Carrier, Matthew Kustra
University of North Carolina at Charlotte

Molecular basis of behavior**P3-76**

The involvement of α -7 nicotinic acetylcholine receptor in adult neurogenesis and social recognition

Reagan Brown, Ryan Earley, Nia Jones, Wesley Allahham, Joshua Borak, Jacklyn Dang, Ronin Hulett, Morgan Mittlestadt, Lea Packer, Alexis Ponseti, Claire Stuart
University of Alabama

P3-77

Effect of dopamine manipulation on social behavior and neural gene expression in a juvenile fish

Jessica Gonzalez-Rodriguez, Veronica Britton, Andrew Yuan, Kiren Kanazawa, Lauren Anderson, Ailinh Nguyen, Tessa Solomon-Lane
Scripps College, Claremont McKenna College, Pitzer College

P3-79

The effect of physiological state on behavioral plasticity in zebra finches

Elena Lawson, Angela Riley, Jennifer Grindstaff
Stephen F. Austin State University, Oklahoma State University

P3-80

Neural serotonin receptor expression in the white-throated sparrow brain (*Zonotrichia albicollis*)

Nate Wilson, Brent Horton, Donna Maney
Millersville University, Emory University

P3-81

Characterizing food hoarding, stress, and anxiety in a mammalian hibernator

Sebin Park, Ni Feng, Rose Margolies, Haocheng Wang
Wesleyan University

P3-82

Proteomic insights into winner-loser effects: aggression, learning, and brain protein profiles

Cheng-Yu Li, Audrey Ward, Eric Haag, Dietmar Kueltz, Ryan Earley
University of Maryland, University of Georgia, University of California Davis, University of Alabama

Molecular evolution and speciation**P3-84**

Ancient DNA from tar pit fossils? Planting ideas for reconstructing late Pleistocene paleoflora

Kimberly Baker, Robert McAfee, Lindsey Emily
Philadelphia College of Osteopathic Medicine, La Brea Tar Pits and Museum

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Mitochondrial Genome Phylogeny of Alvinellidae (Annelida: Terebelliformia)

Dakota Betz, Greg Rouse
University of California San Diego, Scripps Institution of Oceanography

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Finders Keepers: DNA uptake facilitated by T6SS competition among *Vibrio fischeri* symbionts

Perla Gonzalez-Moreno, Michele Nishiguchi, Salma Arechiga-Mendoza
University of California, Merced

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PAX6 Gene Variation Across Gnathostomes

Sofia Barajas, Rafael Rios, Matthew Gross, John Phillips, Christopher Heesy, Leigha Lynch
Midwestern University, Valdosta State University

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The genetic origins of hagfish slime gland evolution

Kaleb Ducharme, David Plachetzki, Douglas Fudge
University of New Hampshire, Chapman University

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Speciation through Genetic Incompatibilities

Olivia LaRochelle, Ricardo Azevedo
University of Houston

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A novel form of phenotypic plasticity evolved via lineage-specific changes in gene expression

Andrew Isdaner, Nicholas Levis, David Pfennig
University of North Carolina, Indiana University

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Phylogenetic relationships within the *Anolis cybotes* group from the Caribbean Island of Hispaniola

Bianka Sanó, Nathalie Alomar, Isabela Hernandez-Rodriguez, Sina Rometsch, Martha Muñoz
Universidad Autónoma de Santo Domingo, Yale University

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Comparative Sequence Analysis of Essential Bacterial Membrane Protein Transporters.

Alexander Everett, David Bean, Syrus Miner, Jeremy Bakelar, Randy Klabacka
Utah Tech University, Brigham Young University

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Ancient climate changes drive mode and tempo of cave colonization in North American cavefishes

Pamela Hart, Melissa Ricon-Sandoval, Fernando Melendez-Velasquez, Emily Troyer, Ricardo Betancur-R, Jonathan Armbruster, Orran Bierstein, Brendan Gough, Matthew Niemiller, Dahiana Arcila

The University of Alabama, Scripps Institution of Oceanography, The University of California San Diego, University of Michigan, University of Oklahoma, Auburn University

Temperature and behavior
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Top bunk or bottom bunk: rest-site selection and vulnerability to climate change in tropical mammals

Claudia Saldaña-DeCamillis, Ana Breit, Eric Brown, Andrew Alek Tuen, Mohd-Azlan Jayasilan, Danielle Levesque
University of Maine, Universiti Malaysia Sarawak

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Tide and seek: *Oligocottus maculosus* and the role of refuge in the rocky intertidal

Kaelin Andruss, Amy Cook
The Evergreen State College

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Habitat structure affects cover use of two montane lizards

David Tevs, Winsor Lowe
University of Montana

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Characterizing thermal microhabitat selection across sites and seasons in a *Plethodontid* salamander

Dellen Roush, Alyssa Baxter, Genevieve Paulick, Athena Vakaleris, William Peterman, Meaghan Gade, Ariana Brown, Brooklyn Upp, Eric Gangloff
Ohio Wesleyan University, The Ohio State University, Yale University

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Habitat- and species-dependent changes of neuronal temperature resilience

Mackenzie Seymour, Wolfgang Stein
Illinois State University

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An experimental heat challenge uncovers individual variation in heat dissipation behaviors.

Emmy James, Rees Many, Kimberly Rosvall, Elizabeth Deryberry
University of Tennessee, Indiana University

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Variation in nighttime thermal preference in diurnal lizards.

Maya Li, Brooke Bodensteiner, Martha Muñoz
Yale University

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Thermal preferences in wild mangrove rivulus fish (*Kryptolebias marmoratus*)

Reid Ludwick, Alexander Cheng, Noah Ohsiek, Aidan Salcido, Belle Fant, Mary Monroe, Riley Wood, Ryan Earley
The University of Alabama

Effects of heat on life-history and performance
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A study in fur: American marten energetics and distribution

Kit Carpenter, Danielle Levesque, Sandra De-Urioste-Stone
University of Maine

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Effects of a thermal gradient on bowfin (*Amia* spp.) ultimate total length, L_{∞}

Amy Sibley, Michael Newbrey, Hugo Martín-Abad, Ashley Desensi
Columbus State University, Chattahoochee Riverkeeper

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High temperature limits swimming performance in the Death Valley pupfish *Cyprinodon nevadensis*

Teresa Guerre, Sean Lema, Kristin Hardy
California Polytechnic State University - San Luis Obispo

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Is feather microstructure changing in response to rising temperatures in a widespread songbird?

Bethany Bespoyasny, Samuel Lane, Isaac Rush, Britt Heidinger
North Dakota State University

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More to gain, more to lose: interspecific differences in muscle contractile properties in lizards

Colin Goodman, Stephen Deban
University of South Florida

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Impacts of developmental cold exposure on phenotype in tree swallows

Nicole Mejia, Conor Taff, Daniel Ardia, Thomas Ryan, Maren Vitousek
Cornell University, Franklin and Marshall College

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Effects of thermal gradients on age and growth characteristics in largemouth bass

Whitney Hall, Michael Newbrey, Jennifer Newbrey, Ashley Desensi, Brent Hess
Columbus State University, Chattahoochee Riverkeeper

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Impacts of climate change on melanin and near-infrared reflectance on the wings of *Vanessa cardui*

Ashlyn Trujillo, Amanda Carter
Northern Arizona University

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Effects of climate change on body size and melanin in *Polyphylla diffracta*

Colton Roberts-Zaffiro, Amanda Carter
Northern Arizona University

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An investigation into passive rate of heating and cooling in *Polistes dominula*

Edgar Nickols
Haskell Indian Nations University

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Thermal images shed light on role of the wing membrane in thermoregulation during flight in bats

Kate Manges-Douglas, Brooke Quinn, Andrea Rummel
Rice University, Brown University

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Effects of temperature and age on energetics of starvation-selected *Drosophila melanogaster*

Elena DeLaTorre, Katrina Pinili, Allen Gibbs
University of Nevada

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The thermal physiology of a diurnal omnivorous lizard, the giant day gecko

Infinity Alvarez, Angela Roth, Charles Watson
Texas A&M University of San Antonio

Conservation biology
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Ghosts in glass: ghost crabs as judges of glass sand for coastal restoration

Emily Parrish, Jonathan Perez, Jeremiah Henning
University of South Alabama

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Using environmental DNA to detect invasive rainbow trout in southeast Idaho tributaries

*Natalia Hincks, Emily Lancaster
Eckerd College*

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Forest management impacts on bat health: insights from northeast Missouri conservation areas

*Katie Fitzgerald, Marcus Jorgensen, Diana Hews, Cory Suski, Joy O'Keefe
University of Illinois, Indiana State University*

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Implications of range-edge populations in conserving the critically imperiled *Aconitum reclinatum*

*Diamanda Zizis, Melody Sain, Chris Martine, Scott Schuette
Bucknell University*

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Impacts of Florida scrub jay management on the density and predation of Florida scrub lizards

*Lance McBrayer, Justin Sanclemente, Michael Brennan
Georgia Southern University*

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Using a mark-resight model to elucidate population estimation and habitat usage in lined seahorses

*Emma Robbins, Rose Gaetano, Megan Sims, Emily Rose, Heather Mason
University of Tampa, Valdosta State University*

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Rooting for the bay: reducing urban runoff nutrient load with Urban Landscaping in Maryland

*Marie Sebastiani
MISS*

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The effect of coastal armoring on loggerhead sea turtle nesting success in the Gulf of Mexico

*Sarah Krieger, Jake Lasala, Melissa Macksey
Mote Marine Laboratory*

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Investigating the impacts of elevation on eastern red-backed salamander density and demography

*Isha Chauhan, Stephen Bredin, Priscila de-Souza-Rothier-Duarte, Caroline Goldstein, William Hooker, William Ryerson, Andrew Orkney, Brandon Hedrick
Cornell University*

Feeding ecology, feeding behavior, and diet**P3-136**

Diet of the great horned owl (*Bubo virginianus*) in a Chicago suburb

*Timothy Campbell, Jasmine Zhai, Ashley Lanzarotti, Alexander Delgado, Samuel Gutherz
Midwestern University, Chicago College of Osteopathic Medicine*

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The impact of maternal grey seal diet on reproductive energetics: a stable isotope investigation

*Annaleigh Laine, Cornelia den-Heyer, Michelle Rivard, Damian Lidgard, Priyanka Varkey, Greg Breed, Michelle Shero, Seth Newsome, Jennifer Burns
Texas Tech University, Fisheries and Oceans Canada, SR3 Sealife Response, Rehabilitation, and Research, University of Alaska Fairbanks, Woods Hole Oceanographic Institution, University of New Mexico*

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Poor-quality dietary protein reduces number of eggs but not egg lipid content in lubber grasshoppers

*Alicia Horton, Amaya Yip, Emma Kordek, John Hatle
University of North Florida*

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Dietary isoleucine restriction increases lifespan and leucine and valine catabolism in grasshoppers

*Kerri Conklin, Haley Peters, Rebekah Sein, Morgan Tomlinson, Hayat Husein, Alicia Horton, Emma Kordek, Isabella Ithemis, John Hatle
University of North Florida*

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Environmental influences on protein turnover in black sea bass (*Centropristis striata*)

*Adele Spencer, Julie Neurohr, Kara Yopak, Stephen Kinsey
University of North Carolina Wilmington*

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Linking Western diet with cardiovascular health: μ CT imaging of perivascular adipose tissue in mice

*Abdullah Ansari, Meredith Taylor, Akinobu Watanabe, Maria Sepulveda
New York Institute of Technology College of Osteopathic Medicine*

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Does the eelgrass isopod *Pentidotea resecata* get nutrition from gut photosynthesis?

*Elise Watts, David Cowles
Walla Walla University*

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Parental feeding patterns and offspring corticosterone levels in Leach's storm-petrels

*Tori Chace, Kayla Lichtner, Jack Dziubek, Sarah Chapman, Nicole Joseph, Robert Mauck, Patricia Jones, Mark Haussmann
Bucknell University, Kenyon College, Bowdoin College*

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Swedish orca ecology: isotopic analysis reveals feeding behavior of the past 175 years

*Ashley Liao, Daniela Kalthoff, Robin Trayler, Anna Roos, David Bernvi, Sora Kim
University of California, Merced, Swedish Museum of Natural History*

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Investigating the role of hydrogen peroxide and its links to nutritional stress in social bees

*Audrey Harrod, Lewis J.-Bartlett
University of Georgia*

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The green sea urchin and *Desmarestia* sp.: physiological responses to differences in experimental cues

*Francisco Elia-Benfield, Stephanie Crofts, Katie Dobkowski
Friday Harbor Labs, College of the Holy Cross, Everett Community College*

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How did the honeybees respond to the stay-at-home policy during the COVID-19 pandemic?

*Joao Pedro Vieira-Fornasari, Lewis J.-Bartlett, Vladimir Eliodoro-Costa, Raul Costa-Pereira
University of Georgia, State University of Sao Paulo*

P3-148

The dietary ecology of sharks landed in Sri Lanka based on stable isotope analysis

*Buddhi Pathirana, Sahan Thilakarathna, Karson Burton-Reeder, Divia Feinstein, Raven Harrison, Rose Leeger, Ashley Liao, Norah Mendoza, Ashley Mocerro-Powell, Lelah Munyer, Jasmin Graham, Sora Kim
Ocean Rosy, University of the Pacific, University of California, Merced, Minorities in Shark Sciences, The University of Colorado Boulder*

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Fine dining with southern resident killer whales: habitat characteristics of predation locations

Sophia Hemsli, Brad Hanson, Jennifer Tennessen, Marla Holt, Candice Emmons
Florida International University, NOAA, Northwest Fisheries Science Center

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Hangry corals: Can coral venom expression predict propagule health?

Coral Tolman, Sofii Kuklina, Bradford Gemmell, Jason Macrander
Florida Southern College, University of South Florida

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Comparative analysis of sstracod crustacean diets; insights into ecology and speciation

Sofia Diaz, Elizabeth Torres
Cal State Los Angeles

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Dietary niche partitioning among sympatric lungless salamanders

Luis Gonzalez-Arocho, Edward Burress
University of Alabama

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Differences in diets between male and female *Syngnathus scovelli*

Lily Braun, Samantha Levell
New College of Florida

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Ontogenetic dietary shifts in deep-sea yeti crabs *Kiwa puravida* revealed by stable isotope analysis

Rosamia Perez, April Stabbins, Emily Cowell, Kat Dawson, Erik Cordes
Cordes Lab of Deep Sea Eco-Oceanography

Invertebrate ecomorphology and adaptation

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Do differences in arm morphology in deep-sea and littoral octopuses explain differing behaviors?

Theodore Uyeno, Janet Voight
Valdosta State University, Field Museum

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Do dispersive larvae of highly fecund species facilitate rapid adaptation?

Alexander Ascher, Carolyn Tepolt
Quahog Bay Conservancy, Woods Hole Oceanographic Institution

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The effect of hyposalinity pulses on adhesion and locomotion in the purple sea urchin

Marjorie Keeley, Alyssa Stark, Keegan Lutek
Villanova University

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Flotation of California Blackworms and Other Hyponeuston

Soochwan Kim, Harry Tuazon, Nami Ha, Ishant Tiwari, Saad Bhamla, David Hu
Georgia Institute of Technology

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Comparative Biomechanics of Insect Antennae

Megan Bishoff, Kostya Kornev, Adam Puchalski
Clemson University

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Studying the resonance frequency of hawkmoth antennae

Isaac Palmer, Adam Puchalski, Kostya Kornev
Clemson University

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No evidence for Association Between Wing Morphology and Reproduction in Male *Jadera haematoloma*

Alva Mihalik, Amberlika Guruvadoo, Michael Forthman, Christine Miller
University of Florida, California State Collection of Arthropods, Plant Pest Diagnostics Branch, University of Cambridge

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Sexually selected weapons can wear out, decreasing their effectiveness in combat

Isaac McEvoy, Lana Daniels, Zachary Emberts
Oklahoma State University

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Scaling of Puncture Forces for Needles with Simple Geometry

Haaris Asghar, Mattia Bacca, David Labonte
Imperial College, The University of British Columbia

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Functional Morphology of Red Sea Urchin (*Mesocentrotus franciscanus*) Spines

Sarah Synan, Stephanie Crofts
College of the Holy Cross

P3-165

Hemolymph flow and its role in flexing of insect antennae

Lucas Marsh, Kostya Kornev, Griffin Donley, Artis Brasovs
Clemson University

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An inexpensive off-the-shelf plankton roller for rearing individual marine invertebrate larvae

Bruno Pernet
CSU Long Beach

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Adhesive performance of four species of sea urchins inhabiting contrasting habitats

Shakina Tanjong, Austin Garner, Alyssa Stark, Carla Narvaez-Diaz
Rhode Island College, Syracuse University, Villanova University

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Morphological Adaptations and Energy Allocation in Intertidal and Subtidal Purple Urchins

Giulia DiRaimo, Stephanie Crofts, Carla Narvaez-Diaz
College of the Holy Cross, Rhode Island College

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Genetic Architecture and Caste- and Sex-Specific Variation in Wing Shape of the Eastern Yellowjacket

Jennifer Kovacs, Em Gosse, Rachel Hill, Kayla Murray, Sarah Orr, Michael Goodisman
Agnes Scott College, Georgia Institute of Technology

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Comparative analysis of shell growth in five species of marine gastropods

Luigi Queirolo-Williams, Alexa Ruberte, Elizabeth Shea, Janice Krumm
Widener University, Delaware Museum of Nature and Science

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Variation in shell thickness along shell length in the gastropod *Neoterebra dislocata*

Alexa Ruberte, Luigi Queirolo-Williams, Elizabeth Shea, Janice Krumm
Widener University, Delaware Museum of Nature and Science

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Patterns in Carapace Shape and Autotomy in Pacific Northwest Intertidal Crabs

Melissa Steinert, Sophia Swain, Kenneth Taylor, Alex Melendez, Glenna Clifton, Tara Prestholdt
University of Portland

P3-172

How does the shape of sexually selected weapons vary with body size in the insect, *Narnia femorata*?

Elizabeth Bane, Elizabeth Greenway, Christina Salerno, Walter Federle, Christine Miller

University of East Anglia, University of Florida, University of Cambridge

P3-173

Males of a fighting insect differ in whether their sexually selected hind leg spines bend or break

Giovanna Avellar-Figueroa, Elizabeth Greenway, Christina Salerno, Walter Federle, Christine Miller

University of Florida, University of East Anglia, University of Cambridge

Sensory ecology

P3-174

Comparing porefield density and distribution in male and female bonnethead sharks, *Sphyrna tiburo*

Grace Solevilla-Moreno, Sonia Ali, Ingrid Reyes-Patron, Kathy Liu, Lauren Simonitis, Callie Crawford

Minorities in Shark Sciences (MISS), University of Miami, Florida Atlantic University, Coastal Carolina University

P3-179

Pore-ly understood: a geographic analysis of ampullae of Lorenzini density in bonnethead sharks

Ingrid Reyes-Patron, Sonia Ali, Grace Solevilla-Moreno, Katherine Corn, Kathy Liu, Lauren Simonitis

Minorities in Shark Sciences (MISS), Virginia Tech, University of Miami, Florida Atlantic University

P3-181

Pore Unfortunate Souls: a comparative look at elasmobranch sensory pore morphometrics

Stephanie Borden, Breana Ramirez, Omolara Fola-Matthews, Michelle Huang, Ingrid Hyrcena, Buddhi Pathirana, Jasmin Graham, Lauren Simonitis

Minorities in Shark Sciences, Nigerian Institute for Oceanography and Marine Research, University of Lagos Nigeria, Projeto Tubarão, Ocean Rosy, Florida Atlantic University

P3-183

Exploring vibration attraction behavior in North American cavefishes (Amblyopsidae: Percopsiformes)

Orran Bierstein, Pamela Hart
The University of Alabama

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Balancing risk and reward? State dependent neural responses to looming threats in *Manduca sexta*

Delaney McGowan, Varun Sharma, Leo Wood, Jordanna Sprayberry, Simon Sponberg, Emine Zeynep Ulutas
Georgia Institute of Technology, Muhlenberg College

P3-187

Bumblebee gobies use vision and their reduced lateral line canal system to find prey

Shrija Chhetri, Violet Anderson, Djurdjina Jovanovic, Margot Schwalbe

Lake Forest College

P3-189

Ontogenetic differences of sensory pores in bonnethead sharks (*Sphyrna tiburo*)

Sonia Ali, Ingrid Reyes-Patron, Grace Solevilla-Moreno, Jennifer Hodge, Kathy Liu, Lauren Simonitis

Minorities in Shark Sciences (MISS), Clemson University, University of Miami, Florida Atlantic University

P3-191

A comparative analysis of Meissner corpuscle density and size in primate digital pads

Pranav Krish, Jonathan Shadan, Laury Arazi, Ashley Choi, Avarie Rembert, Alana DiMartino, Michael Deutsch, Connor McDowell, Christine Lee, Gabby Guilhon, Michael Granatosky, Edwin Dickinson
New York Institute of Technology

P3-193

Artist meets architect: color nesting preference of *M. rotundata*

Gwen Sailer, Ella Eleven, Joshua Rinehart, Joseph Rinehart, Julia Bowsher
North Dakota State University, New Mexico Institute of Mining and Technology, USDA ARS

Sensory systems

P3-175

Experimental investigation of terrestrial odor perception in loggerhead sea turtles

Katrina Pfennig, Lillian Prince, Jadya Sethna, Dana Lim, Kayla Goforth, Catherine Lohmann, Kenneth Lohmann

University of North Carolina at Chapel Hill

P3-176

Tentacles as a model for understanding the ctenophore sensory-motor transformation

Yuriy Bobkov, Urvashi Goswami, Natalia E-Padillo-Anthemides, Leslie Babonis, Joseph Ryan

University of Florida, NEPA, Cornell University

P3-177

Survey of the sensory organs and setae of the esophagus of *Metacarcinus magister*

James Murray, Lee Morris
California State University East Bay, University South Carolina Union

P3-178

Lifestyles of sharks reflected by functional properties of sensory regions in the neurocranium

Jake Wood, Kenshu Shimada
Florida Atlantic University, DePaul University

P3-178a

Picture pore-fect: a novel method to map shark electroreceptor pores with photograph-based 3D models

Natalie Donato, David Edwards, Jessica Schulte, Ethan Personius, Taylor Chapple
Oregon State University

P3-180

Assessing the tastant sensitivity of extraoral taste buds in blind Mexican cavefish

Danielle Newsome, Bryce Lewis, Joshua B Gross
University of Cincinnati

P3-182

Investigating the impacts of micro- and nanoplastics exposure on olfactory-mediated behaviors of fat

Rachelle Belanger, Levi Storks
University of Detroit Mercy

P3-184

Measuring avoidance of predator odor cues in wild birds

Caroline Maciejewski, Austin Dotta, Jonathan Katzenmoyer, Kade Lippitt, James Knowles, Afaf Nazif, Alex Huynh
DeSales University

P3-186

Evaluating water flow as an invasive bigheaded carp attractant in a model lock and dam

Ellie Meythaler, Michael Frett, Allen Mensinger
University of Minnesota Duluth, The Marine Biological Laboratory

P3-188

Multilevel perspective reveals heterogeneous acoustic adaptation in the strawberry poison frog

Max Gotts, Stephen Pacala
Cornell University, Princeton University

P3-190

Melatonin regulation of dopamine in the auditory system of a vocal fish

Kobi Kobi, Xylo Lazrinth, Yassir Azzam, Rachel Rodriguez, Kara Duclosel, Ezan Khan, Paul Forlano
CUNY Brooklyn College, National Science Foundation

P3-192

Daily calling patterns of oyster toadfish and striped cusk-eels in urban and non-urban soundscapes

Xylo Lazrinth, Rachel Rodriguez, Thomas Quigley, Paul Forlano
CUNY Brooklyn College, National Science Foundation

P3-194

Serotonin disruption leads to memory deficits in the whip spider *Phrynos marginemaculatus*

Sidney Ley, Nicholas Brown, Gabriella Wolff, Daniel Wiegmann, Verner Bingman
Bowling Green State University, Case Western Reserve University

Species interactions and sensing
P3-195

The adaptive value of pattern variation in the striped killifish, *Fundulus majalis*

Nicolas Walker, Sean Burke, Rachel Cuomo, Isaac Ligocki
Millersville University

P3-196

Do asymmetrical patterns increase survival of a cryptic reptile?

Ross Couvillon
University of Louisiana at Monroe

P3-197

Variation in disruptive camouflage patterning in the European cuttlefish (*Sepia officinalis*)

Audrey Kaye, Kendra Buresch, Charles Chubb, Nina Bresciani, Roger Hanlon
The University of Chicago, University of California Irvine, Université Sorbonne Paris Nord

P3-198

Investigating how chromatophore organization underlies variable pattern generation in color change

Rejana Pullarkat, Mae George, Lorian Schweikert
University of North Carolina Wilmington

P3-199

Characterizing auditory escape responses in *Aedes aegypti* mosquitoes

Apple Patel, Michael Rauscher, Gabriella Wolff
Case Western Reserve University

Vision and behavior
P3-200

Testing spatial vision in apple snails, an emerging model for eye regeneration studies

Quaid Pendleberry, Brandon Jolley, Madison Janakis, Daniel Chappell, Daniel Speiser
University of South Carolina

P3-201

The functional morphology of dermal photoreception in the skin of a color-changing fish

Lydia Naughton, Lorian Schweikert
University of North Carolina Wilmington

P3-202

Investigating the threshold of visual acuity in Caribbean Hogfish (*Lachnolaimus maximus*)

Julie Degnan, Vanessa Moreno, Lorian Schweikert
University of North Carolina Wilmington

P3-203

Seeing and stabbing: evaluating trinocular vision and ballistic strikes in Mantis Shrimp

Helena Lewis, Allen Mensinger, Kathryn Feller
Eckerd College, University of Minnesota Duluth, The Marine Biological Laboratory, Union College

P3-204

The role of vision and the lateral line system in the jumping behavior of silver hatchetfish

Jeremy Levin, Hridey Kapoor, Anais Azevedo, Kyle Lassen, Jia Zheng, Alyssa Silva, Margot Schwalbe
Lake Forest College

P3-205

Investigating eye-facing photophores in context of counterillumination among mesopelagic shrimps

Umut Ayoglu, Heather Bracken-Grissom, Laura Bagge, Lorian Schweikert
University of North Carolina Wilmington, Florida International University

Chew your food: Evolution of teeth, jaws, and feeding
P3-206

Darwin's finch jaw muscle architecture and gearing properties in relation to biting specialization

Irene Montanez, Anthony Herrel, Sam Van Wassenbergh
University of Antwerp

P3-207

Feeding affects trait integration across the skeleton of a South American cichlid

Alexandra Kwiatkowski, Michelle Gilbert, Craig Albertson, Thomas Stewart
Pennsylvania State University

P3-208

Searching for biting performance peaks on a multi-species form-function landscape

Eli Vazquez, James Stroud
Georgia Institute of Technology

P3-209

Linking neurocranial shape evolution and feeding performance in Lake Malawi cichlids

Sarah Pascarella, Craig Albertson, Andrew Conith
DePaul University

P3-210

Adaptation and constraint in colubrid snake jaws

Daniel Rhoda, Kenneth Angielczyk
University of Chicago, Field Museum of Natural History

P3-211

Fossil synapsids reveal insights into the evolutionary origins and history of mammal-like dentitions

Pranati Sukh, Megan Whitney
Loyola University Chicago

Tuesday Schedule of Events

Events take place in the Atlanta Marriott Marquis, unless otherwise noted

EVENT

EVENT	TIME	LOCATION
Poster Session 4 Set Up	7:00 AM – 8:00 AM	Atrium Ballroom
Speaker Ready Room	7:00 AM – 11:00 AM	L503
Registration	7:30 AM – 3:00 PM	Marquis Registration
Coffee Break AM	9:30 AM – 10:30 AM	Atrium Ballroom
Exhibit Hall	9:30 AM – 5:30 PM	Atrium Ballroom
Coffee Break PM	3:30 PM – 4:30 PM	Atrium Ballroom
Poster Session 4 Even Numbers Authors Present	3:30 PM – 4:30 PM	Atrium Ballroom
Poster Session 4 Odd Numbers Authors Present	4:30 PM – 5:30 PM	Atrium Ballroom
Poster Session 4 Teardown	5:30 PM – 6:00 PM	Atrium Ballroom

SPECIAL LECTURES

The Carl Gans Award: Dr. Kory Evans Modularity promotes the evolution of complex biomechanical systems <i>Sponsored by Journal of Experimental Biology</i>	1:30 PM - 2:30 PM	Marquis D
John A. Moore Lectureship: Dr. Catherine Quinlan The influence of motivated thinking on Black representation in science	5:30 PM – 6:30 PM	Marquis B

SYMPOSIUM ORAL PRESENTATIONS

S10: Microbes matter: phenotypic effects of microbiota on wild animal hosts	8:00 AM – 3:30 PM	Marquis C
S11: Energetics, sexual selection and ecological innovation	8:00 AM – 3:30 PM	Marquis B
S12: Identifying the physiological mechanisms that underlie phenotypic responses to rapid environmental change	8:15 AM – 10:00 AM	Marquis A

CONTRIBUTED PAPER ORAL PRESENTATIONS

MORNING

Anthropogenic impact on species and communities	8:00 AM – 10:15 AM	A601
Big stretch (muscle strain)	8:00 AM – 9:30 AM	International Salon 2-3
Biogeography	8:00 AM – 9:30 AM	International Salon 7
Comparative biology	8:00 AM – 9:30 AM	International Salon 5
Development and plasticity	8:00 AM – 9:45 AM	International Salon 9
Energetics of shifting movement	8:00 AM – 9:45 AM	A704
Genetic basis of behavior	8:00 AM – 9:45 AM	International Salon 4
Internal Flows	8:00 AM – 9:45 AM	Marquis D
Sex and mate choice	8:00 AM – 10:00 AM	A703
Spring fling	8:00 AM – 9:45 AM	A707
Vision and image processing	8:00 AM – 9:45 AM	International Salon 10
Walking weirdly	8:00 AM – 9:30 AM	International Salon 6
(Muscle) Work it real good	10:00 AM – 12:00 PM	A704
Endoskeletons	10:00 AM – 12:00 PM	International Salon 2-3
Movement, coordination, and learning	10:00 AM – 12:00 PM	International Salon 10
Moving on up	10:00 AM – 12:00 PM	International Salon 9
Non-bilaterian evo-devo	10:00 AM – 12:00 PM	International Salon 8
Vision and visibility	10:00 AM – 12:00 PM	International Salon 7
Weapons and aggression	10:00 AM – 12:00 PM	A707
Complementary session to Symposia S2 and S8; ecoimmunology and disease ecology	10:15 AM – 12:00 PM	International Salon 5

Sensing a change: Evolution of sensory systems	10:15 AM – 12:00 PM	A703
Up in the air	10:15 AM – 12:00 PM	Marquis D
Measures and mechanisms of biodiversity	10:30 AM – 12:00 PM	International Salon 6
Co-evolution	10:45 AM – 12:00 PM	A601

AFTERNOON

Anthropogenic impacts of toxins in the environment	1:30 PM – 3:30 PM	A601
Behavior in the context of ecology, evolution, and conservation	1:30 PM – 3:15 PM	International Salon 7
Comparative morphology	1:30 PM – 3:30 PM	A703
Hold on tight (attachment)	1:30 PM – 3:30 PM	International Salon 10
Host-microbial interactions	1:30 PM – 3:30 PM	A704
It's all in your head: cranial variation	1:30 PM – 3:30 PM	International Salon 8
Jaw and puncture mechanics	1:30 PM – 3:45 PM	International Salon 9
Local adaptation	1:30 PM – 3:30 PM	International Salon 6
Low to mid Reynolds numbers	1:30 PM – 3:30 PM	International Salon 2-3
Molecular responses to stress	1:30 PM – 3:15 PM	A707
Vertebrate development and morphology	1:30 PM – 3:30 PM	International Salon 4
Visual signaling and behavior	1:30 PM – 3:30 PM	International Salon 5

COMMITTEE AND BOARD MEETINGS

Student Journalists Meeting	7:00 AM – 8:00 AM	A705
SICB Executive Committee Meeting	7:00 AM – 9:00 AM	International Salon 1

SOCIAL EVENTS

SICB Closing Celebration	6:30 PM – 8:00 PM	Skyline Level
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Tuesday Program Symposia

8:00 AM – 3:30 PM

S10: Microbes matter: phenotypic effects of microbiota on wild animal hosts

Marquis C

8:00 am

Through the microbial looking glass: how microbiomes act as mediators of animal biology

Kevin Kohl

University of Pittsburgh

8:30 am

Snake skin lipids and fungal-bacterial interactions influence the growth of *Ophidiomyces ophidiicola*

Kaitlyn Murphy, Jason Dallas, Mitra Ghotbi, Lluvia Vargas-Gastélum, Charlotte Van-Moorleghe, Joshua Phillips, David Ludwig, Tingting Sun, Robert Mason, Joseph Spatafora, John Niedźwiecki, M. Rockwell Parker, Jeff Leblond, Justin Miller, Melinda Donahey, Clay Stalzer, Ori Bergman, Marc Chevette, Donald Walker

Middle Tennessee State University, Oregon State University, Belmont University, University of Florida

9:00 am

Novel antimicrobial peptides and peptide-microbiome crosstalk in Appalachian salamander skin

Carly Muletz-Wolz, Julian Urrutia-Carter, Owen Osborne, Steve Kutos, Jose Meneses-Montano, Joseph Madison, Brian Gratwicke, Ratanachat Racharaks, Randall Jimenez, Amy Ellison, Timothy Cleland

Smithsonian's National Zoo & Conservation Biology Institute, Bangor University, George Mason University, Center for Species Survival, IUCN, Smithsonian's Museum Conservation Institute

9:30 am

Microbes Matter in Adaptation: Phenotypic Effects of Microbiota in Wild House Mice

Taichi Suzuki

Arizona State University

10:00 am ————— Coffee Break

10:30 am

Timing Matters: Bacterial Colonization Order Impacts Tadpole Microbiome Composition

Korin Jones, Lisa Belden, Myra Hughey

University of Texas at Austin, Vassar College

11:00 am

The Role of the Microbiome in Species Invasions: Insights from Large Constrictors in the Caribbean

Timothy Colston, Alberto Puente-Rolón

University of Puerto Rico at Mayaguez

11:30 am

Gut microbiomes in animal ecology: Advances, assumptions, and opportunities

Robin Warne

University of Illinois Urbana-Champaign

12:00 pm ————— Lunch

1:30 pm

Drastic shifts in microbiota across a dung beetle life cycle reveal multiple beneficial symbionts

Joshua Jones

Indiana University

1:45 pm

A Unique Microbiome Supports Photosymbionts in *Fragaria* Heart Cocks

Maya Shaulsky, Jingchun Li

University of Colorado Boulder

2:00 pm

The aquatic microbial environment impacts the gut microbiome and antipredator behavior of tadpoles

Sarah Woodley, Kyle Emerson

Duquesne University

2:30 pm

Snake Fungal Disease (*Ophidiomyces*) alters the skin microbiome across two experimental scales

Donald Walker, Alexander Romer, Matt Grisnik, Jason Dallas, William Sutton, Christopher Murray, Rebecca Hardman, Tom Blanchard, Ryan Hanscom, Rulon Clark, Cody Godwin, N. Reed Alexander, Kylie Moe, Vincent Cobb, Jesse Eaker, Rob Colvin, Chris Ogle, Joshua Campbell, Carlin Frost, Rachel Brubaker, Shawn Snyder, Alexander Rurik, Chloe Cummins, David Ludwig, Joshua Phillips

Middle Tennessee State University, San Diego State University

3:00 pm

Exploring the host-microbe interactions that mediate ectotherm fitness under global change

Samantha Fontaine

Kent State University

8:00 AM – 3:30 PM

S11: Energetics, sexual selection and ecological innovation

Marquis B

8:00 am

Energetics, Sexual Selection and Ecological Innovation

Ummat Somjee

University of Texas

8:30 am

On the multi-functional sexually selected characters across the avian speciation continuum

Zackary Hodur, Derek Eddo, Silu Wang

University at Buffalo

9:00 am

Behavioral ecology meets biochemistry: Lessons in sexual selection from colorful songbirds

Rebecca Koch, Yufeng Zhang, Geoffrey Hill,

Matthew Toomey

University of Wisconsin-Stevens Point,

University of Memphis, Auburn University

9:30 am ————— Coffee Break

10:30 am

Sensory-motor tuning facilitates flexible signaling interactions at low cognitive costs

Luke Larter, Michael Ryan, Colby Cushing

University of Texas

11:00 am

Sexual selection through a physiological lens

Matthew Fuxjager

Brown University

11:30 am

Energetics as a gateway to studying adaptations across biological scales

Anusha Shankar

Tata Institute of Fundamental Research Hyderabad

12:00 pm ————— Lunch

1:30 pm

Morphological exaggeration through sexual selection may affect the maintenance of thermal balance

Alexandre Varaschin-Palaoro, Danilo Giacometti, Glenn Tattersall

Universidade Federal do Paraná, Brock University

2:00 pm

Evolution of sexual dimorphism and morphological diversity in moth antennae

Yash Sondhi, Ummat Somjee

Florida Museum of Natural History, University of Florida, University of Texas

8:15 AM – 3:30 PM

S12: Identifying the physiological mechanisms that underlie phenotypic responses to rapid environmental change

Marquis A

8:15 am

A brief introduction to the symposium

Britt Heidinger, Gabrielle Names, Jennifer Grindstaff

North Dakota State University, Oklahoma State University

8:30 am

Linking phenotypes, physiology, and fitness to track how climate change drives butterfly evolution

Lauren Buckley

University of Washington

9:00 am

Validating Genomic Offset to Improve Climate Change Predictions

Kristen Ruegg

Colorado State University

9:30 am

Variation in passerine size and physiological aging across environmental gradients

Gabrielle Names, Frédéric Angelier, Lindsey Willingham, Anuj Ghimire, Heather Mathewson, Jennifer Grindstaff, Cécile Ribout, David Westneat, Britt Heidinger

Tarleton State University, North Dakota State University, Oklahoma State University

10:00 am Coffee Break

10:30 am

Are the kids alright? Dehydration and high temperatures during pregnancy impact offspring physiology

George Brusch

California State University San Marcos

11:00 am

The wind niche: Organismal responses to wind speed, convection, and boundary layers

Eric Riddell

University of North Carolina Chapel Hill

11:30 am

Endocrine flexibility can facilitate or constrain the ability to cope with global change.

Conor Taff, Maren Vitousek

Cornell University

12:00 pm Lunch

1:30 pm

Genomic and transcriptomic sequencing to identify genetic mechanisms of thermal adaptation

Morgan Kelly

Louisiana State University

2:00 pm

Coping with rapidly warming temperatures: the roles of plasticity and adaptation in a coldwater frog

Amanda Cicchino

University of Guelph

2:30 pm

Elevated [CO₂] and temperature increase gas exchange and alter fitness in a montane forb

Jill Anderson, Derek Denney

University of Georgia, Michigan State University

3:00 pm

Endocrine pathways for reversible acclimation and developmental plasticity

Alexander Little

McMaster University

Tuesday Program Morning Sessions

8:00 AM – 10:15 AM

Anthropogenic impact on species and communities

A601

Chair: Mikus Abolins-Abols

10:00 am

Boneyard birds: avian use of cemetery spaces in relation to grave marker style

*Sarah Foltz
Radford University*

8:00 am

Gene expression responses to drought conditions in two imperiled darter species

*Chance Powell, Erica Westerman, Hans Hofmann, Yiting Ter, Daniel Magoulick, Kearstin Findley
University of Arkansas, The University of Texas at Austin*

8:30 am

Effects of habitat characteristics on spatial distribution and fitness of collared lizards

*Jaclyn Reifeiss, Matthew Gifford
University of Central Arkansas*

9:00 am

Urbanization effects on stress and auditory-visual processing in House Sparrows (*Passer domesticus*).

*Emma Yonker, Natalie Leake-Jara, Madeline Tinskey, Kelly Ronald
Hope College*

9:15 am

Shark community responses to the onset of industrial fishing in the Indian Ocean

*Emma Gee, Francesco Ferretti
UC Santa Cruz*

9:30 am

Marine and terrestrial sediment on algal turf limits herbivory pressure and species richness

*Amarie Strong, Zuri Murph, TaVon Palmer, Alondra Gallegos, Paul Barber, Peggy Fong
University of California, Los Angeles, Hampton University, MISS*

9:45 am

Traits for conservation: using phenotype to determine extinction risk and recovery in birds.

*Matthew Mitchell, Ryan Felice, John Ewen, Amanda Trask
University College London, Institute of Zoology, ZSL*

8:00 AM – 9:30 AM

Big stretch (muscle strain)

International Salon 2-3

Chair: Anthony Hessel

8:00 am

Dissecting contributions of strain and frequency interactions to force and work of mouse EDL muscles

*Katelyn Manross, Kiisa Nishikawa
Northern Arizona University*

8:15 am

These strain transients were made for walking: analyzing dynamic locomotion work modulation

*Caitlin Bemis, Monica Daley, Kiisa Nishikawa
University of California, Irvine, Northern Arizona University*

8:30 am

Titin is an active suspension in muscle that harvests energy from environmental interactions

*Kiisa Nishikawa, Jenna Monroy, Siwoo Jeong, Richard Casler, Natalie Holt, Apolo Ibanez-Rincon, Katelyn Manross, Madhusudhan Venkadesan
Northern Arizona University, Claremont McKenna College, Massachusetts Institute of Technology, UC Riverside, California State University, San Bernardino, Yale University*

8:45 am

Titin underpins residual force enhancement, depression, and the stretch-shortening cycle effect

*Anthony Hessel, Devin Nissen, Michel Kuehn, Thomas Irving, Wolfgang Linke
University of Muenster, Illinois Institute of Technology*

9:00 am

The effects of stretching on the viscoelastic properties of the muscle-tendon unit

*Skylar Taylor, Madison Gaines, Gregory Sawicki, Young-Hui Chang
Georgia Institute of Technology*

9:15 am

A biophysical muscle model to explain short-range stiffness and its history dependence

*Tim van-der-Zee, Sherry Sam, Surabhi Simha, Friedl De-Groote
KU Leuven, Emory University, Georgia Tech*

8:00 AM – 9:30 AM

Biogeography

International Salon 7

Chair: John Phillips

8:00 am

Regulatory Divergences and Ecological Adaptation in Desert Tortoises

*N. Jade Mellor, Greer Dolby, Kenro Kusumi
University of Alabama at Birmingham, Arizona State University*

8:15 am

Diversification and speciation in an endemic radiation of Galápagos Land Snails (*Naesiotus*)

*John Phillips, Dylan DeBaun, Christine Parent
Valdosta State University, AMNH, University of Idaho*

8:30 am

Snakes on the Plain: Effects of Biogeographic Barriers in the Southeastern Coastal Plain

*Ali Ashraf, John Phillips
Valdosta State University*

8:45 am

The Other Blue Zone: Trait diversity and biogeography of coral reef fishes across Okinawa, Japan

*Chloe Nash, Samuel Coatham, Lauren Sallan
Okinawa Institute of Science and Technology*

9:00 am

Microarachnids enlightening macro-patterns: new biogeographic advances on North American schizomids

*Grant Wass, Rodrigo Monjaraz-Ruedas, Marshal Hedin
Palomar College, San Diego State University
Biodiversity Museum*

9:15 am

Glaciations promote genetic differentiation and secondary contact in populations of pelican spiders

*Nicolas Hazzi, Hannah Wood
National Museum of Natural History, Smithsonian Institution*

8:00 AM – 9:30 AM

**Comparative biology
International Salon 5**

Chair: Marguerite A. Butler

8:00 am

Exploring inter-habitat variation in anuran evolutionary regimes

Menna Jones

University of Chicago

8:15 am

Modern taxonomy of Oreophryne: reconciling morphological conflict and incomplete lineage sorting

Marguerite Butler, Allison Fisher, Ke Cao,

Allen Allison

University of Hawaii

8:30 am

Shifting axes of phenotypic diversity across the evolutionary history of fishes

Jennifer Hodge, Samantha Price

Clemson University

8:45 am

Island hopping with blind lizards: a multilocus phylogeographic study of *Dibamus*

Isaac Krone, Benjamin Karin, Jimmy Mcguire

University of California, UC Berkeley

9:00 am

Earliest record of Carangaria: a new species of moonfishes (*Menidae*) from the Danian of Egypt

Sanaa El-Sayed, Matt Friedman, Hesham Sallam

Mansoura University, University of Michigan, American University

9:15 am

An empirical bayes approach to study the phenotypic evolution from high-dimensional data

Paola Montoya-Valencia, H el ene Morlon,

Julien Clavel

Universit  Claude Bernard Lyon 1

8:00 AM – 9:45 AM

**Development and plasticity
International Salon 9**

Chair: Emily Bierbaum

8:00 am

Impact of life cycle variation on the expression of crystallin genes in *Eurycea*

Emily Bierbaum, Ronald Bonett

University of Tulsa

8:15 am

The effect of developmental moisture on morphology and survival in the brown anole (*Anolis sagrei*)

Jenna Pruett, Axl Defrese, Maggie LaBorie,

Ezra Taponnier

St. Mary's College of Maryland

8:30 am

Chillin with urchins: how temperature influences larval development in *Strongylocentrotus purpuratus*

Ivanna Arrizon-Elizarraras, Douglas Pace,

Sarah Kasem, Ethan Nguyen, Alanna Ha

California State University Long Beach

8:45 am

Mechanisms of genetic accommodation of a polyphenism in the tobacco hornworm, *Manduca Sexta*

stephanie Amaya, Yui Suzuki, Daniela

Becerril, Paula Gonzalez, Elizabeth Chou

Wellesley College

9:00 am

Does larval dietary stress affect adult butterfly wing color?

Chloe Keck, Daniel Speiser, Carol Boggs

University of South Carolina

9:15 am

Developmental polyphenism influences juvenile phenotypes in spadefoot toads

Dante Nesta, Kate Millar, Daniel Woods, Lia

Castro-Sauer, Cris Led on-Rettig

Indiana University, Virginia Tech

9:30 am

Resolving regulatory and coding sequence divergence in temperature-dependent sex determination

Christopher Smaga, Samantha Bock, Josiah

Johnson, John Wares, Thomas Rainwater,

Randeep Singh, Vincent Deem, Andrew

Letter, Arnold Brunell, Benjamin Parrott

University of Georgia, Michigan State

University, Clemson University, Fish and

Wildlife Research Institute, Florida Fish and

Wildlife Conservation Commission

8:00 AM – 9:45 AM

**Energetics of shifting movement
A704**

Chair: Eric McElroy

8:00 am

Juvenile tarantulas rapidly recover locomotor function following leg loss

Suzanne Kane, Xuanyi Wu, Brooke Quinn,

Sarah Xi, S. Tonia Hsieh

Haverford College, Brown University,

Harvard University, Temple University

8:15 am

Cost and benefits of autotomy in the grasshopper *Syrbula admirabilis*

Brendan Dehner, Michael Reichert

Oklahoma State University

8:30 am

Changes in limb function with fatigue in two species of lizards

Eric McElroy, Conner Entzminger

College of Charleston

8:45 am

Energetics and continuous shifts of leader position in a wild carangid fish school

Ishani Mukherjee, James Liao

University of Florida

9:00 am

Navigating the costs of movement: characterizing the energy expenditure of large Neotropical bats

Travis Bayer, Mar a Camila Calder n-Capote,

Margaret Crofoot, Dina Dechmann, Teague

O'Mara

University of Rhode Island, University of

Konstanz, Smithsonian Tropical Research

Institute, Southeastern Louisiana University,

Max Planck Institute of Animal Behavior, Bat

Conservation International

9:15 am

Flocking dynamics and energy expenditure of cluster and V-formation species

James Mayson, Hangjian Ling, Hana

Merchant, Guillam McIvor, Alex Thornton,

Steven Portugal

Royal Holloway University of London,

University of Exeter

9:30 am

Arctic seal aerobic dive limits inform physiological flexibility in the face of environmental change

Nicole Thometz, Colleen Reichmuth, Madeline Meranda, David Rosen
University of San Francisco, University of California Santa Cruz

8:00 AM – 9:45 AM

Genetic basis of behavior

International Salon 4

Chair: Robert Cox

8:00 am

The evolution of hormonally mediated gene expression in *Sceloporus* lizards

Christopher Robinson, Matthew Hale, Christian Cox, Henry John-Alder, Robert Cox
University of Virginia, Florida International University, Rutgers University

8:15 am

Transcriptomic patterns of behavioral cross-sexual transfer in a biparental cichlid, *Julidochromis*

Andrew Anderson, Susan Renn
Reed College

8:30 am

Genomic Analysis of Positive Selection on the Evolution of Cooperative Display Behavior in Manakins

Camilo Alfonso, Peri Bolton, Ignacio Moore
Virginia Tech, The Ohio State University

9:00 am

The 'Bogert Effect' and the evolution of thermal plasticity: a null model approach

Alex Gunderson
Tulane University

9:15 am

The evolution and ecological consequences of rest/activity patterns in Lake Malawi cichlids

Niah Holtz, Chloe Hoff, Evan Lloyd, Andrew Conith, Alex Keene, Craig Albertson
University of Massachusetts Amherst, DePaul University

9:30 am

Investigating Regulatory Networks Governing Motor Neuron Development in a Non-Vertebrate Chordate

Sydney Popsuj, Alberto Stolfi
Georgia Institute of Technology

8:00 AM – 9:45 AM

Internal Flows

Marquis D

Chair: Jake Socha

8:00 am

Water repellency of birds

Alice Lin, Xueyi Xie, Arjun Dixit, Reina Wakimoto, Zhijian Liang, Adam Butuel, Benjamin Freeman, David Hu
Georgia Institute of Technology, Tsinghua University, Keio University, Sun Yat-Sen University, Birds Georgia

8:15 am

Characterizing the flow and motion resulting from cardiac action in the tunicate *Ciona savignyi*

Lindsay Waldrop, Aaron Thi
Chapman University

8:30 am

Vascular and osteological morphology of digit tips in wandering salamanders (*Aneides vagrans*)

Christian Brown, William Goldenberg, Olivia Hinds, Mary O'Donnell, Nancy Staub
Washington State University, Lycoming College

8:45 am

Transient perfusion through a microfluidic dragonfly wing model

Sangjin Ryu, Haipeng Zhang, Mary Salcedo, Jake Socha, Günther Pass
University of Nebraska-Lincoln, The City College of New York, Arizona State University, Virginia Tech, University of Vienna

9:00 am

Coupling hemolymph flow with the flight muscle contraction in hawkmoths

Artis Brasovs, Alexandre Palaoro, Kostya Kornev
Clemson University, Universidade Federal do Paraná

9:15 am

Does water loss or hemolymph pumping explain mass loss during wing development in cicadas?

Jake Socha, Alan Mach, Trevor Bryan-II, Joshua Taylor
Virginia Tech, Brown University, Morehouse College

9:30 am

Unraveling the neuromotor responses to dynamic variation in milk flow rate during infant pig feeding

Maressa Kennedy, Ani Smith, Thomas Stroud, Emily Volpe, Dylan Anderson, Harlow Smith, Skyler Wallace, Hannah Shideler, Shanique Yazzie, Holly Sabato, Elska Kaczmarek, Christopher Mayerl
Northern Arizona University

8:00 AM – 10:00 AM

Sex and mate choice

A703

Chair: Lauren Cirino

8:00 am

It's the way your mucus smells: conspecific recognition in the sea slug *Doto chica*

Melanie Medina, Don Levitan
Florida State University

8:15 am

The effects of eutrophication on the dwarf seahorse (*Hippocampus zosterae*)

Darshi Patel, Dalila Sanchez, Emily Rose
Valdosta State University

8:30 am

Fighting-related injuries do not affect mate choice in the giant mesquite bug

Lauren Cirino, Zachary Emberts, Isaac McEvoy
University of Mary Washington, Oklahoma State University

8:45 am

Temporal integration of acoustic information for mate choice decision making in Cope's gray treefrog

Jain Krishnan, Michael Reichert
Oklahoma State University

9:00 am

Sexual pelvic thrusting in mammals

Joseph Nehme-Haily, Ling Yuping, David Hu
Georgia Institute of Technology

9:15 am

Do signal preferences in satellites reduce the fitness of attractive signalers?

Aarcha Thadi, Marlene Zuk
University of Minnesota, Twin Cities

9:30 am

The effect of the social environment on the mating behavior of females of Cope's gray tree frogs

Alejandro Marcillo, Michael Reichert
Oklahoma State University

9:45 am

A dead bone's story: Antlers as signals or tools?

Nicole Lopez
University of Montana

8:00 AM – 9:45 AM

Spring fling
A707

Chair: Melody Young

8:00 am

Visualization of tiny, springy deformations of an ultrafast trap-jaw ant's propulsive head

Melody Young, Clare Cook, Justin Jorge, Roarke Horstmeyer, Sheila Patek
Duke University

8:15 am

Springing into action: A click beetle-inspired robotic model organism

Teagan Mathur, liyuan zhang, Soloman Khan, Josh Gibson, Marianne Alleyne, Aimey Wissa
Princeton University, University of Illinois Urbana-Champaign, Beckman Institute

8:30 am

Why Click? The adaptive value of the click beetle's clicking mechanism

Liyuan Zhang, Teagan Mathur, Aimey Wissa, Justin Yim, Marianne Alleyne
University of Illinois Urbana-Champaign, Princeton University

8:45 am

The fecal fling: Spring-powered frass ejection in skipper caterpillars

Jaimie Wyckoff, Pranav Khandelwal, Jake Socha, Jeffrey Olberding
California State University Fullerton, Virginia Tech

9:00 am

Termite soldiers shoot liquid lassos to defend their nests

Elio Challita, Jacob Harrison, Pankaj Rohilla, Daniel Ames, Christina McDonald, Prateek Sehgal, Jochen Mueller, Saad Bhamla
Harvard University, Georgia Institute of Technology, Johns Hopkins University

9:15 am

Comparison of honeydew excretion between adult and juvenile spotted lanternflies

Nami Ha, Jacob Harrison, Elio Challita, Elizabeth Clark, Miriam Cooperband, Saad Bhamla
Georgia Institute of Technology, Harvard University, UC Berkeley

9:30 am

Juvenile sharpshooters use hydrophobic hairs to eject their waste droplets

Jacob Harrison, Elio Challita, Pankaj Rohilla, Nami Ha, Thu Truong, Ryan Kang, Elizabeth Clark, Saad Bhamla
Georgia Institute of Technology, Harvard University, UC Berkeley

8:00 AM – 9:45 AM

Vision and image processing
International Salon 10

Chair: Marisa McDonald

8:00 am

Investigating the visual physiology of insect ocelli

Marisa McDonald, Daniel Chappell, Grace Hickey, Martin (Ric) Wehling
Air Force Research Labs, NRC, Science Applications International Corporation, Florida State University, RWTC

8:15 am

Doubling down on decentralization: visuomotor coordination in the bay scallop *Argopecten irradians*

Daniel Chappell, Martin (Ric) Wehling, Daniel Speiser
Science Applications International Corporation, Air Force Research Lab, RWTC, University of South Carolina

8:30 am

Investigating morphology and function of the distributed visual system of scallops

Ceren Ordas, Malissa Jeffrey, Jeanne Serb
Iowa State University

8:45 am

Multisensory information processing in the premotor area in the *Manduca sexta* moth

Pramod KC, Jeff Riffell
University of Washington

9:00 am

Love is blind, but worms are not: optical adaptations in sexually mature nereidid polychaetes

Mary Colleen Hannon, Karen Osborn, Jan Hemmi
Smithsonian Institution, National Museum of Natural History, UWA Oceans Institute

9:15 am

Investigating retinal dynamics & focal accommodation in jumping spiders through x-ray video imaging

Deniz Korman, Olivia Harris, Jackson Michaels, Emma Alexander, Nathan Morehouse
University of Cincinnati, University of Massachusetts

9:30 am

A comparison of the Mummichog escape responses to different types of predator stimuli

Alexis Dawson, Noah Bressman
Salisbury University

8:00 AM – 9:30 AM

Walking weirdly
International Salon 6

Chair: Laura Miller

8:00 am

Staggering stink bugs: autotomy affects stability and locomotor performance in *Halyomorpha halys*

Lillian Jubb, Brandon Jackson
Longwood University

8:15 am

Cockroach runs with smaller stride length and larger stride frequency on checkerboards

Ruiqi Wang, Glenna Clifton, Nick Gravish
University of California, San Diego, University of Portland

8:30 am

Advantages of centralized neuromechanical control architectures for locomoting on rough terrain

Ellen Liu, Naris Asawalertsak, Poramate Manoonpong, Simon Sponberg
Georgia Institute of Technology, Vidyasirimedhi Institute of Science and Technology, University of Southern Denmark

8:45 am

Complex terrain negotiation during escape locomotion in the Namib day gecko

*Joseph Wu, Tim Higham
University of California Riverside*

9:00 am

Foot placement control strategies for stable locomotion across species

*Antoine De-Comite, Nidhi Seethapathi
Massachusetts Institute of Technology*

9:15 am

Quantifying and mathematically modeling gait asymmetries in horses

*Laura Miller
University of Arizona*

10:00 AM – 12:00 PM

(Muscle) Work it real good

A704

Chair: Yordano Jimenez

10:00 am

Ramp up to touch-down: synchronous ankle antagonist muscle function during drop-landing descent.

*Brandon Reder, Dan Bartlett, Andrew Biewener, Nicolai Konow
University of Massachusetts Lowell, Harvard University*

10:15 am

Dissecting the contributions of neural activation and strain trajectories to muscle force production

*Carissa Mallonee, Monica Daley, Kiisa Nishikawa
Northern Arizona University, University of California, Irvine*

10:30 am

In vivo muscle-tendon dynamics in response to a novel substrate perturbation during bipedal running

*Brooke Christensen, Monica Daley
University of California, Irvine*

10:45 am

Antagonist muscle force generation in guinea fowl during decelerations from treadmill locomotion

*Dan Bartlett, Brandon Reder, Andrew Biewener, Nicolai Konow
University of Massachusetts Lowell, Harvard University*

11:00 am

Force awakens: exploring reinnervated guinea fowl force-frequency dynamics

*Rubi Tapia-Rayo, Caitlin Bemis, Marie Schwaner, Dean Mayfield, Manny Azizi, Monica Daley
University of California, Irvine, Katholieke Universiteit Leuven*

11:15 am

Bluegill sunfish maximize axial muscle power for suction feeding, not swimming

*Yordano Jimenez, Elizabeth Brainerd, Eric Tytell, Ariel Camp
Providence College, Brown University, Tufts University, University of Liverpool*

11:30 am

Making a moth flap like a fly with virtual reality for muscle physiology

*Ethan Wold, Rundong Yang, Ellen Liu, Nick Gravish, Simon Sponberg
Georgia Institute of Technology, University of California San Diego*

11:45 am

Are faster muscles all you need for faster locomotion?

*Leo Wood, Simon Sponberg
Georgia Institute of Technology*

10:00 AM – 12:00 PM

Endoskeletons

International Salon 2-3

Chair: Tristan Stayton

10:00 am

Exploring performance in complex morphologies using theoretical morphospaces

*Nicholas Hebdon, Ella Kim, Redah Jessani, Nichole Wheeler, Eusabeia Silfanus, Amanda Janis, Vivian Nguyen, Mia Pham, Lindsay Waldrop
Baylor University, Chapman University*

10:15 am

Ecomorphology's role in the limb skeleton of the polyphenic eastern newt

*Aaron Hardgrave, Richard Carter
East Tennessee State University*

10:30 am

Ecomorphological but not allometric trends in mechanical performance in eulipotyphlan vertebrae

*Tristan Stayton, Stephanie Smith, Kenneth Angielczyk, Myleen Amendano, Maddie Cannistra, Catherine Sutor
Bucknell University, Field Museum of Natural History*

10:45 am

Staghorn or stingray? High-resolution network analysis of cartilaginous trabeculae

*Benjamin Flaum, Kira Schmitt, Ruien Hu, Ting Fai Kong, Frederik Mollen, Daniel Baum, Melanie Debais-Thibaud, Mason Dean
City University of Hong Kong, Zuse Institute Berlin, The Hong Kong Polytechnic University, Elasmobranch Research, University of Montpellier*

11:00 am

Guinea fowl (*N. meleagris*) bone shape undergoes unexpected changes to altered loads during growth

*Derek Jurestovsky, America Campillo, Kavya Katugam-Dechene, Talayah Johnson, Jonas Rubenson, Stephen Piazza, Timothy Ryan
Pennsylvania State University, University of Massachusetts Lowell*

11:15 am

On your (land)mark, set, go!: 3D mineral structures vary in shark vertebrae based on swimming style

*Jamie Knauth, Madisan Biordi, Emma Pawlik, Lisa Natanson, Michelle Passerotti, Tricia Meredith, Marianne Porter
Florida Atlantic University, Apex Predators Program, Northeast Fisheries Science Center, National Oceanic and Atmospheric Administration, NOAA Fisheries*

11:30 am

Suture morphology of sea turtles across ontogeny

*Ivana Lezcano, Jeanette Wyneken, Noor Neha
Florida Atlantic University*

11:45 am

Exploring environmental impacts upon morphology in dam-impacted steelhead trout

*Jacquelyn Galvez, Jack Tseng
University of California, Berkeley*

12:00 pm

Ecomorphological but not allometric trends in mechanical performance in eulipotyphlan vertebrates

Tristan Tristan Stayton, Stephanie Marie Smith, Kenneth Angielczyk, Myleen Paulina Amendano, Maddie Cannistra, Catherine Suitor
Bucknell University, Field Museum of Natural History

10:00 AM – 12:00 PM

Movement, coordination, and learning

International Salon 10

Chair: Francois Gould

10:00 am

Motor learning of a new gravity level transfers to other motor and cognitive tasks

Chase Rock, Hyorim Kim, Tushar Singh, Young-Hui Chang
Georgia Institute of Technology

10:15 am

Exoskeleton influence on primary afferent feedback in-vivo

Amro Alshareef, Paul Nardelli, Sherry Sam, Timothy Cope, Gregory Sawicki
Georgia Institute of Technology, Emory University

10:30 am

What, if anything, is a rhythmic oral process? EMG variation in rodent cyclic oral behaviors.

Francois Gould, Ireneusz Wojtas, Zachary Cohen
Rowan School of Osteopathic Medicine

10:45 am

Neuromuscular mechanisms and kinematics of diverse beak behaviors in woodpeckers

Nicholas Antonson, Franz Goller, Matthew Fuxjager
Brown University, University of Utah

11:00 am

Machine vision for assessment of enrichment items in Lesser Egyptian Jerboa (*Jaculus jaculus*)

Matthew Boulanger, Juri Miyamae, Gerry Hish, Talia Moore
University of Michigan

11:15 am

A simple, interpretable model for movement simulation with biological limitations and uncertainties

Hansol Ryu, Manoj Srinivasan
Georgia Tech, Emory University, Ohio State University

11:30 am

Mechanisms of turning in *Drosophila*

Vikas Bhandawat, Marcello Codianni
Drexel University

11:45 am

Mosquito visual tracking and predictions with Bayesian dynamical systems inference

Christopher Zuo, Chenyi Fei, Soohwan Kim, Alexander Cohen, David Hu, Jörn Dunkel
Georgia Institute of Technology, Massachusetts Institute of Technology

10:00 AM – 12:00 PM

Moving on up

International Salon 9

Chair: Erin E. Brandt

10:00 am

Mechanics of bipedal hopping on uneven terrain

Mary Pena, David Lin, Craig McGowan
University of Southern California, Washington State University

10:15 am

Jumping performance in tree shrews and dwarf lemurs: Implications for primate evolution

Gregoire Boulinguez-Ambroise, Madison Bradley-Cronkwright, Noah Dunham, Gabriel Yapuncich, Daniel Schmitt, Angel Zeininger, Doug Boyer, Jesse Young
Duke University, Cleveland Metroparks Zoo, Medical Education Administration, Northeast Ohio Medical University

10:30 am

Under (hydraulic) pressure: an integrative analysis of jumping in salticid spiders

Erin Brandt, Jasmine Nirody
University of Chicago

10:45 am

Big fish can't jump? Allometry of terrestrial jumping in cyprinodontiform fishes

Michael Minicozzi, Alice Gibb
Minnesota State University Mankato, Northern Arizona University

11:00 am

Modeling flying fish locomotion as informed by bioinspired RMO experiments

Valeria Saro-Cortes, Aimy Wissa, Brooke Flammang
Princeton University, New Jersey Institute of Technology

11:15 am

Sink or Swim? Size-mediated buoyancy regulation in a fish without a swim bladder (*Agonopsis vulsa*)

Jacob Sobol, Olivia Hawkins, Charbel El-Khoury, Spencer Truman, Cassandra Donatelli, Meg Vandenberg
Virginia Tech, Tufts University, KAUST, University of Washington

11:30 am

Experimental evaluation of pitch control via center of mass manipulation for tuna-inspired robots

Blake Wiese, Joseph Zhu, Hilary Bart-Smith
University of Virginia

11:45 am

Collective behavior and emergent fluid dynamics during vertical migration

Sarah Pontes, Matthew Fu, John Dabiri
California Institute of Technology

10:00 AM – 12:00 PM

Non-bilaterian evo-devo

International Salon 8

Chair: Allison Edgar

10:00 am

Do we know a life stage when we see it?: ctenophore life history and plasticity

Allison Edgar
New Jersey Institute of Technology

10:15 am

Exploring ncRNA-mediated gene regulation during key developmental stages in *Montipora capitata*

Jill Ashe, Ariana Huffmyer, Crawford Drury, Hollie Putnam
University of Rhode Island, University of Washington, Hawaii Institute of Marine Biology

10:30 am

Tentacle remodeling as a source for a novel adult structure in a stalked jellyfish

Kennedy Bolstad, Leslie Babonis
Cornell University

10:45 am

Single-cell transcriptomics of polyps and medusae of the hydrozoan *Podocoryna carnea*

Michael Connelly, Alberto Rivera, Matthew Traver, Marina Stoilova, Pauly Cartwright, Andy Baxevanis
National Human Genome Research Institute NIH, The University of Kansas

11:00 am

Investigation of stinging cell development in the coral, *Astrangia poculata*

Sarah Arnold, Leslie Babonis
Cornell University

11:15 am

Characterization of the Hippo signaling pathway in the colonial cnidarian *Hydractinia*

Qingru Xu, Danielle de-Jong, Christine Schnitzler
University of Florida

11:30 am

Stepping up a Notch: insight into cell signaling evolution with the ctenophore, *Mnemiopsis leidyi*

Brent Foster, Fredrik Hugosson, Cezar Borba, Mark Martindale
University of Florida

11:45 am

Investigating the evolution of fighting tentacles in two species of sea anemones

Rowan Lopez, Sarah Arnold, Kennedy Bolstad, Leslie Babonis
Cornell University

10:00 AM – 12:00 PM

**Vision and visibility
International Salon 7**

Chair: Whitney Walkowski

10:00 am

The relationship between spectral signals and retinal sensitivity in dendrobatid frogs

Whitney Walkowski, Corinne Richards-Zawacki, William Gordon, Nicolas Bazan, Hamilton Farris
Loyola University New Orleans, University of Pittsburgh, Louisiana State University

10:15 am

Visual ecology of two tidal creek crabs, *Petrolisthes armatus* and *Panopeus herbstii*

Madison Janakis, Daniel Speiser, Daniel Chappell
University of South Carolina, Science Applications International Corporation, Air Force Research Lab

10:30 am

Nanoscale ultrastructures increase the conspicuousness of signalling traits in cleaner shrimps

Eleanor Caves, Sonke Johnsen, Alexander Davis
Brown University, Duke University

10:45 am

Ecological functions and metabolic consequences of distributed vision in chitons

Daniel Speiser, Adriana Halvonik-Sanchez, Madison Janakis, Alexandra Kingston, Daniel Chappell
University of South Carolina, University of Tulsa, Science Applications International Corporation, Air Force Research Lab

11:00 am

The rhythm of love: investigating rhythm in bioluminescent ostracods

Cheyenne McKinley, Todd Oakley
University of California Santa Barbara

11:15 am

You can hide but you can't run: glass frogs hide their red blood cells for transparency

Carlos Taboada, Jesse Delia, Sonke Johnsen
Vanderbilt University, American Museum of Natural History, Duke University

11:30 am

Standardized imaging practices in fixed fish specimens for the analysis of color and color patterns

Rosamari Orduna, Michael Alfaro
UCLA

11:45 am

Darkness startle-response in free flying mosquitoes and fruit flies

Roni Maya, Noam Lerner, Tsevi Beatus
The Hebrew University of Jerusalem

10:00 AM – 12:00 PM

Weapons and aggression

A707

Chair: Caitlin Friesen

10:00 am

Neural substrates of aggression and the effect of sex in domesticated and wild-derived mice

Caitlin Friesen, Sara Guedez-Suarez, Geert de-Vries, Aras Petrulis
Georgia State University

10:15 am

Tail flaring serves as a key signal in male-male hummingbird fighting

Rosalee Elting, Md Zafar Anwar, Bo Cheng, Haoxiang Luo, Donald Powers, Bret Tobalske
University of Montana, Pennsylvania State University, Vanderbilt University, George Fox University

10:30 am

An effect of dominance on filial cannibalism in an African cichlid *Astatotilapia burtoni*

Josh Stueckle, Andrew Anderson, Susan Renn
Reed College

10:45 am

Sniffed them out: can an individual assess fighting prowess through chemical cues before a fight?

Molly Wingard, Lindsey Wells, Giovanna Lopez, Cera Widener, Mark Garcia
Southwestern Oklahoma State University

11:00 am

Evaluating weapon size, fight performance, and courtship in a weapon-wielding rhinoceros beetle

Sophia Fitzgerald, Brook Swanson, Doug Emlen
University of Montana, Gonzaga University

11:15 am

Antlers and horns likely communicate different attributes of quality in long-lived species

Monet Gomes, Wendy Hood, Geoffrey Hill, Haruka Wada, Stephen Ditchkoff
Auburn University

11:30 am

Linking seeing with stabbing: visual information encoded in descending neurons of the mantis shrimp

Kathryn Feller
Union College

11:45 am

Sexually selected shields: Male-male combat can promote the evolution of damage-reducing structures

Zachary Emberts, Isaac McEvoy
Oklahoma State University

10:15 AM – 12:00 PM

Complementary session
to Symposia S2 and S8;
ecoimmunology and
disease ecology

International Salon 5

Chair: Daniel Becker

10:15 am

Seasonal variation in immune proteins of a widespread migratory bat species

Daniel Becker, Amanda Vicente-Santos, Kristin Dyer, Lauren Lock, Michael Smotherman, Ariadna Morales, Michael Hiller, Benjamin Neely
University of Oklahoma

10:30 am

Integrating phylogenetic information reveals new insights into “Diversity-Disease” relationships

Yingying Wang, Kevin Matson, Fred de-Boer
University of California-Davis, Wageningen University

10:30 am

Innate immune function across four conspecific turtle species

Isabella Davis, Jen Terry, Lori Neuman-Lee
Arkansas State University

10:45 am

Assessing secondary immune responses to three antigens in a freshwater turtle

Jen Terry, Isabella Davis, Virginie Rolland, Lori Neuman-Lee
Arkansas State University

11:00 am

The effect of venipuncture site on hematology in bats: implications for comparative analyses

Alicia Roistacher, Bret Demory, Daniel Becker
University of Oklahoma

11:15 am

Asymmetry in community assembly and disassembly rules and its impact on the diversity-disease debate

Inge Feij, Fred de-Boer
Wageningen University and Research

11:30 am

Does tolerance of infection in a songbird host predict responses to subsequent pathogen exposure?

Katherine Talbott, Anna Perez-Umphrey, Amberleigh Henschen, Francis Tillman, Julia Weil, Jesse Garrett-Larsen, Dana Hawley, Arietta Fleming-Davies, James Adelman
University of Memphis, Virginia Tech, Eastern Illinois University, University of San Diego

10:15 AM – 12:00 PM

Sensing a change: Evolution
of sensory systems

A703

Chair: Tetsuto Miyashita

10:15 am

Characterizing interactions between forced sinusoidal gravitropism and circumnutation in rice roots

Madison Hales, Aradhya Rajanala, Yu Yang, Christopher Pierce, Mingyuan Zhu, Philip Benfey, Noah Cowan, Daniel Goldman
Georgia Institute of Technology, Johns Hopkins University, Duke University

10:30 am

Opsin-expressing cells identified within the skin of the summer flounder (*Paralichthys dentatus*)

Maureen Howard, Russell Ward, Lorian Schweikert
Florida International University, University of North Carolina Wilmington

10:45 am

Eyeing Complexity: Determining morphological components of eyes across Cnidarian eye origins

Bridget Vincent, Nicolas Noel, Rishima Tewari, Alexandra Curatolo, Todd Oakley
University of California, Santa Barbara

11:00 am

CT imaging reveals eye shape transition in the Banded Flower Mantis: From cone to sphere

Ruchao Qian, Jamie Theobald, Yash Sondhi
Florida International University, Florida Museum of Natural History, University of Florida

11:15 am

The influence of ecology, evolutionary history, and physical constraints on teleost eye evolution

Mason Thurman, Mary Freeman, Grace Seyle, Jessica Stepp, Samantha Price
Clemson University

11:30 am

From genes to environment: understanding the drivers of sensory trait variation in bluefin killifish

Ratna Karatgi, Rebecca Fuller
University of Illinois at Urbana-Champaign

11:45 am

Evolution of extrinsic eye muscles in vertebrates

Tetsuto Miyashita, Philippe Janvier, Kristen Tietjen, Michael Coates
Canadian Museum of Nature, Museum National d'Histoire Naturelle, Biodiversity Institute and Natural History Museum, The University of Kansas, The University of Chicago

10:15 AM – 12:00 PM

Up in the air
Marquis D

Chair: Alfonso Martinez

10:15 am

Wax “tails” enable planthopper nymphs to self-right midair and land on their feet

Thomas Jones, Christina McDonald, Sheryl Yap, Gerwin Alcalde, Ruby Ana Laude, Saad Bhamla
Georgia Institute of Technology, University of the Philippines Los Baños (UPLB), The University of Southern Mindanao

10:30 am

Controlled gliding in monkey grasshoppers flight using origami-like wing mechanisms

Tom Marzin, Julia Teeple, Kai Lauren Yung, Chew Chai, Juhi Deora, Jacob Harrison, Christina McDonald, Saad Bhamla
Princeton University, California State University, Fullerton, Georgia Institute of Technology

10:45 am

Convergent evolution of hindwing flight in beetles and cockroaches

Johanna Schwartz
University of Illinois Urbana-Champaign

11:00 am

Antennal motion drives haltere movement in *Drosophila*

Amy Streets, Marie Suver, Jessica Fox
Case Western Reserve University, Vanderbilt University

11:15 am

Effects of wing-tail interaction on bird-inspired morphing tail control authority during perching

Kaleb Bordner, Cooper Cook, Todd Henry, John Hrynuk, Christina Harvey, Kevin Haughn
University of California Davis, Army Research Lab

11:30 am

Effect of tail molting on the perching flight of a hawk

Alfonso Martinez, Michelle Hawkins, Kyle Buehring, Christina Harvey, Huanglun Zhu
University of California Davis

11:45 am

The aerodynamic effects of leading-edge ear tubercles of the Mexican free-tailed bat

Richard Carter
East Tennessee State University

10:30 AM – 12:00 PM

Measures and mechanisms of biodiversity

International Salon 6

Chair: Abigail Cahill

10:30 am

Graph theory tests the impact of metapopulation structure on population genetic diversity

Anthony Snead, Andrey Tatarenkov, D Taylor, Kristine Marson, Ryan Earley
New York University, UC Irvine, Brevard County EEL Program, University of Alabama

10:45 am

Using genomic tools to enhance biodiversity assessments in subterranean estuaries

Fernando Calderon-Gutierrez, Shari Rohret, Danielle Bragg, Elizabeth Borda
Texas A&M University-San Antonio, Woods Hole Oceanographic Institution

11:15 am

Cryptic species in marine animals: where do we find them and why does it matter?

Abigail Cahill, Anne Chenuil
Albion College, IMBE, Aix Marseille University

11:30 am

The role of ecology in allopatric speciation of riverine fishes

Maya Stokes, Richard Harrington, Daemin Kim, Thomas Near
Florida State University, Yale University

11:45 am

An AI infrastructure for organismal biology

Arthur Porto
Florida Museum of Natural History

10:45 AM – 12:00 PM

Co-evolution

A601

Chair: Jason Pienaar

10:45 am

Grabbing evolution by the throat: axio-appendicular co-evolution across the dinosaur-bird transition

Ryan Marek, Ryan Felice
University College London

11:00 am

Coevolution and the phylogenetic comparative method

jason pienaar
Florida International University

11:15 am

The co-evolution of fighting behavior and armor morphology in mantis shrimp

Patrick Green, Kira Prudente, Miya Ball
Brown University, UC Santa Barbara

11:30 am

A point in parasitoids' favor: evolutionary correlations between ovipositor tip morphology and host

Abby Weber, Phillip Anderson
University of Illinois at Urbana-Champaign

11:45 am

Phylogenomics and floral evolution in *Agave* subgenus *Manfreda*

Bryan MacNeill, Michael McKain, Eduardo Ruiz-Sanchez, Juan Pablo Ortiz-Brunel, Aaron Rodriguez
Cornell University, University of Alabama, University of Guadalajara

Tuesday Program Afternoon Sessions

1:30 PM – 2:30 PM

**Carl Gans Lecture:
Dr. Kory Evans**

Marquis D

*Sponsored by
Journal of Experimental Biology*

1:30 pm

Modularity promotes the evolution of complex biomechanical systems

Kory Evans

Rice University

1:30 PM – 3:30 PM

**Anthropogenic impacts of
toxins in the environment**

A601

Chair: Raquel Fernanda Salla Jacob

1:30 pm

Assessing contaminant impact on mussels (*Mytilus trossulus*) in Puget Sound

Christine Mantegna, Steven Roberts, Alison Gardell

University of Washington

1:45 pm

Effects of pesticides on caste development in bumblebees

Sarah Orr, Kayla Murray, Emma Leigh Bossard, Jixiang Xu, Michael Goodisman
Georgia Institute of Technology

2:00 pm

A widely used fungicide reduces honey bee queen reproductive fitness

Adrian Fisher, Rebecca Smalley
Arizona State University

2:15 pm

Unraveling the embryotoxicity of salinity and tire wear microplastics on distinct anuran species

Raquel Fernanda Salla-Jacob, Camryn Kritzell, Aaron Devine, Molly Albecker
University of Houston

2:30 pm

Variation in urban air pollution and vegetation predicts avian stress markers at a local scale.

Mikus Abolins-Abols, Jay Turner, Ted Smith, Aruni Bhatnagar, Ray Yeager
University of Louisville, Washington University

2:45 pm

Incorporation of heavy metals into crab shell and their impact on postecdysial mineralization

Enmin Zou
Nicholls State University

3:00 pm

Understanding fish excretion methodology: The influence of handling stress and short-term fasting.

William Wied, Justin Campbell, Ryenne Hathaway
Florida International University

3:15 pm

Mercury Concentration in the Blood of Juvenile Sharks of the Tampa Bay Coast

Aleu Moana, Jasmin Graham
Minorities in Shark Sciences

1:30 PM – 3:15 PM

**Behavior in the context
of ecology, evolution,
and conservation**

International Salon 7

Chair: Cassandra Nunez

1:30 pm

Is bigger better? Relationship between risky behavior and aspects of size in land hermit crabs

Riley Wood, Brooke Fitzwater, Laney Woynaroski, Ryan Earley
The University of Alabama

1:45 pm

Mean mares? Habitat features influence female aggression in the feral horse (*Equus caballus*)

Cassandra Nunez, James Adelman
The University of Memphis

2:00 pm

Alloparental Feeding in Violet-green Swallows (*Tachycineta thalassina*)

Galen June, Christine Mantegna, Camille Gaynus, Tiara Moore
Old Dominion University, University of Washington, Black In Marine Science

2:15 pm

Water relations of invasive Burmese pythons (*Python bivittatus*) in Florida

Mark Sandfoss, Eleanor Lane, Christina Romagosa, Amanda Kissel, Amy Yackel-Adams
U.S. Geological Survey, University of Florida

2:30 pm

A tale of two love songs: female wing-dimorphic crickets prefer faster songs of short-winged males

Lisa Treidel, Leo Lu, Colin Meiklejohn, Kristi Montooth
William and Mary, University of Nebraska, Lincoln

2:45 pm

Spatial and temporal dynamics of a signal polymorphism in a tropical lizard

Christian Cox, Maria Alcivar, Leah Bakewell, Ian Clifton, John David Curlis, Anabarbara Gonzalez, Samir Gulati, Daniel Romero, Jessica Stapley, Claire Williams, Kelly Wuthrich, W. Owen McMillan, Michael Logan
Florida International University, University of Arkansas at Little Rock, University of Michigan, University of Nevada, Reno, Smithsonian Tropical Research Institute, ETH Zurich

3:00 pm

A model of signal and preference coevolution based on mate location

Wout van-der-Heide, Kern Reeve, Kerry Shaw
Cornell University

1:30 PM – 3:30 PM

Comparative morphology

A703

Chair: Diego Vaz

1:30 pm

Don't wanna be your bony wrench: phylogenetic inferences from skeletal morphology of dwarf gobies

Diego Vaz, Christopher Goatley, Luke Tornabene
Natural History Museum, London, University of Southampton, University of Washington

1:45 pm

Understanding the ecomorphology effects of lumbar vertebrae in Soricidae

Tyler Morgan, Stephanie Smith
Michigan State University, Field Museum of Natural History

2:00 pm

Landmark-free morphometrics reveals extreme shape variation in the limb bones of domestic dogs

Lucy Roberts, James Charles, Eithne Comerford, Karl Bates, Anjali Goswami
Natural History Museum, London, University of Liverpool

2:15 pm

When the lung invades: new perspectives on avian postcranial skeletal pneumaticity

Andrew Moore, Karl Bates, Stephanie Baumgart, Emma Schachner
Stony Brook University, University of Liverpool, University of Florida

2:30 pm

Geometric morphometric analysis of softshell turtle (*Apalone sp.*) head shape in context

Jacob Barthelemy, Christopher Murray, Allison DeLoache
Southeastern Louisiana University

2:45 pm

Diverse pneumatizing pulmonary diverticula in birds challenge reconstructions of dinosaur lungs

Emma Schachner, Aracely Martinez, Stephanie Baumgart, Alexis Slack, Amanda Pineda, Jaeger Johnson, Chloe Huntley, Clinton Grand-Pre, Claire Zimmerman, Adam Lawson, Andrew Moore
University of Florida, Louisiana State University, Tulane University, Stony Brook University

3:00 pm

Patterns of morphological regionalization within vertebral centra: a case study of mouse vertebrae

Celina Gilmore, Jack Tseng
University of California Berkeley

3:15 pm

Deep learning for 3D image segmentation and analysis of evolution in planktic foraminifera

James Mulqueeney, Anieke Brombacher, Alex Searle-Barnes, Yichen He, Anjali Goswami, Thomas H. G. Ezard
University of Southampton, Natural History Museum, London

1:30 PM – 3:30 PM

Hold on tight (attachment)

International Salon 10

Chair: Keegan Lutek

1:30 pm

Parasite-inspired tissue attachment mechanisms

Rachel Zoll, Gabriel Maquignaz, Michael Karpelson, Elio Challita, James Weaver, Robert Wood
Harvard University

1:45 pm

Assessing generalizable, locomotor-related morphological patterns in gecko claws

Benjamin Wasiljew, Anthony Russell, Austin Garner
Syracuse University, University of Calgary

2:00 pm

Bioinspired surface texturing in suction discs improves shear adhesion

Alyssa Hernandez, Jessica Sandoval, Michelle Yuen, Robert Wood
Harvard University

2:15 pm

The distribution of adhesive foot contacts in Argentine ants during vertical climbing

Yakun Cao, Andrew Chacon, Agasthya Valluri, Nick Gravish
University of California, San Diego

2:30 pm

Rough but not so tough: impact of surface roughness and loading orientation on sea urchin adhesion

Andrew Moura, Carla Narvaez-Diaz, Austin Garner
Syracuse University, Rhode Island College

2:45 pm

Interspecific patterns of sea urchin locomotion on solid and granular substrates

Keegan Lutek, Carla Narvaez-Diaz, Austin Garner, Alyssa Stark
Villanova University, Rhode Island College, Syracuse University

3:00 pm

Impacts of hyposalinity and marine heatwaves on juveniles of the purple sea urchin

Carla Narvaez-Diaz, Fleur Anteau, Jason Hodin
Rhode Island College, Wageningen University, University of Washington

3:15 pm

Earwax deters insects

Thomas Jeyakumar, Joseph Nehme-Haily, David Ancalle, David Hu
Georgia Institute of Technology

1:30 PM – 3:30 PM

Host-microbial interactions

A704

Chair: Dylan Wichman

1:30 pm

Microbial adaptation in response to environmental and maternal influences in *Tribolium castaneum*

Esther Okamoto, Jennifer Kovacs, Agnes Scott College, California Institute of Technology

1:45 pm

To predict the long-term consequences of bacteria consumption in raw local fish in Columbus, Georgia

Andy Vu, Ensaf Taha, Craig Harbin, Trinity Smith, Nylah Phillips
Columbus State University

2:00 pm

Understanding the Pallid Sturgeon gut microbiome in wild and hatchery environment

Israt Jahan, Mark Pegg, Samodha Fernando, Christopher Chizinski
University of Nebraska-Lincoln

2:15 pm

Characterizing the gut microbiome of North America's largest salamander

Chloe Cummins, Alexander Rurik, Jason Dallas, Mitra Ghotbi, Kaitlyn Murphy, N. Reed Alexander, Lluvia Vargas-Gastélum, Joseph Spatafora, Kerry McPhail, Jason E Stajich, Taina McLeod, William Sutton, Sherri Doro-Reinsch, G. Sandonato, Dale McGinnity, Donald Walker
Middle Tennessee State University, University of California Riverside

2:30 pm

Skin microbiome shifts in an increasingly plastic world

Andre Felton, Oscar Hernandez, Meredith Slimp, Daniela Cortez, Cristina Mendez, Sue Ellen Gibbs-Huerta, Brianna Zamarripa, Jeffrey Hutchinson
University of Texas at San Antonio

2:45 pm

Museum specimens reveal widespread historical chytrid infections in declining salamanders in Florida

Arik Hartmann, Faith Dunlap, Steven Kloize, Max Maddox, Cory McKinstry, Thien Nguyen, Ana Longo
Smithsonian National Zoo and Conservation Biology Institute, University of Northern Colorado, USDA, Texas State University, University of Florida

3:00 pm

The influence of pathogen diversity and temperature on eelgrass wasting disease outcomes

Angela Ayala, Rebecca Maher
University of North Georgia

3:15 pm

An investigation of developmental toxicity patterns in Rough-skinned and California Newts

Kannon Pearson, Natalie Meyer, Michael Westphal, Gary Bucciarelli, Rebecca Tarvin
University of California Berkeley, US Bureau of Land Management, University of California-Davis

1:30 PM – 3:30 PM

**It's all in your head:
cranial variation**

International Salon 8

Chair: Emily Troyer

1:30 pm

Patterns of jaw diversification in early bony fishes

Emily Troyer, Rafael Rivero-Vega, Xindong Cui, Min Zhu, Alice Clement, Oleg Lebedev, Robert Higgins, Benjamin Igielman, Stephanie Pierce, Sam Giles, Matt Friedman
University of Michigan, Peking University, Flinders University, Harvard University, University of Birmingham, Museum of Comparative Zoology

1:45 pm

Form and function relationship within ligaments, focusing on a cranial ligament in birds

Samantha Gartner, Thomas Roberts
Brown University

2:00 pm

Assessing the relationship between cranial covariation and ecological specialization in Geomyoidea

Francesca Socki, David Fox
University of Minnesota

2:15 pm

Shadows of radiations past: Scanning pharyngeal jaw diversity in Neotropical Cichlids

Benjamin Nicholas, Hernan López-Fernández
University of Michigan

2:30 pm

3D Architecture and Evolution of Snake Palatal Musculature

Christopher Zobek, Alec Wilken, Casey Holliday
University of Missouri, University of Chicago

2:45 pm

The relationship between muscle architecture and in vivo bite force in snakes

Kyle Dixon, Michael Granatosky, Michael Deutsch, Julia Molnar
New York Institute of Technology College of Osteopathic Medicine

3:00 pm

Intramandibular joint disrupts morphological integration of guppy oral jaws

Tess Avery, David Matthews, Terry Dial
University of Delaware, University of Massachusetts Amherst, Utah State University

3:15 pm

Detailed description and anatomical comparison of Neornithes quadrate morphology

Pei-Chen Kuo, Roger Benson, Daniel Field
Field Museum, American Museum of Natural History, University of Cambridge

1:30 PM – 3:45 PM

Jaw and puncture mechanics

International Salon 9

Chair: Nicholas Gidmark

1:30 pm

On the relevance of biomechanical and kinematic variation in mammals for clinical jaw joint studies

Nicholas Gidmark, Saxon Alvarez, Naeun Kim, Sonia Lopez, Emily McParland, Rosalie Ross, Amira Siddique, Alyssa Stringer
Knox College, Brown University

1:45 pm

Motion and morphology's influence on TMJ stress field location across common model species

Alyssa Stringer, Nicholas Gidmark
Knox College

2:00 pm

The jaw joint, mandibular symphysis, and hemimandibular movements during chewing in Carnivorans

Stephane Montuelle, Rachel Olson, Susan Williams
Ohio University, The University of Akron

2:15 pm

Ontogeny of the Virginia opossum temporomandibular joint and implications for mammalian evolution

Emma Cooney, Peishu Li, Zhe-Xi Luo, Alec Wilken, Casey Holliday
University of Missouri, Ohio University, University of Chicago

2:30 pm

Need for speed: are jaw muscle characteristics different in species varying in singing capacities?

Jana De-Ridder, Dominique Adriaens, Sam Van-Wassenbergh
Ghent University, University of Antwerp

2:45 pm

Morphology, mechanics, and ontogeny of oral jaws and dentition across diverse diets (Stichaeidae)

Richard Hoover, Joseph Heras, Cassandra Ford, Karly Cohen, Cassandra Donatelli
University of Minnesota, California State University, University of Washington

3:00 pm

Neuromuscular control of feeding in the red-footed tortoise (*Chelonoidis carbonarius*)

Thomas Stroud, Kendall Steer, Chloe Edmonds, Johnson Gao, Khaled Adjerid, Kree Kerkvliet, Rebecca German, Christopher Mayer
Northern Arizona University, Northeast Ohio Medical University, Tulane University

3:15 pm

Multiple pathways to modulate bite performance in *Sceloporus* lizards

Julio Rivera, Israel Solano-Zavaleta, José Jaime Zúñiga-Vega, Emilia Martins
Arizona State University, The National Autonomous University of Mexico

3:30 pm

Comparative intramandibular biomechanics of alligator, *majungasurus*, and *tyrannosaurus*

John Fortner, Kaleb Sellers, Kevin Middleton, Casey Holliday
University of Missouri, University of Chicago

1:30 PM – 3:30 PM

**Local adaptation
International Salon 6**

Chair: Marie Strader

1:45 pm

Latitudinal patterns of life-history variation in the egg-encapsulating Eastern mud snail

*Robert Podolsky, Kora Hansen
College of Charleston*

2:00 pm

Local adaptation to temperature in a coastal fish: implications for resilience in a warming ocean

*Alexis Lundquist, Darren Johnson, Thea Cole
California State University Long Beach*

2:30 pm

Genetic and physiological mechanisms driving the northern range expansion of a tropical jellyfish

*Marie Strader, Myles Wagner, Ziyu Wang,
Mikayla Clark, Stephanie Hendricks
Texas A&M University*

2:45 pm

Predictive modeling of adaptive variation in tiger sharks across the western North Atlantic

*Eloise Cave, Anna Weber, Michael Criscitiello,
Jeannine Ott, Toby Daly-Engel
Florida Institute of Technology, Texas A&M
University*

3:00 pm

Effects of temperature on physiology may explain latitudinal patterns of growth in a marine snail

*Kara Stella, Darren Johnson
California State University Long Beach*

3:15 pm

Artificial evolution: Patterns in interactions between human selectors and digital organisms

*Jason Davis, Birch Ambrose
Radford University*

1:30 PM – 3:30 PM

**Low to mid Reynolds numbers
International Salon 2-3**

Chair: Grace Zhong

1:30 pm

Navigating captivity: Motile life of dinoflagellate symbionts in an acoel worm

*Grace Zhong, Manu Prakash
Stanford University*

1:45 pm

Hydrodynamic effects of oral arms on jellyfish locomotion

*Yunxing Su, Nicole Xu
University of Colorado Boulder*

2:00 pm

Cross-specific analysis of fluid flow and beating kinematics in swimming ctenophores

*Mohammadreza Zharfa, David Peterman,
Adrian Herrera-Amaya, Margaret Byron
Penn State University, Brown University*

2:15 pm

Kinematics and flow quantification of shell-less pteropods at intermediate Reynolds number

*abdullah Aldaddi, Ferhat Karakas, Evan
Williams, Amy Maas, David Murphy
University of South Florida, Arizona State
University*

2:30 pm

Effects of environmental indicators on shrimp-like metachronal swimming.

*Adrian Herrera-Amaya, Zhipeng Lou, Nils
Tack, Chengyu Li, Monica Wilhelmus
Brown University*

3:00 pm

A bioinspired zoospore robot for high speed locomotion in low Reynolds number environments

*Nnamdi Chikere, Quang Tran, Sofia Lozano-
Voticky, Yasemin Ozkan-Aydin
University of Notre Dame, Brandeis
University, Pontificia Universidad Catolica de
Chile*

3:15 pm

Metachronal mechatronics: Exploring metachronal swimming performance with bioinspired robotics.

*Nils Tack, Diego Delgado, Monica Wilhelmus
Brown University*

1:30 PM – 3:15 PM

**Molecular responses to stress
A707**

Chair: Anna Klompen

1:30 pm

Under Pressure: transcriptomic response to embryonic development under applied hydrostatic pressure

*Kinlie Gililland, Katelyn Mika, Katie Smith
University of Tulsa*

1:45 pm

Mechanisms of S-Phase Arrest and Survival in Anoxia-Tolerant Killifish Cells

*Riley Roth-Carter, Jason Podrabsky
Portland State University*

2:00 pm

Mechanisms of extreme survival: Uncovering how tardigrades can tolerate extreme radiation

*Courtney Clark-Hachtel, Jonathan Hibshman,
Tristan De-Buysscher, Evan Stair, Leslie Hicks,
Bob Goldstein
University of North Carolina*

2:15 pm

Identification and characterization of miRNAs in three species of stony coral

*Kathleen Durkin, Sam White, Jill Ashe, Ariana
Huffmyer, Steven Roberts, Hollie Putnam
University of Washington, University of
Rhode Island*

2:30 pm

Plasticity in meiotic recombination rate across different genetic backgrounds

*Laurie Stevison
Auburn University*

2:45 pm

Radiation stress and putative genomic signatures of selection on anti-tumor biology in Chernobyl

*Cara Love, Brian Arnold, Stacey Lance,
Nicolas Rochette, Tom Hinton, James
Beasley, Dmitry Shamovich, Michael Byrne,
Sarah Webster, Shane Campbell-Staton
Princeton University, University of Georgia*

3:00 pm

Multiple jellyfish toxins are specific to distinct polyp and nematocyst types in a hydrozoan colony

*Anna Klompen, Matthew Traver, Cassandra
Kempf, Kevin Ferro, Jenny Duong, Lacey
Ellington, Matt Gibson, Paulyn Cartwright
Stowers Institute for Medical Research, The
University of Kansas*

1:30 PM – 3:30 PM

**Vertebrate development and morphology
International Salon 4**

Chair: Luis Hernandez-Nunez

1:30 pm

Characterizing the early genetic and epigenetic control of cichlid craniofacial plasticity

*Emily Tetrault, Niah Holtz, Craig Albertson
University of Massachusetts Amherst*

1:45 pm

Skin color development and CRISPR genome editing in the brown anole lizard (*Anolis sagrei*)

*Zoe Griffin, Bonnie Kircher, Richard Behringer
University of Texas MD Anderson Cancer Center*

2:00 pm

Alveolus spacing trends in convergent long-snouted reptiles reveal divergent ontogenetic patterns

*Erika Goldsmith, Michelle Stocker
Virginia Tech*

2:15 pm

Single-cell sequencing analysis of spotted gar (*Lepisosteus oculatus*) pectoral fin development

*Magnolia Garbarino, Anindita Basu, Neil Shubin, Katelyn Mika
University of Tulsa*

2:30 pm

Development of the cardiac sympathetic system and contractility control in larval zebrafish

*Marissa Zheng, Gracie Wang, Calista Adler, Areni Markarian, Luis Hernandez-Nunez
Harvard University*

2:45 pm

Does green tea extract act as an endocrine disruptor during sex determination in birds?

*Sara-Belle Ozburn, Taylor Miller, Kristen Navara
University of Georgia*

3:00 pm

Functional development of motor and sensory circuits for cardiac feedback control

*Luis Hernandez-Nunez, Joana Avrami, Areni Markarian, Keyue Shi
Harvard University, Stanford University*

3:15 pm

Unprecedented rates of parthenogenesis in ex situ zebra sharks

*Jennifer Wyffels, Kady Lyons, David S. Portnoy, Christine Dudgeon, Kevin Feldheim
Ripley's Aquariums, Georgia Aquarium, Texas A&M Corpus Christi, Shedd Aquarium, Shark Reef Mandalay Bay, Field Museum*

1:30 PM – 3:30 PM

**Visual signaling and behavior
International Salon 5**

Chair: Lorian Schweikert

1:30 pm

Effects of captivity on red ketocarotenoid production in Northern Cardinals

*Sara Patton, Rebecca Koch, Matthew Toomey, Yufeng Zhang, Geoffrey Hill
Auburn University, University of Wisconsin-Stevens Point, University of Memphis*

1:45 pm

Effects of simulated client color change on cleaner shrimp behavior

*Darcy Chang, Eleanor Caves
Brown University*

2:00 pm

Variation in color perception under sexual selection

*Soumyadeep Chatterjee, Chris Clark
University of California, Riverside*

2:30 pm

Patterns and drivers of iridescence across a highly speciose butterfly family (*Nymphalidae*)

*Juliette Rubin, Leo Camino-Cedeno, Yanileth Lopez, Akito Kawahara, W. Owen McMillan
Smithsonian Tropical Research Institute, University of Florida*

2:45 pm

Intraspecific interactions and maintenance of polymorphic signaling along an environmental gradient

Elizabeth Hoffman, Leah Bakewell, Brandon Buitrago, John David Curlis, Catherine Grey, Yanileth Lopez, John Nguyen, Claire Williams, Kelly Wuthrich, W. Owen McMillan, Michael Logan, Christian Cox

Florida International University, Smithsonian Tropical Research Institute, University of Michigan, St. Norbert College, University of Houston, University of Nevada, Reno

3:00 pm

Strategies for self-monitoring dynamic visual appearance

*Lorian Schweikert, Heather Bracken-Grissom, Umut Ayoglu, Sonke Johnsen
University of North Carolina Wilmington, Duke University*

3:15 pm

Two pathways to red carotenoid ornaments in birds: implications for honest signaling

*Geoffrey Hill, Rebecca Koch, Chidambaram Ramanathan, Cristy Truong, Hannah Reeb, Brooke Joski, Yufeng Zhang, Matthew Toomey
Auburn University, University of Wisconsin-Stevens Point, University of Tulsa, University of Memphis*

5:30 PM – 6:30 PM

**John A. Moore Lectureship:
Dr. Catherine Quinlan
Marquis B**

5:30 pm

The influence of motivated thinking on Black representation in science

*Catherine Quinlan
Howard University*

Tuesday POSTER SESSION P4

Atrium Ballroom • 3:30-5:30 PM

Poster Set Up: 7:00-8:00 am • Poster Teardown: 5:30-6:00 pm

Even # - Authors present from 3:30-4:30 pm • Odd # - Authors present from 4:30-5:30 pm

Complementary session 1 to S7: Integrative organismal biology at HBCUs: highlighting the effectiveness of HBCUs in training the next generation of organismal biologists

P4-1

Marine Microbes as Sources of HDAC Inhibitors: Ecological and Bioactive Insights

*Julia Sutton, Alexander Bogdanov, Paul Jensen, Douglas Sweeney
Howard University*

P4-2

Architects of the Sand Flats: Uncovering the Burrow-Building and Substrate Selectivity of *Alpheus* cf

*Amarachukwu Rachel Okongwu, Paul Barber, Peggy Fong, TreVaughn Ellis, Ruth Viveros, Sugey Galvan, Alexandra Davis, Alexys Long
Howard University*

P4-3

The root microbiome as a source of antibiotic resistance genes

*Aijalon Muhammad, Tobias Hoffmann, Mentewab Ayalew
Spelman College*

P4-4

Evaluating the Effectiveness of DNA metabarcoding in Assessing macroinvertebrate communities

*Maame Asiamah, Segun Oladipo, Iysha Olorunshina Muhibbu-Din, Lotanna Nneji
Howard University*

P4-5

Morphological and Molecular Identification of Smooth Freshwater Stingray (*Fontritygon garouaensis*)

*Amaya Everett, Segun Oladipo, Kehinde Adelakun, Lotanna Nneji
Howard University, Federal College of Wildlife Management, New Bussa, Niger State*

P4-6

DNA barcoding of Wood Ants (Hymenoptera, Formicidae) from a Tropical Area in Nigeria

*Kennedy Smith, Abubakar Adeoye, Segun Oladipo, Lotanna Nneji
Howard University*

P4-7

The Effects of Vertebral abnormalities on Swimming Performance in Lumpfish, *Cyclopterus lumpus*

*Taylor Lunningham, Katelyn Sewcharran, Jules Johnson, Elizabeth Fairchild, Jessica Robinson, Stacy Farina
Howard University, Northwestern University, University of New Hampshire*

Changing colors: investigating color variation and evolution

P4-8

Gene flow, population structure, and color production in an aposematic poison frog

*Ashley Dye, Andrew Rubio, Emma Steigerwald, Jackson Hastings, Rasmus Nielsen, Kyle Summers, Matthew MacManes, Adam Stuckert
University of Houston, University of New Hampshire*

P4-9

Biological mirrors in transparent frogs

*William White, Claire Downing, Jesse Delia, Carlos Taboada
Vanderbilt University, American Museum of Natural History*

P4-10

It's easy being green: the role of a highly stable serpin in the camouflage of glassfrogs

*Grace Harvey, Vignesh Ravichandran, Jesse Delia, Carlos Taboada
Vanderbilt University*

P4-11

The regulation of pigmentation and plasticity by corticosterone in tadpoles

*Aaron Devine, Molly Albecker
University of Houston*

P4-11a

Finding Nemo's colors: the ecology of clownfish color patterns

*Catheline Froehlich, Eleanor Caves, Jolyon Troscianko, Miranda Gibson, Tommaso Chiodo, Aurélien De-Jode, Korrie Brown, Nina Luckas, Benjamin Titus
University of Alabama, Brown University, University of Exeter*

Complementary session to Cnidarian sensory systems as comparative models for the evolution of complexity

P4-12

Comparing jellyfish eyes from a common origin but differing life history

*Marina Stoilova, Lucian Sours, Matthew Traver, Cory Berger, Todd Oakley, Paulyne Cartwright
The University of Kansas, University of California Santa Barbara*

P4-14

Investigation of Acute Activity Responses in Honey Bees Exposed to Thermal and Desiccation Stress

*Kiara Lopez, Brendon Blake, John Hranitz, Victor Gonzalez, John Barthell, Thomas Tscheulin, Theodora Petanidou
University of Central Florida, Oklahoma State University, Commonwealth University of Pennsylvania Bloomsburg, University of Kansas, University of Central Oklahoma*

P4-15

The effect of thermotolerance on honeybee foraging time

*Brendon Blake, Kiara Lopez, John Barthell, Victor Gonzalez
Oklahoma State University, University of Central Florida, University of Central Oklahoma, University of Kansas*

P4-16

Testing the heating and cooling rate of the *Xylocopa* species.

*Ashley Lee, Edgar Nickols, Kiara Lopez, Brendon Blake, John Hranitz, Victor Gonzalez, John Barthell
University of Central Oklahoma, Haskell Indian Nations University, University of Central Florida, Oklahoma State University, Commonwealth University of Pennsylvania, Bloomsburg, University of Kansas*

Beneath the surface: burrowing behaviors

P4-17

Use of annelid parapodia in cylindrical burrow formation and irrigation during burrowing

Moey Rojas, Kelly Dorgan
Cornell University, University of Texas Marine Science Institute

P4-18

Stiffness of marine sediments measured on the scale of burrowers

Jennifer Duncan, Semyra Reus, Kelly Dorgan
University of Texas at Austin, University of South Alabama, University of Texas Marine Science Institute

P4-19

Sound in sediment - effects of bioturbation on acoustical properties of sediments.

Semyra Reus, Jennifer Duncan, Kelly Dorgan
University of South Alabama, University of Texas

P4-20

Earthworm-Inspired Soft Robot for Effective Navigation in Obstacle-Rich Environments

Sean Even, Yasemin Ozkan-Aydin
University of Notre Dame

P4-21

Effects of intraspecific cranial variation on the biomechanical properties of *Diplometopon zarudnyi*

Timothy Speedy, John Fortner, Rowan Lockwood, Michelle Stocker
Virginia Tech, University of Missouri, William & Mary

P4-22

How does head shape affect burial performance in swamp eels (*Synbranchidae*)

Merel Van-Gorp, Cassandra Donatelli, Meg Vandenberg, Spencer Truman, Charbel El-Khoury, Sarah Arnette, Matthew Kolmann
University of Antwerp, University of Washington, KAUST, University of Louisville

P4-23

Performing under pressure: How morphology affects locomotion of a sand-swimming skink

Anya Shevchik, Ethan Livingston, Eric Gangloff
Ohio Wesleyan University

Evolution in movement-related structures

P4-25

Differences in tail use during steady swimming in bluegill and pumpkinseed sunfish

Olivia Hawkins, Andrew Clark, Eric Tytell
Tufts University

P4-26

Trends in the evolution of limb elements in the Eulipotyphla

Catherine Sutor, Myleen Paulina Amendano, Maddie Cannistra, Tristan Tristan Stayton
Bucknell University

P4-27

Investigating drivers of variation in the paleognath wing

Isabel Marzec, Sara Burch
SUNY Geneseo

P4-28

Polydactyl precursors: Insights for early tetrapod terrestrial locomotion from polydactyl alligators

Trevor Brewington, Roshna Wunderlich, Masaya Iijima, Victor Munteanu, Savannah Swisher, Amanda Kellerhals, Richard Blob
Clemson University, James Madison University, Royal Veterinary College

Functional and evolutionary morphology

P4-29

Small carnivores of the Siwaliks: indicators of gradual change or sentinels of environmental change

Steven Jasinski, Sayyed Abbas, Khalid Mahmood, Muhammad Babar, Muhammad Khan
Harrisburg University, University of Sialkot, University of the Punjab, University of Okara

P4-30

Evolution of larger body size in response to consistent natural selection in *Anolis sagrei*

Tyler Wittman, Robert Cox
University of Virginia

P4-33

Asymmetric morphology in bird knees suggest a passive stabilizing mechanism unique to birds

Skylar Taylor, Ryan Johnson, Karen Graham, Young-Hui Chang
Georgia Institute of Technology

Morphology: modeling and engineering approaches

P4-34

SwarmZoo: Development of Collective Behavior Datasets

Ava Pistacchio, Audrey Kellogg, Amani Webber-Schultz, Joseph Legris
University of Vermont, Naval Undersea Warfare Center Division Newport, New Jersey Institute of Technology

P4-35

Fairy Knots — Unraveling the Biomechanics of Single-Strand Knot Formation in Curly Hair

Christina McDonald, Thomas Jones, Ishant Tiwari, Saad Bhamla
Georgia Institute of Technology

P4-35a

Hydration-driven uncoiling of barbule springs in sandgrouse feathers

Nami Ha, Yang Geng, Maria Martinez, Ling Li, Saad Bhamla
Georgia Institute of Technology

P4-37

Effect of toe spacing on dynamic interactions with granular media using responsive DEM simulations

Nathaniel Newcomer, S. Tonia Hsieh, Sonia Roberts
Wesleyan University, Temple University

P4-38

AutoVert: Semi-Automatic segmentation of repeated structures in 3D Slicer

Anna Harner, Cassandra Donatelli, Jonathan Huie
Chapman University, University of Washington Tacoma, The George Washington University

P4-39

Lightweight Wearable Accelerometer for Real-Time Monitoring of Animal Movement

Timothy Weigman, James Stroud
Georgia Institute of Technology

P4-40

The present is the key to the past: simulating deformation to detect biological signal in fossils

William Hooker, Andrew Orkney, Brandon Hedrick
Cornell University

Vertebrate morphology: ecology and evolution

P4-41

Estimating a multi-species sprinting performance landscape in an *Anolis* lizard community

Larkin Wynn, James Stroud
Georgia Institute of Technology

P4-42

“Stance Stance Evolution”: How shifts from quadrupedality to bipedality impact skeletal structure

Lauren Essner, Priscila Rothier, Jamison Thompson, Amy Yang, Andrew Orkney, Brandon Hedrick
Cornell University

P4-43

Testing correlation between lateral line and cranial morphologies with ecology in sciaenid fishes

Cameron Gabriel, Kelly Boyle
University of New Orleans

P4-44

The life and death of dentition: tooth replacement and damage across diets (Stichaeidae)

Brian Whelan, Richard Hoover, Kassandra Ford
University of Minnesota

P4-45

Do Longer Lizard Jaws Have More Teeth? A Comparison Among Green Anoles with Indeterminate Growth

Sofia Phucas, Michele Johnson
Trinity University

P4-46

Vertebral Variation in Juvenile Goby Fish, ‘O’opu Nōpili, in Relation to Escape Performance

Emily Pertuit, Kelly Diamond, Marissa Maheu, Alex Johnson, Richard Blob, Heiko Schoenfuss
Rhodes College, University of Denver, Clemson University, St. Cloud State University

P4-47

Salamander Skull Scans Show How Habitats Have Honed Heads

Rahel Van-Kanegan, Hannah Darcy, Philip Anderson
University of Illinois Urbana-Champaign

P4-48

Comparative pulmonary anatomy of avian predators: air sacs in Red-tailed Hawks and Great Horned Owls

Alexis Slack, Jaeger Johnson, Andrew Moore, Claire Zimmerman, Stephanie Baumgart, Aracely Martinez, Emma Schachner
University of Florida, Stony Brook University, Louisiana State University

P4-49

Insights into the respiratory and musculoskeletal adaptations of *Hydrolagus collei* across ontogeny

Meghana Binraj, Cassandra Donatelli, Karly Cohen, Olivia Hawkins, Sarah Arnette, Adam Summers
Species and Spaces Foundation, University of Washington, California State University Fullerton, Tufts University, University of Louisville

P4-50

Syrinx Anatomy and Vocal Production in New World Vultures (Aves: Accipitriformes: Cathartidae)

Bradley Ibarra, Carmen Urban, Lucas Legendre, Julia Clarke
Jackson School of Geosciences, University of Texas at Austin

P4-51

If not pharyngognath, then what? The role of ecology and hybridization in cichlid diversification

Alexus Roberts-Hughes, Ole Seehausen
University of Bern

P4-52

Sexual dimorphism in the vestibular system of the North American river otter

Erika Tanquilut, Hansan Jones, Heather Smith, Celeste Delap, Dominik Valdez, Leigha Lynch
Arizona College of Osteopathic Medicine, Midwestern University

P4-53

3D anatomy of the hyolingual apparatus of the white-bellied pangolin (*Phataginus tricuspis*)

Lillian Porter, Christopher Zobek, Conner Verhulst, Eric Hostnik, Copper Aitken-Palmer, Casey Holliday
University of Missouri, Ohio State University, Brookfield Zoo

P4-54

Evolutionary morphometrics in marine angelfishes: body shape, fin geometry and defensive spines

Hannah M Aguinis, Linnea Lungstrom, Mark Westneat
University of Chicago

P4-55

Effect of Formalin Preservation on Lizard Toe Pad Shape

Travis Hagey, Cain Petty
Mississippi University for Women

P4-56

Diving into the Functional Morphology of the Northern Gannet, *Morus bassanus*, Cervical Vertebrae

Alissa Perez, Meg Vandenberg, Bart Boom, Adam Summers, Ed Habtour
University of California Riverside, University of Washington

P4-58

Evolutionary Influence on Marine Actinopterygian Hearts: Chamber Landmark Morphometrics

Kyra Amacker, Stacy Farina
Howard University

P4-59

Does the shape of fish scales influence their penetrative resistance?

Sean Trainor, Kory Evans
Rice University

P4-60

Correlation between morphology and environment in perch (*Perca fluviatilis* & *P. flavesces*)

Takashi Maie, Briella Schmidt
St. Olaf College

P4-61

Mesial drift observed across varying levels of dental specialization in African pigs.

Alexandria Sambrano, Ashley Hammond, Deming Yang
University of Pennsylvania, American Museum of Natural History, New York Consortium of Evolutionary Primatology

In your face evolution: facial morphology variation

P4-64

Trends in the evolution of the skull in the Eulipotyphla

Maddie Cannistra, Catherine Suitor, Tristan Tristan Stayton
Bucknell University

P4-66

Venom-delivery systems in Asian and African rear-fanged snakes using diceCT imaging

Kylie Miles, Ollie Safford, Kayla Hinnen, Jeffery Anderson, Kate Jackson
Whitman College, Virginia Tech

Flying and vision

P4-67

Sticking the landing: unraveling mechanisms of proprioceptive feedback in flying insects

*Tse Wei Kuo, Sweta Agrawal
Virginia Tech*

P4-68

Light-dependent flight dynamics in Damselflies (*Ischnura ramburii*)

*Veronica Muzio-Crego, Elina Barredo, Jamie Theobald
Florida International University*

P4-70

Flying vinegar flies localize attention when responding to complex visual scenes

*Aaron Jackson, Steeve Pierre, Jamie Theobald
Florida International University*

P4-71

Eye spy the raptor os opticus: Anatomy, morphometry, and variation influenced by ecology & phylogeny

*Khanh To, Donald Cerio
Texas A&M University Galveston, Johns Hopkins University*

P4-72

Hummingbirds use compensatory eye movements to stabilize rotational and translational visual motion

*Anthony Lapsansky, Philipp Kreyenmeier, Miriam Sperring, Douglas Wylie, Douglas Altshuler
Northwest Indian College, University of British Columbia*

P4-73

Flicker fusion frequency of *Calliphora vicina* compound eyes and ocelli

*Grace Hickey, Marisa McDonald, Daniel Chappell, Martin (Ric) Wehling
Florida State University, Air Force Research Labs, NRC, Science Applications International Corporation, RWTCA*

Ecology: models and methods

P4-76

Novel method for creating super high resolution species distribution models

*Aleida Iriarte, Jason Brown
University of Florida, Southern Illinois University*

P4-77

Hands off! A non-invasive method for collecting DNA from white sharks (*Carcharodon carcharias*)

*Lila Xenakis, Toby Daly-Engel, Megan Winton, Dylan Gore, Kieran Stein, Greg Skomal
Florida Institute of Technology, Atlantic White Shark Conservancy*

P4-78

Using a convolutional neural network for pollen grain identification in the Michiana region

*Samantha Pajak, Erian Stewart, Peculiar Emmanuel-king, Morgan Carr-Markell
Saint Mary's College*

Ecology: life histories, phenotypes, and community ecology

P4-79

Assessing Seasonal Polyphenisms of Coliadinae Butterflies

*Hannah Walton, Brian Counterman, Ryan Ficarrotta
Auburn University*

P4-80

Mitochondrial plasticity varies with season and reproductive status in island dwarf lizards

*Danielle Rivera, Corban Muthiah, Aaron Wong, Eric Reyes, Sagar Bhowmik, David Miller, Amanda Sparkman, Tonia Schwartz
Auburn University, Westmont College, Penn State University*

P4-81

Population structure, local adaptation, and demography in the Texas tortoise (*Gopherus berlandieri*)

*Griffin McDaniels, Jacquelyn Tleimat, Sarah Baty, N. Jade Mellor, Paul Crump, Shawn McCracken, Kenro Kusumi, Greer Dolby
University of Alabama at Birmingham, Texas A&M University Corpus Christi, Arizona State University, Texas Parks and Wildlife*

P4-82

Carbon storage across a depositional gradient among eelgrass beds in False Bay, WA

*Marisol Ramirez-Buckles, Kendall Valentine, Sandy Wylie-Echeverria, Bruce Finney, Andrea Ogston
Barnard College, Friday Harbor Labs, University of Washington, Idaho State University*

P4-83

Littoral Vegetation and Phytoplankton Primary Production in Laguna Bacalar, Mexico

*Jaclyn McFadden
Florida Southern College*

P4-84

Prevalence of assortative mating by larval type in a population of *Streblospio benedicti*

*Kayleigh McHugh, Christina Zakas
North Carolina State University*

P4-85

Barcoding reef cryptobiota of Guam: phylum Nemertea

*Parker Jung, Svetlana Maslakova, Robert Lasley
University of Oregon, University of Guam*

P4-86

The larger the cetaceans, the more stationary they sleep

*Kodai Aota, Yusuke Sekiguchi, Hiroshi Katsumata, Seiki Konno, Daiki Inamori, Haruka Hiramatsu, Dale Kikuchi
The University of Tokyo, Chiba University, Kamogawa SeaWorld, Taiji Whale Museum, Tokyo University*

P4-87

Using Google Trends to improve monitoring of the invasive spotted lanternfly in the United States

*Kade Lippitt, Caroline Maciejewski, Alex Huynh, Jonathan Katzenmoyer, Austin Dotta
DeSales University*

Biodiversity and biogeography

P4-88

Micro-environmental correlates of species distributions within an island lizard community

*Kathleen Griffin, James Stroud
Georgia Institute of Technology*

P4-89

Evaluating behaviors of mobile organisms in seagrass beds via baited remote underwater video (BRUV)

*Georgia Ambrose, William Love, Emily Rose, Heather Mason
Valdosta State University, The University of Tampa*

P4-91

Analysis of the taxonomic ambiguity of the invasive apple snail (*Pomacea* sp.) in Florida

*Hailey Manitz, Pamela Brannock
Rollins College*

P4-92

Biodiversity assessment of the metazoan communities of undisturbed and disturbed cenotes of the Yucatan Peninsula

Muntadher Mashaan, Fernando Calderon-Gutierrez, Danielle Bragg, Gabrielle Vaughn, Elizabeth Borda
Texas A&M University-San Antonio

P4-93

Exploring the relationship between biodiversity and biotic interactions in fossil cephalopods

Zachary Burman, Kenneth De-Baets, John Huntley
University of Missouri, University of Warsaw

P4-94

Phylogenomic reconstruction of the North American desert flowering genus *Fouquieria*

Emeline Pano, Nico Cellinese
University of Florida, Florida Museum of Natural History

P4-96

Elucidating oyster reef biodiversity using eDNA

Zinia Hampton, Matthew Kimball, Robert Dunn, Shelby Ziegler, Mercer Brugler
Minorities Sharks and Sciences, Baruch Institute for Marine & Coastal Sciences, Villanova University, University of South Carolina

P4-97

Conserving elasmobranch biodiversity: the urgent plight of shark-like rays in Sri Lanka

Buddhi Pathirana, Sahan Thilakaratna
Ocean Rosy

P4-98

Earthworm diversity under cover objects in wooded natural areas is mostly introduced species

Patrick Owen, Keen Wilson
University of Cincinnati

P4-99

Is bigger better? a comparison of eDNA extraction methods for marine sediments

Berit Kramer, Jessica Zehnpfennig, Holly Sweat, Christopher Meyer
Smithsonian

P4-100

eDNA metabarcoding analysis of biodiversity in urban and non-urban freshwater streams

Isabella Leisgang, Kenneth Petren
University of Cincinnati

P4-101

Image classification with YOLO for wildlife monitoring in South San Antonio

Vivian Salazar, Sean Brandin, Elizabeth Borda, Jose Valdez, Ashley Teufel
Texas A&M University San Antonio

P4-102

Ant biodiversity along an urban gradient across a novel geographic comparison

Sophia Lande
Avenues: The World School

P4-103

Does ground invertebrate diversity correlate with breeding success in eastern bluebirds?

Sophia Cox, Danae Diaz, Steve Nowicki
Duke University

P4-104

eDNA metabarcoding to assess native freshwater mussel biodiversity in North America

Emily Zavacki, Omera Matoo
University of South Dakota

P4-105

From plates to pixels: decoding biodiversity with ARMS

Demi Carballosa, Sarah Tweedt, Christopher Meyer, Sheila Kitchen
Texas A&M University Galveston

Trophic interactions

P4-107

Assessing trophic interactions in freshwater communities under the effects of salinization

Cole Miller, Maya Mylott, Alex Barron, Allison Welch
College of Charleston

P4-108

Effects of freshwater salinization on productivity of green tree frog tadpoles and their predators

Alex Barron, Cole Miller, Maya Mylott, Allison Welch
College of Charleston

P4-109

Freshwater salinization and biomass transfer from algae to amphibians

Maya Mylott, Alex Barron, Cole Miller, Allison Welch
College of Charleston

P4-110

Size selectivity in aquatic carnivorous plants: expanding predator-prey models to plant predation

Danica Belman, Ulrike Muller, Otto Berg
California State University, Fresno

P4-111

Spatial relationships between insect prey and *Anolis* lizards in an island community

Miles Appleton, James Stroud
Georgia Institute of Technology

P4-112

Stable isotope fundamentals of jellyfish: tracking nutrient flow through the Monterey Bay Aquarium

Vanessa Castro, Mariam Keshavjee, Jacinta Kinyunzu, Gloria Manga-Ebengue, Tommy Knowles, Sora Kim
Minorities in Shark Science, University of Calgary, The Catholic University of Eastern Africa, Kenya, Toronto Metropolitan University, Monterey Bay Aquarium, UC Merced

Sex-specific traits and evolution

P4-114

Sexual Dimorphism in Vertebral Mechanical Properties of Bonnethead Sharks (*Sphyrna tiburo*)

Genna Felder, Aubrey Clark, Madisan Biordi, Isabella Fernandez, Marianne Porter
Florida Atlantic University

P4-115

Differences in form-function relationships between the sexes: A test using *Anolis* lizards

Haelin Lee, James Stroud
Georgia Institute of Technology

P4-116

Mechanical properties of the ACL during pregnancy and lactation in the rat, *Rattus norvegicus*

Nicole Danos, Alexa Gomez, Adrien Arias
University of San Diego

P4-117

Sex- and age-associated transcriptional patterns in a turtle with TSD and female-biased longevity

Samantha Bock, Luke Hoekstra, Fredric Janzen, Anne Bronikowski
Michigan State University, Oklahoma State University

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Columbia University, Virginia Institute of Marine Science

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Emma Bourgeois, Michael Minicozzi
Minnesota State University, Mankato

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University of Georgia

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University of Massachusetts Amherst

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Nicole Joseph, Benjamin Haussmann, Tiffany Hegdahl, Travis Robbins, Mark Haussmann
Bucknell University, University of Nebraska

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Taylor Kinchen, Jennifer Grindstaff, Lynn Siefferman, Virginie Rolland
Oklahoma State University, Appalachian State University, Arkansas State University

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Taylor Naquin, EW Misty Paig-Tran, Danielle Zacherl

California State University, Fullerton

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McCaella Acord, Carolyn Tepolt, Zachary Tobias, Gareth Miller

Woods Hole Oceanographic Institution

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University of the Pacific, NOAA Fisheries

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Bethany Beekly, Sarah Westrick, Britt Heidinger, Andrew McAdam, Stan Boutin, Jeffrey Lane, Ben Dantzer

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Yihan Li, Elaine Frawley
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Hope College

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University of Illinois Urbana-Champaign

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Anna Thonis, Jhan C. Salazar-Salazar
New York University, Washington University

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Deidra Wirakusumah, Mason Dean, Benoit Guénard
University of Hong Kong

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Neil Aschliman
St. Ambrose University

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Cornell University, Allegheny College, Saint Mary's College

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Colorado State University, Smithsonian Tropical Research Institute

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Merryn Bumpass, Jennifer Fortunato
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Middlebury College, Bucknell University

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University of Delaware, University of Hawaii

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Swarthmore College

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Florida Gulf Coast University

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Matt O'Connell-Vale, Neva Meyer
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Nicolet Limas-Mejia, Rachel Cohen
Minnesota State University, Mankato

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Madisyn Jarvey, Rachel Cohen
Minnesota State University, Mankato

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Zander Perelman, Jenna Palmisano, Terence Farrell, Michael Dreslik
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Abigail Baker, Sarah Gardiner-Rheinsmith, Thomas Quinn, Andrew Dittman, Kara Yopak
University of North Carolina Wilmington

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Elena Liebl, Mason Miller, Michael Reichert
Louisiana State University, Oklahoma State University

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Tab Henry, Sabrina Burmeister
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Florissa Patterson, Grace Anderson, Violeta Trejo-Reveles, Alex Johnston, Simone Meddle, Michele Johnson
Trinity University, Roslin Institute, University of Edinburgh

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Karrah Hayes, Leo Wood, Varun Sharma, Simon Sponberg
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University of North Carolina at Wilmington

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Case Western Reserve University, Bowling Green State University

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Robert Walsmith, Christina Zakas
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Alexandra Johnson, Brooke Vetter
University of St. Thomas

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COMMITTEE AND BOARD MEETINGS

MISS Board Meeting
NSF BioLeaps

TIME

8:00 AM – 12:00 PM
8:00 AM – 12:00 PM

LOCATION

M202
A601

Sable Systems Congratulates **DR. KATHRYN WILSTERMAN**

Assistant Professor, Department of Biology
Colorado State University - Fort Collins

The 2025 Winner of the
George A. Bartholomew Award



George A. Bartholomew

We look forward to her presentation “**A missing piece of the whole: reproductive traits and local adaptation.**” The lecture will be 7:30 to 8:30 PM on Monday, January 6, 2025.



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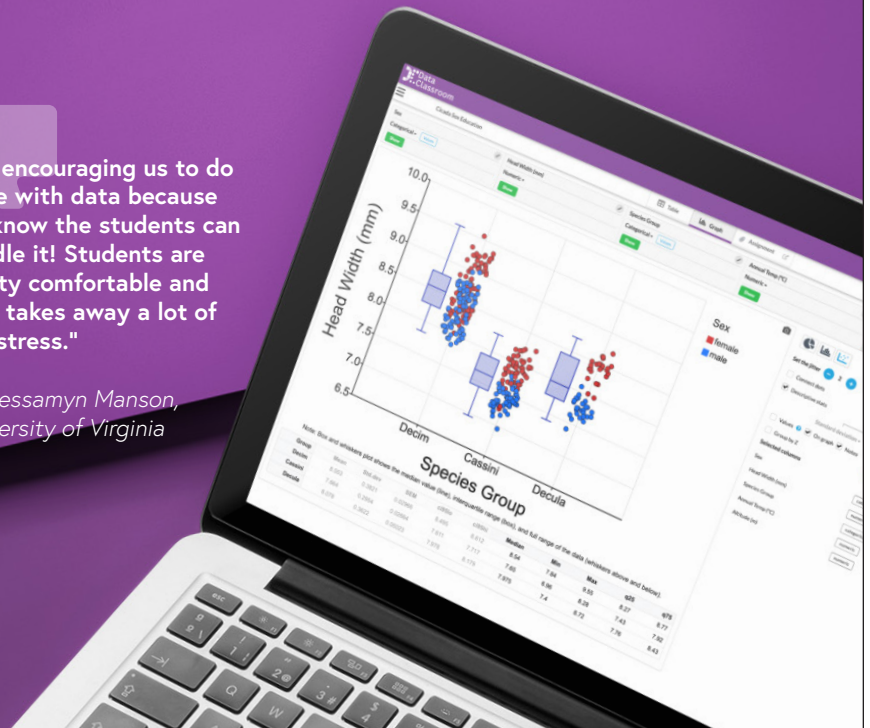
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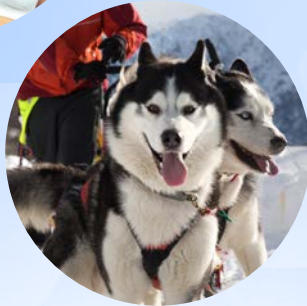
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