HUMAN ANATOMY & PHYSIOLOGY SOCIETY

# 39th Annual Conference


## May 21 - 25, 2025

## Pittsburgh, Pennsylvania

*Promoting Excellence in the Teaching of Human Anatomy and Physiology*

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## Practical Labs for Inspired Life Science Instruction

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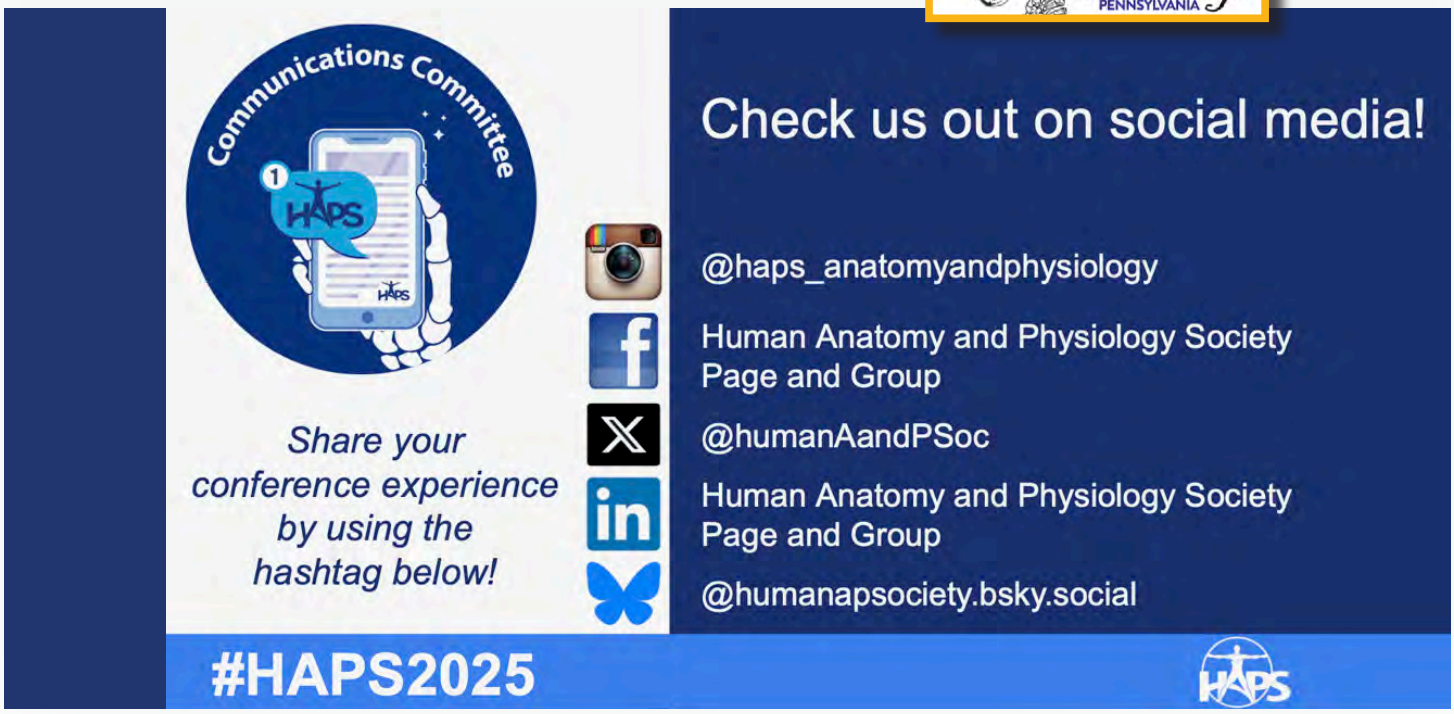


# Welcome to Pittsburgh!

This conference marks my first full year as HAPS Executive Director, though it's my 9th year supporting HAPS. I'm excited to join you all (**yinz** for my local Pittsburgh folk) for another four days of enjoyable, educational, and inspiring learning and community engagement. For my first time attendees – Welcome, we're so happy you're here! Second timers, we're so glad you came back! Long-timers, we appreciate your long-time support! This gathering of HAPSters from across the globe offers a wonderful opportunity for us to connect as faculty, colleagues, and friends. It's also a chance to explore the exceptional programs and products from our partner vendors who support the vital work we do in our classrooms.

We have a fantastic array of opportunities organized by our Conference Planning Committee and its Co-Chairs, Burhan Gharaibeh and Natasha Baker. A big thank you to the committee for their vision and meticulous planning of the Annual Conference. The first two days of the conference will take place at the Wyndham Pittsburgh Downtown and will feature six update speakers and two amazing panels. During breaks between these speakers, you'll have the chance to explore over 100 poster presentations and connect with 35 dedicated exhibitors eager to engage with our members. This is a great opportunity to learn about the latest products and tools that can support your work. In addition, please be sure to check out the Membership Experience Booth in the back of the exhibit hall. This is your chance to meet members of the HAPS Leadership, Committee & Program Chairs, visit members from Black in Anatomy, and win fun prizes! Don't forget to also stop by the HAPS Fundraising Booth and Silent Auction tables. There are always great items up for grabs there!

Finally, I would like to point out a few things that may get lost in the busy schedule. Please consider joining the HAPS Leadership and our members for the Annual General Membership Meeting, open to all members on Friday Morning. The meeting will include an update on all things HAPS, as well as a vote to approve amendments to our Bylaws. We'll also celebrate Award Winners at this event, so expect plenty of positive energy! Additionally, make it a point to attend a committee meeting during the workshop portion of the event – at lunch on Saturday. This is your chance to meet the chairs and existing members of the committee and get involved!

For the workshop portion of the conference, we'll be transitioning to the University of Pittsburgh. With almost 90 workshops spanning a day and a half, you'll have plenty of opportunities to participate in small, interactive sessions that will reignite your passion for teaching Anatomy & Physiology.

To assist with your planning, the 2025 App is once again available for your use. It's an excellent way to connect with fellow attendees, access important information, schedules, and contacts. Be sure to download it to your smartphone or tablet and explore its features! The full conference schedule is in the app, and you can use it to build your personal agenda.

On behalf of the HAPS Leadership and staff, welcome to Pittsburgh! We are so excited to have you here. Please don't hesitate to connect with me in the coming days.

With much appreciation for all you do to advance excellence in education,

Caitlin Hyatt
HAPS Executive Director

CITY OF PITTSBURGH
OFFICE OF THE MAYOR
MAYOR ED GAINEY

May 21, 2025

Human Anatomy & Physiology Society (HAPS)
2025 Annual Conference

Greetings:

As Mayor of Pittsburgh, I am pleased to welcome the Human Anatomy & Physiology Society 2025 Annual Conference to the City. We are confident that it will be a perfect setting for your conference.

I am delighted you chose Pittsburgh to host your conference this year. Pittsburgh has been honored with numerous prestigious national accolades, including being ranked a top U.S. destination by several publications. It is showcased as an urban oasis of parks, bridges, and some of the nation's top arts and culture stops. With a longstanding tradition of exceptional hospitality and outstanding facilities, we are confident that the City of Steel will offer an inspiring and engaging environment for your meeting.

While you are here, I invite you to enjoy all our city offers. I encourage you to visit the August Wilson African American Culture Center, the Andy Warhol Museum, Carnegie Museums of Art and Natural History, and the Phipps Conservatory. I encourage you to visit our diverse neighborhoods and experience authentic food and fascinating drinks. Just a short walk from your conference hotel, the Wyndham Grand Pittsburgh Downtown is the historic Point State Park, the site of two historical forts, and the Monongahela and Duquesne Inclines, where you ascend to the overlooks of Mount Washington for amazing views of the whole city. A short distance from your hotel is also the Mister Rogers Memorial, the Carnegie Science Center, the iconic stadium home of the Pittsburgh Steelers, and PNC Park, home of the Pittsburgh Pirates.

I hope you have an enriching convention experience, fostering connections, gaining valuable insights, and sharing your contributions with fellow scientists and educators.

On behalf of the residents of Pittsburgh, I wish you a successful and enjoyable conference and a memorable time in our city.

Yours in service,

Ed Gainey
Mayor, City of Pittsburgh
Pronouns: He/Him/His

414 GRANT STREET | CITY-COUNTY BUILDING, FIFTH FLOOR | 412 - 255 - 2626

The Human Anatomy & Physiology Society (HAPS) was founded in 1989, after three successful national conferences promoting communication among teachers of human anatomy and physiology at the college level. HAPS is an organization of Human Anatomy & Physiology instructors who strive for excellence in undergraduate instruction in Anatomy & Physiology. Increased growth of the Society necessitated securing an Executive Director and an organizational management firm to assist in the day-to-day administration of HAPS. However, HAPS remains primarily a volunteer organization.

The **Board of Directors** makes the final policy decisions that steer the organization, but most of the work of HAPS is accomplished by the committees. All of these people (including the Conference Planning Committee) are unpaid volunteers. We encourage you to attend the meeting of any committee that interests you so you may discover first-hand how HAPS works and how you can get involved. **Check out page 91 to see when and where the committee meetings will take place during lunch on Saturday.**

## HAPS Board of Directors 2024 – 2025

**President:** Melissa Quinn
**Past President:** Kerry Hull
**President Elect:** Rachel Hopp
**Secretary:** Carol Britson
**Treasurer:** Tracy Ediger
**Central Regional Director:** Hisham Elbatarny
**Eastern Regional Director:** Anya Goldina
**Southern Regional Director:** Cindy Wingert
**Western Regional Director:** Juanita Jellyman

**Executive Director:** Caitlin Hyatt

## Standing Committees 2024 – 2025

**2025 Annual Host Committee Chairs:** Natasha Baker & Burhan Gharaibeh
**Anatomical Donor Stewardship:** Kelsey Stevens
**Awards & Scholarship:** Chasity O'Malley
**Communications:** Caitlin Burns
**Conference:** Beth Eischen
**Curriculum & Instruction:** Abbey Breckling
**Diversity, Equity, and Inclusion:** Jennifer Stokes
**Fundraising:** Stacey Dunham
**Welcoming & Belonging:** Larry Young & Caitlin Hyatt
**Steering Committee:** Larry Young

## Special Committees and Programs 2024 – 2025

**Educator Editor-in-Chief:** Jackie Carnegie
**Exam Program Leads:** Janet Casagrand, Valerie O'Loughlin, Dee Silverthorn
**Executive Committee:** Melissa Quinn
**Finance Committee:** Ron Gerrits
**Nominating Committee:** Rachel Hopp
**Presidents Emeriti Advisory Committee:** Eric Sun

# HAPS Presidents & Conference Coordinators

## Current President

**Melissa Quinn, 2024-2025**

## President-Elect

**Rachel Hopp, 2025-2026**

## Past Presidents

**Kerry Hull, 2023-2024**
**Eric Sun, 2022-2023**
**Kyla Ross, 2021-2022**
**Wendy Riggs, 2020-2021**
**Mark Nielsen, 2019-2020**
**Judi Nath, 2018-2019**
**Ron Gerrits, 2017-2018**
**Terry Thompson, 2016-2017**
**Betsy Ott, 2015-2016**
**Tom Lehman, 2014-2015**
**Valerie O'Loughlin, 2013-2014**
**Dee Silverthorn, 2012-2013**
**Don Kelly, 2011-2012**
**Caryl Tickner, 2010-2011**
**John Waters, 2009-2010**
**Kevin Petti, 2008-2009**
**Margaret Weck, 2007-2008**
**Joseph Griswold, 2006-2007**
**Frederic Martini, 2005-2006**
**Sandra Lewis, 2004-2005**
**Philip Tate, 2003-2004**
**Michael Glasgow, 2002-2003**
**William Perrotti, 2001-2002**
**Henry Ruschin, 2000-2001**
**Christine Martin, 1999-2000**
**Steve Trautwein, 1998-1999**
**Kevin Patton, 1997-1998**
**Karen LaFleur-Stewart, 1996-1997**
**Robert Antony, 1995-1996**
**Wayne Carley, 1994-1995**
**Sandra Grabowski, 1993-1994**
**Gary Johnson, 1992-1993**
**Virginia Rivers, 1991-1992**
**Richard Welton, 1990-1991**
**Richard Steadman, 1989-1990**

## This Year

**2025 – Pittsburgh, PA**
**(Burhan Gharaibeh & Natasha Baker)**

## Coming Attractions

**2026 - Kansas City, KS (Todd Gordon)**
**2027 - Houston, TX (Chad Wayne)**
**2028 - Nashville, TN (Cindy Wingert)**

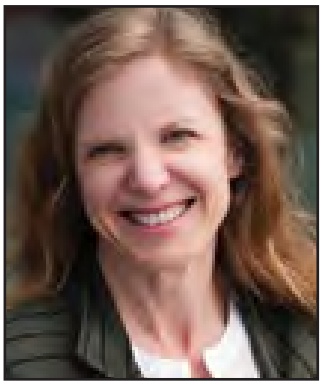
## Previous HAPS Conferences

**2024 – St. Louis, MO (Cinnamon Van Putte)**
**2023 - Albuquerque, NM (Mark Danley)**
**2022 - Fort Lauderdale, FL**
**(Chasity O'Malley and Cheryl Purvis)**
**2021 – Virtual Conference (Melissa Quinn)**
**2020 – Virtual Conference (Jacqueline Carnegie)**
**2019 – Portland, OR (Jacqueline Van Hoomissen)**
**2018 – Columbus, OH**
**(Jennifer Burgoon & Melissa Quinn)**
**2017 – Salt Lake City, UT (Mark Nielsen)**
**2016 – Atlanta, GA (Kyla Ross & Adam Decker)**
**2015 – San Antonio, TX**
**(Anita Moss & Jason LaPres)**
**2014 – Jacksonville, FL (Lourdes Norman)**
**2013 – Las Vegas, NV (Kebret Kebede)**
**2012 – Tulsa, OK (Karen McMahon)**
**2011 – Victoria, BC, Canada (Peggy Hunter)**
**2010 – Denver, CO (Terry Harrison)**
**2009 – Baltimore, MD (Ellen Lathrop-Davis)**
**2008 – New Orleans, LA (Judy Venuti)**
**2007 – San Diego, CA (Kevin Petti)**
**2006 – Austin, TX (Mary Lou Percy)**
**2005 – St. Louis, MO (Margaret Weck)**
**2004 – Calgary, AB, Canada (Izak Paul)**
**2003 – Philadelphia, PA (Lakshmi Atchison)**
**2002 – Phoenix, AZ (Philip Tate)**
**2001 – Maui, HI (Frederic Martini)**
**2000 – Charlotte, NC (Nishi Bryska)**
**1999 – Baltimore, MD (Robert Smoes)**
**1998 – Fort Worth, TX (Theresa Page)**
**1997 – Toronto, ON, Canada (Henry Ruschin)**
**1996 – Portland, OR (John Martin)**
**1995 – St. Louis, MO (Kevin Patton)**
**1994 – Portsmouth, NN (Pam Langley)**
**1993 – Beaumont, TX (Wayne Carley)**
**1992 – San Diego, CA (Shirley Mulcahy)**
**1991 – Greenville, SC (Karen LaFleur-Stewart)**
**1990 – Madison, WI (Gary Johnson)**
**1989 – Reno, NV (Virginia Rivers)**
**1987/1988 – River Grove, IL (Robert Anthony)**

# HAPS Board of Directors

## 2024 - 2025

**President**
***Melissa Quinn***



**Past President**
***Kerry Hull***

**President-Elect**
***Rachel Hopp***

**Secretary**
***Carol Britson***

**Treasurer**
***Tracy Ediger***

**Central Regional Director**
***Hisham Elbatarny***

**Eastern Regional Director**
***Anya Goldina***

**Southern Regional Director**
***Cindy Wingert***

**Western Regional Director**
***Juanita Jellyman***

# HAPS Committees

## 2024 - 2025 Committee Chairs

HAPS uses committees to further the goals and strategic vision of the Society. Each committee has a Chair who leads the committee, and a number of members who help make sure the work gets done. Pick a committee that interests you and come to the meeting at lunch on Saturday, or just find a Committee Chair and ask them what the committee is like. Benefits of HAPS include the welcoming nature of the Society and the inclusive nature of leadership.

### 2025 Annual Host Committee Chairs

Our committee oversees the coordination of the 2025 Annual Conference.

***Natasha Baker***

***Burhan Gharaibeh***

### Anatomical Donor Stewardship Committee

***Kelsey Stevens***

We are charged with developing, reviewing, and recommending policies and procedures on the use of cadavers and human tissues and address issues pertinent to the development and maintenance of cadaver labs.

### Awards & Scholarships Committee

***Chasity O'Malley***

We administer the HAPS Awards & Scholarships Program.

### Communication Committee

***Caitlin Burns***

We facilitate communication within HAPS, as well as outreach to non-members and potential members through various social media outlets.

### Conference Committee

***Beth Eischen***

We actively encourage HAPS members to host an Annual or Regional Conference. We also provide advice and assistance to members who do host a HAPS conference.

### Curriculum & Instruction Committee

***Abbey Breckling***

The C&I Committee is dedicated to enhancing anatomy and physiology education through innovative, research-based resources aligned with the HAPS Learning Goals and Outcomes. With a team of enthusiastic educators and active subcommittees, we aim to support instructors and inspire engaging, effective teaching practices. Join us to see what we're working on next!

# HAPS Committees

## 2024 - 2025 Committee Chairs

### Diversity, Equity, and Inclusion Committee

***Jennifer Stokes***

The Diversity, Equity, and Inclusion committee supports our membership by providing professional development opportunities for HAPS members related to equitable and inclusive teaching of anatomy and physiology, creating and sharing resources for evidence-based best practices in teaching of anatomy and physiology, and fostering a sense of belonging for diverse members of HAPS by advocating for and ensuring inclusive practices within the organization and at HAPS events.

### Fundraising Committee

***Stacey Dunham***

The Committee organizes fundraising activities.

### Welcoming and Belonging Committee

***Larry Young***

***Caitlin Hyatt***

Our goals are:

1. To help to create an environment of inclusion and promote a sense of belonging within the membership.
2. Promote outreach to engage membership throughout the organization.
3. Increase HAPS general membership.
4. Increase active participation of membership.
5. Increase membership retention.

***Many of the committees will meet during the annual conference, as well as present posters with information about their activities and projects. These posters can be found at the Membership Experience booth in the exhibit hall. The annual conference is a great opportunity to learn more about this aspect of HAPS. Come see what we're about!***

# HAPS Programs

## 2024 - 2025 Program Leads

### Executive Committee

***Melissa Quinn***

We are the top administrators of HAPS, setting policies and governing the Society.

### *HAPS Educator*

***Jacqueline Carnegie***

We oversee the peer-reviewed journal of HAPS, the *HAPS Educator*.

### Presidents-Emeriti Advisory Board

***Eric Sun***

### Finance Committee

***Ron Gerrits***

We are responsible for reviewing HAPS' investments, disbursements and financial strategies in all programs and all accounts. Using this information, we make recommendations to the Board.

### Nominating Committee

***Rachel Hopp***

We assemble a list of qualified candidates for election to the HAPS Board of Directors.

### Exam Program

***Valerie O'Loughlin, Dee Silverthorn, & Janet Casagrand***

We develop, maintain and manage the standardized HAPS exams.

# Jan 1-Dec 31, 2024

# Thank You for Your Donation!

## WITH YOUR GIFT, YOU HAVE PLAYED AN IMPORTANT ROLE IN SUSTAINING AND BUILDING OUR HAPS COMMUNITY

**$100,000+**
Martini-Welch Family Donation

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Ken Saladin

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Valerie O'Loughlin
Anonymous
John Martin

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Trisha Waldman
Collective Donors from HAPS Fun Run

**$250+**
Anonymous Donors
Collective Donors from HAPS Yoga
Ron Gerrits

**$100+**

Jackie Carnegie
Tracy Ediger
Carol Veil
Vicky Rands
Melinda Fried
Dreis Van Landuyt
Melanie Kersten
Robert Tallitsch
Dan Spooner
Hiranya Roychowdhury
Anne Geller
Eric Sun
Candi Heimgartner
Wendy Riggs
Karen McMahon
Leslie Worrell
Edgar Meyer
Mary Beth Davison
Larry Young
Kim Martin

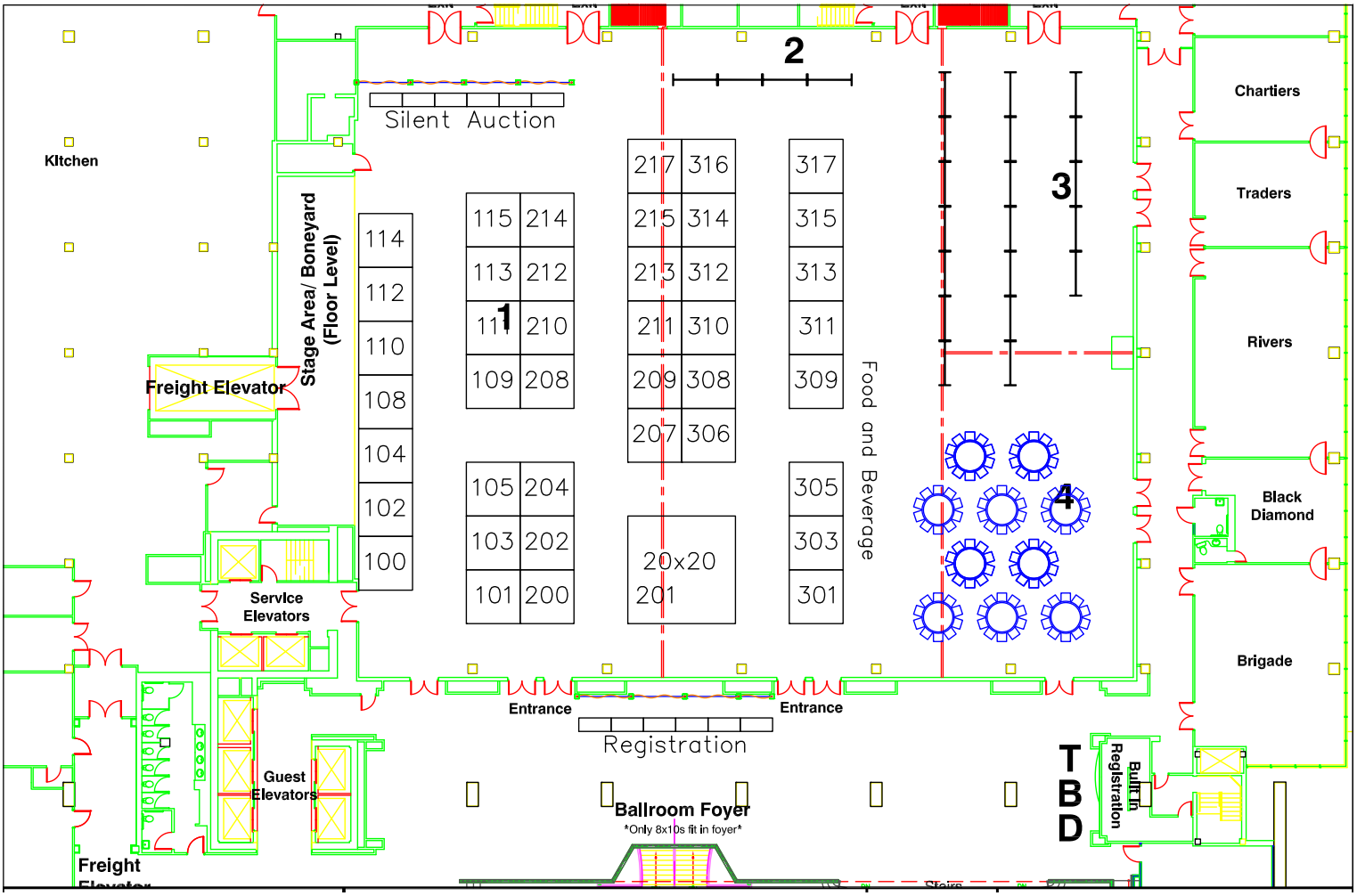
**$50+**

Kim Martin
Mary Schilling
Melissa Quinn
Sandra Clabough
Carol Britson
Brenda del Moral
Danielle Loder
Michael Wood
Tanoya Harris
Jason LaPres'
Nichole Warwick
Mary Lou Percy

**Up to $49**
$766 contributed by 46 donors

HAPS
HUMAN ANATOMY & PHYSIOLOGY SOCIETY

# Exhibitor Space Layout



# HAPS 2025 Exhibitors

= Conference Sponsor

## 3B Scientific.....115

3B Scientific was founded in 1948 in Hamburg, Germany and has grown to be one of the world's leading manufacturers of Science, Medical, and Simulation Education solutions. The product portfolio covers a complete and comprehensive range of equipment for simulation and skill training, anatomy, healthcare and patient education, and is continuously updated with new products and innovations.

Represented in over 120 countries worldwide, the brand name 3B Scientific® stands for best quality, best value, and best service. The mission of 3B Scientific is to advance medical and healthcare delivery through the quality, breadth and global reach of relevant educational and simulation products.

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Tucker, GA 30084
941-233-4974
Nathan.Foxcroft@3bscientific.com

## 3D Organon.....309

3D Organon is a multi-award-winning, AI-driven, multimodal medical XR platform revolutionizing healthcare education and training. Combining highly detailed 3D anatomy models, XR medical imaging, ultrasound simulation, interactive quizzes, and the collaborative Medverse, it delivers an all-in-one immersive learning experience. With the innovative Examverse for advanced assessments and support in 16 languages, 3D Organon ensures global accessibility and the future of medical education.

One World Trade Center, 85th Floor
New York City, NY 10007
+1(510)365-9555
marketing@3dorganon.com

## ADInstruments.....200

At ADInstruments we create simple, flexible tools to help educators engage their students. Our solutions allow students to easily record and analyze their own biosignals!

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## AIBODY ..... 212

AIBODY is on the frontier of human physiology. Our groundbreaking sub-cellular modeling technique is a proprietary approach, delivering real-world application. We create powerful teaching and learning tools for healthcare, which use the combination of AI and our digital physiology platform to tackle key problems in allied health education.

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London, E1W 1NA United Kingdom
919.753.8050
heather.tuttle@aibody.io

## AlensiaXR ..... 314/316

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## Anatomage..... 100/102

Anatomage transforms standard anatomy learning through an ecosystem of 3D anatomy hardware and software by allowing users to visualize anatomy at the highest level of accuracy.

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tracy.tang@anatomage.com

## Anatomic Excellence ..... 109

Anatomic Excellence, LLC is the exclusive full range agent for Dr. Gunther von Hagens Plastinated Human tissue Specimens in the USA, Canada, & Caribbean. We are committed to working with customers to help them establish a collection of ethically procured and prepared specimens that meet the anatomical needs of their program, and enhances learning opportunities for students.

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912 661 8655
graham@anatomicexcellence.com

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## Anatomy in Clay® ..... 105

For nearly 40 years, the ANATOMY IN CLAY® Learning System has helped students master anatomy through hands-on learning. Using clay, students build body systems — layer upon layer — onto our customized human and animal models. Through this kinesthetic learning process, students gain a profound understanding of how the body systems are interconnected in form and function.

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## Biopac ..... 207

Increase student engagement with Biopac Student Lab, an integrated life science teaching solution that includes hardware, software and curriculum materials for undergraduates to record data from human, animal, or soft tissue preparations. Over 65 customizable lessons available in Biopac Student Lab, in use by top universities around the world.

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Goleta, CA 93117
805-685-0066 x151
brendad@biopac.com

## Carolina Science Education ..... 101/103

Carolina offers models and skeletons that provide teachers with the most anatomically accurate and effective teaching aids on the market. The Anatomy and Physiology series from Carolina Distance Learning includes 237 lab investigations covering topics such as cell structure and function, blood typing, and identifying major organs and systems.

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336-538-6231
penny.canady@carolina.com

## Cengage ..... 208

Cengage, the U.S. Higher Education business of global education technology company Cengage Group, serves millions of instructors, learners and institutions. We deliver affordable, high-quality digital products and personalized support to power learning individually and at scale. Our customer-centered approach enables innovation, including Cengage Unlimited, the first and only all-access digital subscription for textbooks and course materials. Our textbooks, homework tools and flagship online learning platforms, MindTap and WebAssign, help educators and students achieve their goals.

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Mason, OH 45040
815-585-1397
jessica.vladimirov@cengage.com

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## CR Model Repair ..... 111

We specialize in restoring and enhancing educational models, ensuring they are functional for enhanced learning.

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847-912-5343
cjrebou@crmodelrepair.com

## Ditki, Medical & Biological Sciences ..... No Booth

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317-640-1779
harris@ditki.com

## Elsevier ..... 301/303

Every day, research and health professionals dedicate themselves to improving outcomes for communities, patients and society at large. Elsevier is committed to quality and innovation to improve the value we deliver to researchers, research leaders, healthcare professionals and educators in an open, inclusive and collaborative manner.

1600 JFK Blvd
Phildalphia, PA 19103
267-582-5257
m.arndt@elsevier.com

## HAPS Fundraising ..... 114

Donations to HAPS are tax-deductible contributions to projects that support professional development programs for A&P teachers that enhance the quality of human A&P instruction. Why donate? Here's just one of many reasons: Your support of HAPS will help fund a deserving graduate student to attend and present at the HAPS Annual Conference. Awards and Scholarships include: HAPS Conference Travel Award, John Martin Second Timers Award, Sam Drogo Technology in the Classroom Award, and the Gail Jenkins Teaching and Mentoring Award.

## HAPS Membership Expericience ..... 110/112

Step into the Membership Experience Area—your hub for connection, engagement, and fun at the conference! Whether you're a long-time member or new to the community, this space is designed to enhance your conference experience. Discover Membership Benefits, spin a wheel and play some games for prizes, and explore committee opportunities. Chat with HAPS Board members and Steering Chairs to share your thoughts and gain insights. Participate in the silent auction and fundraising efforts to help support our initiatives! Stop by, say hello, and make the most of your membership experience!

Additionally, attendees can use this space to meet with another organization who is attending: Black in Anatomy, Inc., which is a 501(c)3 non-profit organization whose mission is to create a safe space to network, uplift, support, and amplify Black contributions to anatomical science.

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## HHMI BioInteractive ..... No Booth

HHMI BioInteractive provides free classroom resources and professional development for life science educators. Visit www.biointeractive.org to learn more.

4000 Jones Bridge Road
Chevy Chase, MD 20815
240-479-1264
robalinoj@hhmi.org

## Holt Anatomical ..... 313

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buy@holtanatomical.com

## iWorx Systems ..... 305

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603-617-2575
judid@iworx.com

## JoVe ..... 213

JoVE is the leading producer of science videos, aiming to enhance scientific research and education. It is used by millions of scientists, educators, and students at universities, hospitals, and biopharmaceutical companies globally for research, teaching, and learning.

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Cambridge, MA 02139
617-945-9051
fernanda.morales@jove.com

## Life-Sized Learning ..... 315

Life-Sized Learning transforms the way you study human anatomy with innovative, interactive learning aids designed to deepen understanding and retention. Our Anatomical Cheat Sheets feature high-quality, life-sized imagery of human anatomical systems, providing a visually immersive and hands-on approach to mastering complex structures. Perfect for students, educators, and professionals, our tools make anatomy education more engaging, efficient, and accessible.

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Gloria@lifesizedlearning.com

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## Macmillan Learning.....108

Macmillan Learning improves lives through learning and strives to inspire students to achieve more. We provide Anatomy & Physiology educators with tailored & customized solutions designed to create curiosity and measure progress in their Lab & Lecture courses. Learn more: http://www.macmillanlearning.com

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New York City, NY 10271
803-414-3060
jeffrey.legrand-douglass@macmillan.com

## MaLa Scientific.....210

Hands on educational models and detailed lesson plans focusing on:

(A) Normal blood cells, blood diseases, and leukemias (US Patent)

(B) Building a model of human skin structure using authors' original color illustrations along with critical thinking questions.

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215-285-0876
info@malascientific.com

## Mcgraw Hill .....201

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michelle.zeal@mheducation.com

## Northeast College of Health Sciences.....202

Northeast College of Health Sciences in Seneca Falls, NY is recognized as a leading institution for the education and training of healthcare professionals, and its graduate and undergraduate programs in area such as chiropractic, applied clinical nutrition, human anatomy & physiology instruction, radiologic technology, diagnostic medical sonography, massage therapy and the health sciences are rooted in a commitment to academic excellence, leadership and professional best practices.

2360 State Rout 89
Seneca Falls, NY 13147
315-568-3065
cpluretti@northeastcollege.edu

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## Nova Southeastern University ..... 113

The Master of Biomedical Sciences (MBS) Program at Nova Southeastern University's Dr. Kiran C. Patel College of Allopathic Medicine (NSU MD) offers a rigorous curriculum designed to strengthen students' academic foundations for medical and other health professions programs. Taught by NSU MD faculty, the program enhances students' competitiveness for advanced healthcare training. Students benefit from a direct linkage to the NSU MD program and guaranteed interview agreements with several highly competitive health professions programs at NSU.

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Davie, FL 33328
9542621198
MBSProgram@nova.edu

## Pearson ..... 310/312

Pearson is a global leader in education, providing innovative solutions to support educators and students. Our Anatomy & Physiology resources in Mastering A&P® include 3D interactive anatomy models, realistic wet lab physiology simulations, and guided learning opportunities to enhance engagement, deepen comprehension, and bring complex concepts to life. Visit our booth to discover how Pearson can elevate your A&P course.

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# Don’t Forget to Attend Our Upcoming Virtual Conference!

**The HAPS Virtual Conference Committee is excited to host a nine-day virtual conference October 11-19, 2025.**

# Join us for the HAPS SILENT AUCTION and 5K AND 1 MILE RUN/WALK

## Sponsored by the HAPS FUNDRAISING Committee!

The *Silent Auction* will open on **Thursday, May 22 in the Exhibit Hall.** You'll have until **6:00 PM** to bid on your favorite item. Items can be paid for at the registration desk (Kings Landing) and picked up in the Exhibit Hall on Friday, May 23 from 8:00 AM until 3:00 PM. Any item not claimed by 3:00 PM will be forfeited and saved for a future Silent Auction event.

The *Run/Walk* is scheduled for **Friday, May 23rd from 7:00 – 8:30 AM.** To register, please visit the HAPS Donation Table in the Exhibit Hall. Once registered, everyone will meet in the lobby of the Hotel and be given a map of the route. The Run/Walk will start and finish at the Hotel.

Additionally, Yoga will be offered at the same time as the Run/Walk, on Friday, May 23rd from 7:00 – 8:30 AM. To register, please visit the HAPS Donation Table in the Exhibit Hall. Once registered, everyone will meet in the Pre-Function Space between Kings Ballroom to participate.

**ALL PROCEEDS FROM THE AUCTION AND RUN/WALK GO TOWARDS SUPPORTING THE EDUCATION AND AWARDS PROGRAMMING OF THE SOCIETY!**

**Donations to HAPS help us provide scholarships to attend Annual Conferences! This year, HAPS awarded 14 scholarships. Eight of these awards (Conference Travel Award) are funded primarily by member donations to HAPS.**

Make sure to visit the HAPS Fundraising Booth in the Exhibit Hall! Help us continue to support our colleagues by making a donation or pledge. No amount is too small (or too large). You can also donate at any time on the HAPS Fundraising webpage (**https://membership.hapsweb.org/page/HAPSFundraising**).

# The Human Anatomy & Physiology Society is happy to announce the following winners of the HAPS Conference Travel Award.

**Katie Curry D.C.** is a professor of Anatomy and Physiology at Montana State University Billings City College for in-person, Hyflex, and online courses. She created the full online course for City College that launched Summer of 2024. The focus of the online course was to provide the benefits of online learning while also maintaining high academic integrity protocols. Please see the poster presentation for more information on her protocols. She focuses on making her online course engaging with additional weekly meetings that occur off site in a "field trip" scenario.

Dr. Curry specializes in dry needling and sports medicine in her private practice. She obtained her doctorate degree in Chiropractic and bachelor's degree in human biology from the University of Western States. She also received a bachelor's degree in animal science from Montana State University Bozeman along with her certificate from the Montana State University Horseshoeing school. She is a fourth-generation farrier. Her other interests include spending time with her daughter and her 4-H activities, artwork, leather tooling, snowboarding, riding horses, Spartan races, and ranch life.

**Poster: Online Academic Integrity**

Online education has the advantage of reaching out to rural areas, providing flexible schedules, and allowing students the opportunity to have an education that may not be viable without the resource of remote learning. The academic integrity of online Anatomy and Physiology courses needs to be evaluated as the transcripts reflect the expected knowledge base. The use of external cameras and placement provides a proctored testing environment that is comparable to in-class learning. Learn about evaluating successful students and finding breaches in academic integrity with this protocol.

**Lori Fetter** has been an anatomy & physiology educator in Ohio's two-year community and technical colleges for the past ten years. She hails from the Philadelphia, Pennsylvania region where her passion for A&P blossomed while pursing a master's degree at Drexel University College of Medicine. She currently resides in Central Ohio and has been an active member of HAPS for several years. Lori enjoys presenting workshops at conferences in regard to best teaching practices in anatomy & physiology. Her involvement in the Community College Anatomy & Physiology Education Research (CAPER) project has allowed Lori to deliver quality evidence-based instructional practices (EBIPS) to increase student engagement, retention, and completion for rising allied health profession students enrolled in these gateway courses. Aside from HAPS, Lori interacts with other pre-health professions educators across the country in her role as a Faculty Partner at Cengage Learning Group. During her free time, Lori enjoys the outdoors with her German Shepherd and seasonal beach trips.

**Workshop: Cellular Respiration Made Simple**

Have your students ever become overwhelmed by the intricate diagrams and verbiage presented by publisher course materials regarding cellular respiration? If you are looking to explore a straightforward, interactive approach to focus students' attention for retention of knowledge necessary to comprehend this complex topic, fear not – you've come to right workshop! This presentation will engage participants in an activity utilizing low-cost materials to untangle the complexities of cellular respiration often encountered by students who are actively studying anatomy and physiology.

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**Tyler R. Hall** is a visiting assistant professor in the Department of Health, Exercise, and Sports Studies at Denison University in Granville, Ohio. He teaches gross anatomy and advanced musculoskeletal anatomy to undergraduate students. He's a recent graduate of the anatomy doctoral program at The Ohio State University in Columbus, Ohio. This is his first time attending the HAPS annual meeting.

**Poster:**
**Just Think About It: Accomplishing Metacognitive Objectives in an Undergraduate Anatomy Class**
Increasingly, anatomy teachers are being asked to help foster skill development in their students, particularly as it relates to learning how to learn. Metacognition may represent an underutilized frontier, as skills such as planning, monitoring, and evaluating are vital tools in the undergraduate students' toolbox. In this study, we aimed to determine the efficacy of implementing metacognitive objectives hierarchically mapped to the cognitive process domains of the revised version of Bloom's taxonomy. More specifically, we desired to see if implementation of activities designed to reach the aforementioned objectives helped students manage the content associated with an undergraduate anatomy class.

**Workshop:**
**You Reap What You Sow: Leveraging Bloom's Taxonomy in an Undergraduate Anatomy Class**
Curricular design is an important responsibility of anatomy and physiology instructors, and learning objectives are at the heart of this process. In this workshop, attendees will explore the knowledge and cognitive process dimensions of the revised version of Bloom's taxonomy to develop their own learning objectives. We will examine how we have implemented learning objectives in our curriculum, resulting in a course whose total points align with both the aforementioned knowledge dimensions and the hierarchical nature of the cognitive process dimensions. We hope that attendees leave with ideas of how to maximize the potential of learning objectives in their courses.

**Carolyn Hess,** a lifelong educator, has taught life sciences in Texas high schools for 25 years. Hoping to expand her knowledge base, Carolyn attended UT Texas at Arlington in 2006. While teaching high school and raising two boys, she completed her MS in Biology in 2008. She has always moonlighted as an adjunct professor and currently teaches online asynchronous Biology and Anatomy & Physiology courses for Keiser University and Southeastern College. She lives in Omaha, Nebraska with her partner and ornery cat.

**Poster:**
**Efficacy vs. Effectiveness in Online Learning: What's Missing?**
Online learning, once limited to the purview of niche institutions and a small minority of learners, has become an alternative learning format offered by many colleges and universities. Since the Pandemic, research has shown online formats can be useful, but discrepancy exists between offline and online learning knowledge acquisition in some subject areas. This review attempts to compile common factors which negatively impact the results of online learning program effectiveness. Suggestions are offered to higher education institutions as to possible program changes which, if implemented, may have a positive effect on the results of their online programs.

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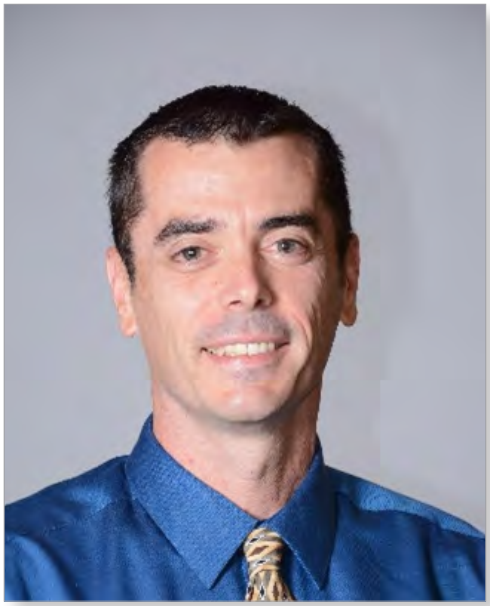

**JP Hyatt** is an associate professor in the College of Integrative Sciences and Arts at Arizona State University where he teaches anatomy and physiology courses at the Downtown Phoenix campus. Dr. Hyatt received his undergraduate and master's degrees in exercise science and his doctorate in molecular, cellular, and integrative physiology. His primary research areas include skeletal muscle adaptation to diet and exercise with a recent focus on mitochondrial plasticity. His secondary research involves science education and pedagogy with current work examining how AI detectors can be used effectively to help instructors for grading and in the classroom. At ASU, Dr. Hyatt teaches Introduction to Anatomy and Physiology (BIO 160) and Human Anatomy I (BIO 201). He has co-authored laboratory manuals for these courses as well as for Human Anatomy II (BIO 202). Prior to ASU, Dr. Hyatt taught for 12 years at Georgetown University.

**Workshop:**
**AI detectors used in aggregate can assist A&P instructors in distinguishing AI- vs. human-written work**
This presentation focuses on a study conducted in A&P I where we collected student-written and AI-generated essays pertaining to plasma membrane structure and function. We assessed the accuracy of human raters/graders and the veracity of AI detectors in identifying the origin of each essay. Human raters and the best-performing AI detectors identified the correct origin of the essays at a similar rate, but AI detectors labeled fewer false-positive (human writing incorrectly labeled as AI) than human raters. We will then show how AI detectors, when used in aggregate, can inform instructors to correct mis-identified false-positives.

**Marian Leal** has taught anatomy and physiology to pre-nursing and pre-professional undergraduate students since 1997. Prior to this time, she was employed as a research scientist in the pharmaceutical industry. Over the course of 27 years, she has been involved in the many aspects of teaching but mostly in the development and coordination of curriculum. She believes that the most important aspect of what she does at Sacred Heart University is to offer A&P courses that are fun and interactive, while providing a foundation for her students that is based on rigor.

**Workshop:**
**Giant Jenga Trivia**
The incorporation of gameplay during class has increased in popularity and has demonstrated pedagogical value. I have found that using interactive activities during long summer classes has led to better student outcomes. I created a group activity using a 4-foot Jenga that is integrated with questions about the human body. The questions are color coded according to the level of difficulty and are linked to Jenga blocks. At first the easier questions can be selected and may allow several blocks to be removed but as competition increases it may be necessary to answer harder questions to avoid toppling the Jenga.

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**Lydia Lytal** is currently an Instructional Assistant Professor in the Department of Biology where she teaches non-majors biology, anatomy and physiology, and microbiology. She loves the challenge of learning new teaching techniques and enjoys supporting other teachers as they learn too. In her free time, she enjoys being outside, playing guitar and piano, and spending time with her husband and two kids.

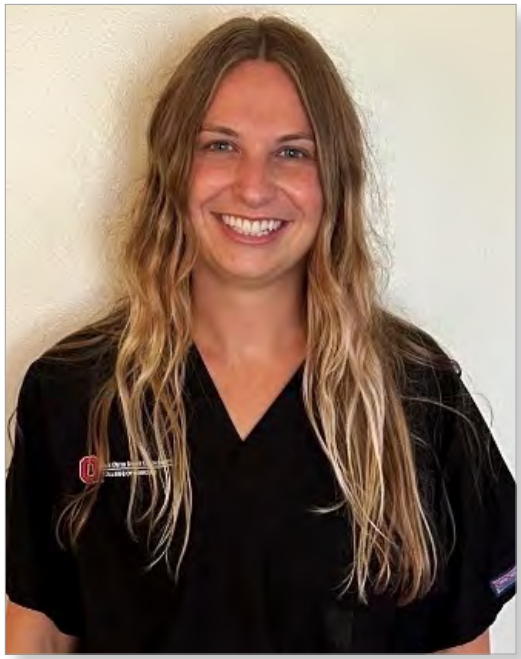
**Workshop:**
**Transform Your Teaching by Redesigning Courses for Active Learning**
Join our interactive workshop where you will learn how TEAL classrooms and collaborative techniques promote student engagement. We are part of an instructional team that is eager to share earned wisdom about redesigning courses focused on active learning. We will discuss the benefits and challenges of teaching in an innovative, student-centered classroom and present real-world examples from our conversion of Human Biology from a lecture-based approach into an active-learning style course. This workshop is perfect for educators looking to elevate their impact and energize learning.

**Luis Rosado** is an Assistant Professor of Biology and the Anatomy & Physiology Program Coordinator at Worcester State University. He has been an active member of the Human Anatomy & Physiology Society (HAPS) since 2021, serving on the Diversity, Equity, and Inclusion (DEI) Committee since 2022. His contributions to HAPS include leading initiatives to increase Hispanic and Latine representation, proposing a partnership between HAPS and SACNAS that others later fully developed, and introducing the *Cafecito* initiative to foster community engagement. At WSU, he is developing a streamlined A&P program assessment protocol to enhance their own program while also providing a practical tool for the broader HAPS community. This travel grant will support his ongoing efforts to advance equity, representation, and program assessment within HAPS.

**Workshop:**
**From start to heart: Measuring what sticks in A&P programs**
Assessing information retention across the two-semester A&P sequence is vital for understanding student success and improving our programs. This workshop highlights using a short 15-question entrance and exit survey tool to evaluate retention of key A&P concepts. Participants will explore trends in student learning, discuss how assessment data informs program changes, and develop additional survey questions tailored to their needs. Through discussions and breakout sessions, attendees will refine their approach to retention assessment and gain practical tools to implement effective strategies at their institutions.

# The Human Anatomy & Physiology Society is happy to announce the following winner of the Sam Drogo Technology in the Classroom Award.

## *This award is sponsored by ADInstruments.*



**Jenna Kuczek** is a 2nd year PhD student at The Ohio State University where she also received her undergraduate and master's degrees. She previously completed two years of medical school, which sparked her interest in teaching and refining curriculums to better integrate textbook knowledge and clinical experiences. Her current PhD focus is the creation and implementation of a clinical anatomy course for undergraduate students at OSU, along with implementing virtual reality labs and simulated surgical labs for her course. Her passion lies in bridging the gap between the classroom and the clinical realm.

**Workshop:**
**Use of virtual reality and 3D anatomy visualization to prepare students for simulated surgery wet lab experiences**

3D visualization and spatial relationships of anatomical structures can be difficult to comprehend, especially for undergraduate students with limited lab time. Early exposure and mastery of these concepts may help improve student confidence and performance later in their career. This workshop outlines the use of virtual reality technology followed by simulated surgical procedures on donors for undergraduate anatomy courses. We will discuss building guided VR and 3D activities, followed by simulated surgery experiences for hands-on learning. Participants will consider their own current laboratory activities and how these techniques can be incorporated to enhance student learning.

**Poster:**
**Investigation of undergraduate student exposure to clinical correlates, clinical experiences, and potential healthcare professions**

This study investigated what undergraduate courses at OSU include clinical components. Clinical exposure may directly relate to the type of healthcare profession students choose for their future career. We investigated different avenues where students gain exposure to healthcare career options, and if students feel confident enough in their background knowledge to choose a profession that is right for them. This study has led us to develop an Undergraduate Clinical Anatomy course to expose students to clinical applications of their anatomy foundation early in their career. We plan to investigate how this course may change or reinforce student career choice.

**About the Sam Drogo Technology in the Classroom Award:**

In September 2010, HAPS lost a great friend. Our colleague Sam Drogo died shortly after doing one of the things he loved the most—teaching a lab full of Anatomy and Physiology students.

Sam's death has left an empty space at Mohawk Valley Community College, his home institution for over three decades. It has also left an empty space in HAPS. Sam was a long-time, devoted HAPS member, an active participant in the development of the HAPS Comprehensive Competency Test, and a consistent proponent of the use of technology in the classroom and laboratory.

In Sam's honor, ADInstruments established the Sam Drogo Technology in the Classroom Award. This is an annual award for a HAPS member who demonstrates the innovative use of technology to engage undergraduates in Human Anatomy and Physiology. The award is intended to encourage recipients to present a workshop at the HAPS Annual Conference on this innovative technology or on the use of technology in the classroom or laboratory.

Sam was a wonderful man. This award is a fitting tribute to him and we look forward to implementing it. Our thanks to ADInstruments for their generosity and our lasting thanks to Sam as colleague, mentor and teacher.

# The Human Anatomy & Physiology Society is happy to announce the following winner of the Gail Jenkins Teaching and Mentoring Award.

***This award is sponsored by Wiley.***

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**Carley J.M. Parkison,** originally from Baltimore, Maryland, is an educator, athletic trainer, and researcher dedicated to advancing healthcare education. She holds a PhD in Health Sciences with a focus on Athletic Training from Rocky Mountain University of Health Professions, an MBA in Healthcare Administration from Plymouth State University, and a Bachelor's in Athletic Training from Delta State University. She has taught anatomy and physiology at the University of South Florida and the State College of Florida, where she integrates flipped labs and hands-on clinical experiences to enhance student learning.

Beyond academia, Dr. Parkison is actively involved in professional service through the National Athletic Trainers' Association, contributing to public relations, social media, sponsorships, and professional development within SEATA and ATAF. Her research focuses on exercise-associated muscle cramps (EAMC) and improving best practices in prevention and treatment.
Now residing in Salt Lake City with her wife MSgt Rachael Parkison, and their dog Gunner, Dr. Parkison remains committed to education and service. She is actively involved in the Junior League of St. Petersburg and Salt Lake, supporting initiatives in education, healthcare, and community outreach. Whether in the classroom or through service, she is dedicated to making a meaningful impact.

**Workshop:**
**Edible Anatomy: Creative Food Projects for A&P Mastery**
This workshop, "Edible Anatomy: Creative Food Projects for A&P Mastery," introduces innovative, food-based activities to tackle challenging Anatomy and Physiology topics. Participants will explore engaging projects such as crafting a skin layer cake, neuron cookies, and edible cell wall models. These hands-on activities simplify complex concepts like integumentary layers, neural communication, and cellular structure, fostering better understanding and retention. Attendees will learn how to design, implement, and assess these creative activities in their own classrooms, promoting collaboration and critical thinking while making learning both fun and memorable for students.

**About the Gail Jenkins Teaching and Mentoring Award:**
Gail was a dynamic and engaging instructor of anatomy & physiology and avid supporter of HAPS and its goals. Her death has left a hole in the hearts of many - her colleagues at Montgomery College, her publishing colleagues at Wiley, her HAPSter colleagues, her family and many friends. Gail loved teaching, and most of all, she loved being able to bring clarity to often difficult concepts for students to grasp. One of her favorite phrases with students was, "Let's ***KISS*** this". It meant - let's ***"Keep it Simple, Sweetie"***. When faced with a challenging concept, Gail would help her students KISS the topic by employing everyday analogies and/or props to visualize or un-pack the information. She provided a simple foundation on which the students could build and remember their newly acquired knowledge. No one got more use out of an old tube of toothpaste, a hot dog, a big red balloon, or a plate of chocolate chip cookies! Her students loved her for it.

In Gail's honor, Wiley publishers in partnership with HAPS has established the Gail Jenkins Teaching and Mentoring Award. This is an annual award for a HAPS member who demonstrates use of engaging learning activities to help students truly understand and retain the more difficult Anatomy and Physiology concepts with kinesthetic and active learning strategies using inexpensive everyday props. The award is also designed to recognize those willing to mentor other instructors to also incorporate active learning to benefit more students.

# The Human Anatomy & Physiology Society is happy to announce the following winners of the John Martin Second Timers Award.

**Gillian Backus, Ph.D.,** is Professor of Biology at Northern Virginia Community College (NOVA) where she teaches Anatomy & Physiology and Biology and serves as department chair for a variety of physical science disciplines. After graduating magna cum laude with a Biology major from Mount Holyoke College (MA), Gillian spent her early teaching career in the high school classroom before getting her Ph.D. at the University of North Carolina-Chapel Hill (NC) in Toxicology. Her dissertation explored the mechanisms underlying differential susceptibility to ozone-induced pulmonary inflammation. Gillian spent time at the intersection of science and policy as a Science and Technology Policy Fellow at the National Academies of Sciences (DC) and as a Toxicologist at the US EPA (DC). She joined the full-time teaching faculty at NOVA in 2009. She attended her first HAPS conference in 2023. There she won a poster award displaying her anatomy and physiology case-study based open educational resource (OER) lab manual (https://pressbooks.nvcc.edu/ap1labmanual/). She is currently an active participant in the third HAPS CAPER cohort where together with other community college educators, she is assessing the role of concept mapping to affect metacognition and student engagement in the A&P classroom.

**Poster:**
**Concept Mapping affects Metacognition in the A&P Classroom**
Undergraduate level Anatomy and Physiology (A&P) is a universally rigorous course with traditionally high failure rates (Higgins-Optiz, 2014). Students who are actively engaged in A&P are more likely to succeed (Vitali et. Al, 2020). This project predicts that students who use concept mapping improve their understanding of the own learning (metacognition). In Fall 2024, A&P students were introduced to concept mapping. Concept mapping was repeated throughout the semester and re-evaluated by survey at the end of the semester. This study evaluates the students' self-assessment of concept maps to improve student engagement in the A&P classroom.

**Karen L. Keller, PhD** is a Professor in the Department of Biology at Frostburg State University (FSU) in Maryland and the Coordinator of the Health Science Program. She earned her doctorate in Physiology from the University of Georgia, College of Veterinary Medicine, where she conducted research in neurophysiology and nutrition. She teaches undergraduate human anatomy and physiology and a combination of undergraduate and graduate level comparative anatomy, histology, and parasitology courses. She is also a member of the National Association of Advisors for the Health Professions, advising students interested in pursuing careers in various health fields and chairs the FSU Health Professions Advisory Committee.

**Poster:**
**The Struggle to Maintain Standards in Human A&P Courses at 4-Year Institutions when Accepting Transfer Courses**

Changes in higher education are pushing institutions to accept transfer courses that may not reach acceptable standards in core health-care related courses, including human anatomy and physiology. There are several reasons for this trend. Students are taking new online courses from institutions that may be unknown to staff responsible for accepting transfer credits. Institutions suffering from decreased enrollments may feel pressured into accepting unvetted courses to attract students. One unique example in Maryland, which passed the "Transfer with Success Act", requires public institutions to accept courses between state institutions if at least 70% of the learning outcomes are equivalent.

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**Monica Montes** is a full-time Lecturer in the Biological Sciences Department at California State Polytechnic University, Pomona (Cal Poly Pomona) and a Biology Adjunct Instructor at Citrus Community College (in the suburbs of Los Angeles). Monica has taught Human Anatomy, Biology for majors & non-majors, lectures and labs, and currently serves as the Human Anatomy lab coordinator at Cal Poly Pomona. Over the past 13 years teaching at the college level, her focus and passion has developed into creating hands-on learning experiences, collaborative learning environments, and engaging lectures to improve student learning and success in Human Anatomy. Outside of the classroom you can find Monica at the ice hockey rink watching her 12-year-old son play. Any time outside of work and sports, she likes to see live music and travel.

**Poster:**

**Small Quizzes vs. Large Exams - Does Size Really Matter?**

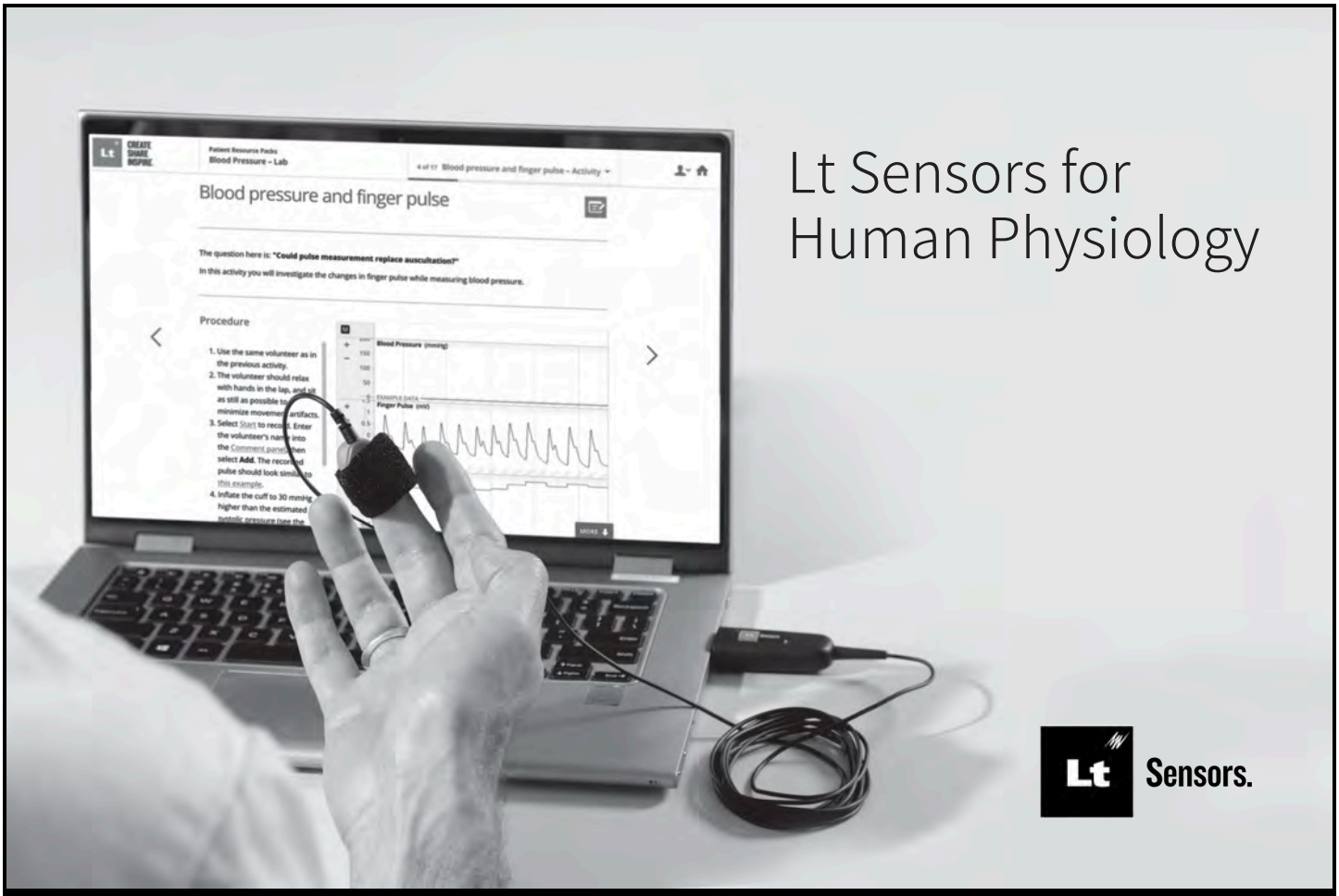
This study explores the impact of frequent, small quizzes versus fewer large exams on student performance in Human Anatomy education. By comparing these two assessment methods, I aim to determine which approach enhances retention, reduces anxiety, and promotes long-term learning. Previous studies suggest that smaller, more frequent quizzes lead to better knowledge retention and increased student engagement, while large exams can cause undue stress and hinder learning outcomes. This might suggest rethinking traditional assessment models, recommending small quizzes as an effective strategy for improving student success in challenging subjects like Human Anatomy.

**Elita Partosoedarso** started teaching Human Anatomy and Physiology in 2003 and never stopped, adding more courses like Pharmacology and Pathophysiology to her resume. She is currently a Senior Teaching Professor at OntarioTech University and frequently teaches classes with over 150 students. Over the years, Dr Partosoedarso has experimented with different teaching and learning strategies such as the flipped classroom model and team based learning. She is also passionate about adopting and creating open education resources, having served on the Board of Directions for the OpenEd conference for the past 3 years. In her spare time, she plays tennis and pickleball, looks after two cute puppies and is fighting a never ending struggle to get her young adult children to move out of the family home.

**Workshop:**

**Team based learning: combining the flipped classroom and cooperative learning on steroids**

Team based learning (TBL), a type of cooperative learning, involves assigning preclass work to cover key concepts so that class time is used to test and extend their understanding. Groups are pre-assigned for the entire duration to promotes a good working relationship and the development of groupwork strategies. Classes are highly structured with a fixed format and ranged from small (18 students) to large (240 students). This built student confidence in their content understanding, especially when applied to case studies and clinical applications. This workshop will focus on TBL structure, tips for effective implementation, group allocation, and marking minimization.

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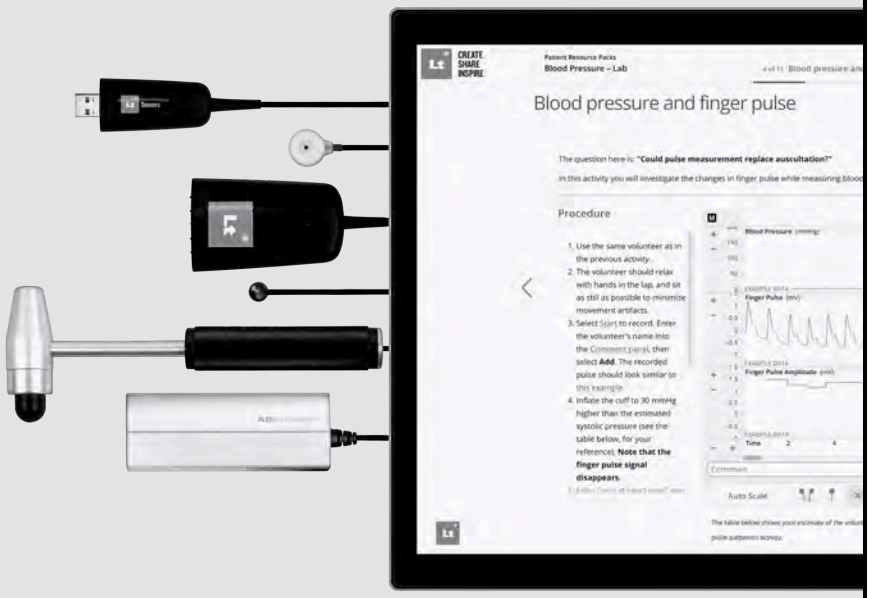


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# HAPS 39th Annual CONFERENCE
# May 21 – 25, 2025
# Schedule of Events

| | |
|---|---|
| ***Wednesday, May 21*** *Wyndham Grand* | |
| **8:00 AM – 5:00 PM** | **Exhibitor Set up: Grand Ballroom** |
| **8:00 AM – 5:00 PM** | **Testing Retreat: Stanwix** *(With lunch 12:30-1:30)* |
| **8:00 AM – 12:00 PM** | **Board of Directors & Steering Committee Joint Meeting: Rivers Room** *(Board of Directors & Steering Committee Only)* |
| **12:00 PM – 1:00 PM** | **Board of Directors and Steering Committee Luncheon: Chartiers Room** *(Board of Directors and Steering Committee Chairs Only)* |
| **1:00 PM – 3:30 PM** | **Board of Directors Meeting: Rivers Room** *(Board of Directors Only)* |
| **1:00 PM – 3:30 PM** | **Steering Committee Meeting: Brigade Room** *(Steering Committee Chairs Only)* |
| **1:00 PM – 6:00 PM** | **Registration: Ballroom Foyer** |
| **5:00 PM – 6:00 PM** | **HAPS BINGO/T-shirt and Book Swaps: Ballroom Foyer 1,2,3** Join the members of the Welcoming & Belonging Committee in some bingo fun before the Opening Reception. During Bingo the fun continues with the book and t-shirt swap where everyone's a winner! |
| **5:30 PM – 7:00 PM** | **Welcome Cocktail Hour: Ballroom Foyer 1,2,3** Light snacks will be provided. Attendees are encouraged to grab dinner on their own afterwards. |
| ***Thursday, May 22*** *Wyndham Grand* | |
| **7:00 AM – 5:00 PM** | **Registration: King's Landing** (closed from 12:00 PM – 1:00 PM) |
| **7:30 AM – 8:30 AM** | **First Timer's Breakfast: King's Garden 2,3** *Sponsored by ADInstruments* |
| **7:30 AM – 8:30 AM** | **Second Timer's Breakfast: King's Garden 1** |
| **7:30 AM – 8:30 AM** | **Continental Breakfast (for all other attendees): Grand Ballroom** |

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| **7:30 AM – 6:15 PM** | **Silent Auction Open: Grand Ballroom** |
| **7:30 AM – 6:15 PM** | **Exhibits: Grand Ballroom**<br>(Exhibits are closed from 12:00 PM - 1:00 PM) |
| **8:30 AM – 9:00 AM** | **Welcome and Opening Remarks: King's Garden 4,5** |
| **9:00 AM – 10:00 AM** | **Update Seminar I: King's Garden 4,5**<br>*Sponsored by HAPS*<br>**Mary Marazita**<br>**"Our Current Understanding of the Etiology of Orofacial Clefts, and How We Got Here"** |
| **10:00 AM – 11:00 AM** | **Refreshment Break & Exhibits: Grand Ballroom & Foyer** |
| **10:00 AM – 11:00 AM** | **Poster Session 1: Grand Ballroom**<br>(Posters for session 1 should be set-up by 9:00 AM and taken down by 12:00 PM) |
| **11:00 AM – 12:00 PM** | **Update Seminar II: King's Garden 4,5**<br>*Sponsored by HAPS*<br>**Kevin Kohl**<br>**"Through the Microbial Looking Glass: How Microbiomes Act as Mediators of Animal Biology"** |
| **12:00 PM – 1:15 PM** | **Lunch on your own**<br>Registration & Exhibits closed from 12:00 PM - 1:00 PM |
| **1:15 PM – 2:15 PM** | **Update Seminar III: King's Garden 4,5**<br>*Sponsored by HAPS*<br>**Dr. Rory Cooper**<br>**"Forging a New Future Participatory Action Design and Engineering Technologies with People with Disabilities"** |
| **2:15 PM – 3:15 PM** | **Refreshment Break & Exhibit: Grand Ballroom & Foyer** |
| **2:15 PM – 3:15 PM** | **Poster Session 2: Grand Ballroom**<br>(Posters for session 2 should be set-up by 1:00 PM and taken down by 4:00 PM) |
| **2:45 PM – 3:15 PM** | **HAPS Fundraising – Chair Yoga: Grand Ballroom**<br>Attendees can participate for a small donation |
| **3:15 PM – 4:15 PM** | **Update Seminar IV: King's Garden 4,5**<br>*Sponsored by HAPS*<br>**Dr. Eric Lagasse**<br>**"Growing a Surrogate Liver"** |
| **4:15 PM – 5:15 PM** | **Update Seminar V: King's Garden 4,5**<br>*Sponsored by HAPS*<br>**Panel: Andre Samuel, David Boone, Pam Cullen, Pilard Hanna, Rebecca Gonda, and Jon Wisco. "The Power of Outreach: Expanding A&P Access and Engagement in Higher Education"** |
| **5:15 PM – 6:15 PM** | **Drinks with Exhibitors: Grand Ballroom & Foyer** |
| **6:00 PM** | **Silent Auction Closes: Grand Ballroom** |
| | **Free Night!** |

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# *Friday, May 23*

*Wyndham Grand*

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| **7:00 AM – 8:30 AM** | **HAPS Fundraising Run/Walk: Foyer of the Wyndham Grand**<br>Pre-registration or onsite registration required. Not included in Conference registration. |
| **7:00 AM – 8:30 AM** | **HAPS Fundraising Yoga: Pre- function space between Kings Ballroom**<br>Pre-registration or onsite registration required. Not included in Conference registration. |
| **7:30 AM – 8:30 AM** | **Continental Breakfast: Grand Ballroom** |
| **7:30 AM – 5:00 PM** | **Exhibits: Grand Ballroom**<br>(Exhibits are closed from 12:00 PM – 1:00 PM) |
| **8:00 AM – 3:00 PM** | **Silent Auction Item Collection & Payment: Ballroom Foyer** |
| **7:00 AM – 5:00 PM** | **Registration: Ballroom Foyer**<br>(Closed from 12:00 PM – 1:00 PM) |
| **8:30 AM – 9:45 AM** | **HAPS Annual General Membership Meeting: King's Garden 4,5** |
| **9:45 AM – 10:45 AM** | **Poster Session 3: Grand Ballroom**<br>(Posters for session 3 should be set-up by 9:00 AM and taken down by 12:00 PM) |
| **9:45 AM – 10:45 AM** | **Refreshment Break & Exhibits: Grand Ballroom & Foyer** |
| **10:45 AM – 11:45 AM** | **Update Seminar VI: King's Garden 4,5**<br>*Sponsored by American Physiology Society*<br>**Terrence Sweeney PHD, FAPS**<br>**"Teaching and Learning Physiology through the use of Physical Models, General Models, and Core Concepts"** |
| **11:45 AM – 1:15 PM** | **Lunch on your own**<br>Registration & Exhibits close for lunch from 12:00 PM-1:00 PM |
| **1:15 PM – 2:15 PM** | **Update Seminar VII: King's Garden 4,5**<br>*Sponsored by HAPS*<br>**Dr. Chandralekha Singh**<br>**"Towards Meaningful Diversity, Equity and Inclusion in STEM Learning Environments"** |
| **2:15 PM – 3:15 PM** | **Poster Session 4: Grand Ballroom**<br>(Posters for session 4 should be set-up by 1:00 PM and taken down by 4:00 PM) |
| **2:15 PM – 3:15 PM** | **Refreshment Break & Exhibits: Grand Ballroom & Foyer** |
| **2:15 PM – 3:15 PM** | **HAPS Cafecito- Grand Ballroom**<br>Come to Cafecito and network with other HAPS faculty. We will have an informal collaboration to share effective teaching strategies that promote student engagement**.** |
| **3:15 PM – 4:15 PM** | **Update Seminar VIII: King's Garden 4,5**<br>*Sponsored by HAPS*<br>**Panel: Caroline Evans, Hisham Elbatarny, Jason Wingert, Karie Suhajda, Monica Graziani**<br>**"A&P Education Now: Engaging Today's Students and Preparing Them for Future Challenges"** |
| **4:15 PM – 5:00 PM** | **Door prizes: Grand Ballroom** |
| **6:00 PM – 7:30 PM** | **HAPS Closing Reception: Ballroom Foyer 1,2,3**<br>Heavy hors d'oeuvres will be provided while attendees network. |

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## *Saturday, May 24*

*University of Pittsburgh*

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|---|---|
| **7:00 AM – 9:00 AM** | **Transportation from Wyndham Grand to University of Pittsburgh** |
| **7:30 AM – 8:30 AM** | **Welcome Breakfast-William Pitt Union** |
| **7:30 AM – 4:45 PM** | **Registration-William Pitt Union** |
| **8:30 AM – 12:00 PM** | **Workshops: Lawrence Hall & Scaife Anatomy Lab**<br>Session A1: 8:30 – 9:30 AM<br>Session A2: 9:45 – 10:45 AM<br>Session A3: 11:00 AM – 12:00 PM |
| **12:00 PM – 1:00 PM** | **Lunch (lunch is provided)**<br><br>**Committee Meetings – 12:00 PM – 1:00 PM**<br>Awards & Scholarship – WPU 539<br>Anatomical Donor Stewardship – WPU Dining Room B<br>Communications – WPU Dining Room C<br>Conference – WPU 542<br>Curriculum & Instruction – WPU 540<br>Diversity, Equity, and Inclusion – WPU Dining Room A<br>Fundraising – WPU 538<br>HAPS Educator - WPU 527 |
| **1:15 PM – 4:45 PM** | **Workshops: Lawrence Hall & Scaife Anatomy Lab**<br>Session A4: 1:15 – 2:15 PM<br>Session A5: 2:30 – 3:30 PM<br>Session A6: 3:45 – 4:45 PM |
| **4:45 PM** | **Bus transportation back to the Wyndham Grand** |

## *Sunday, May 25*

*University of Pittsburgh*

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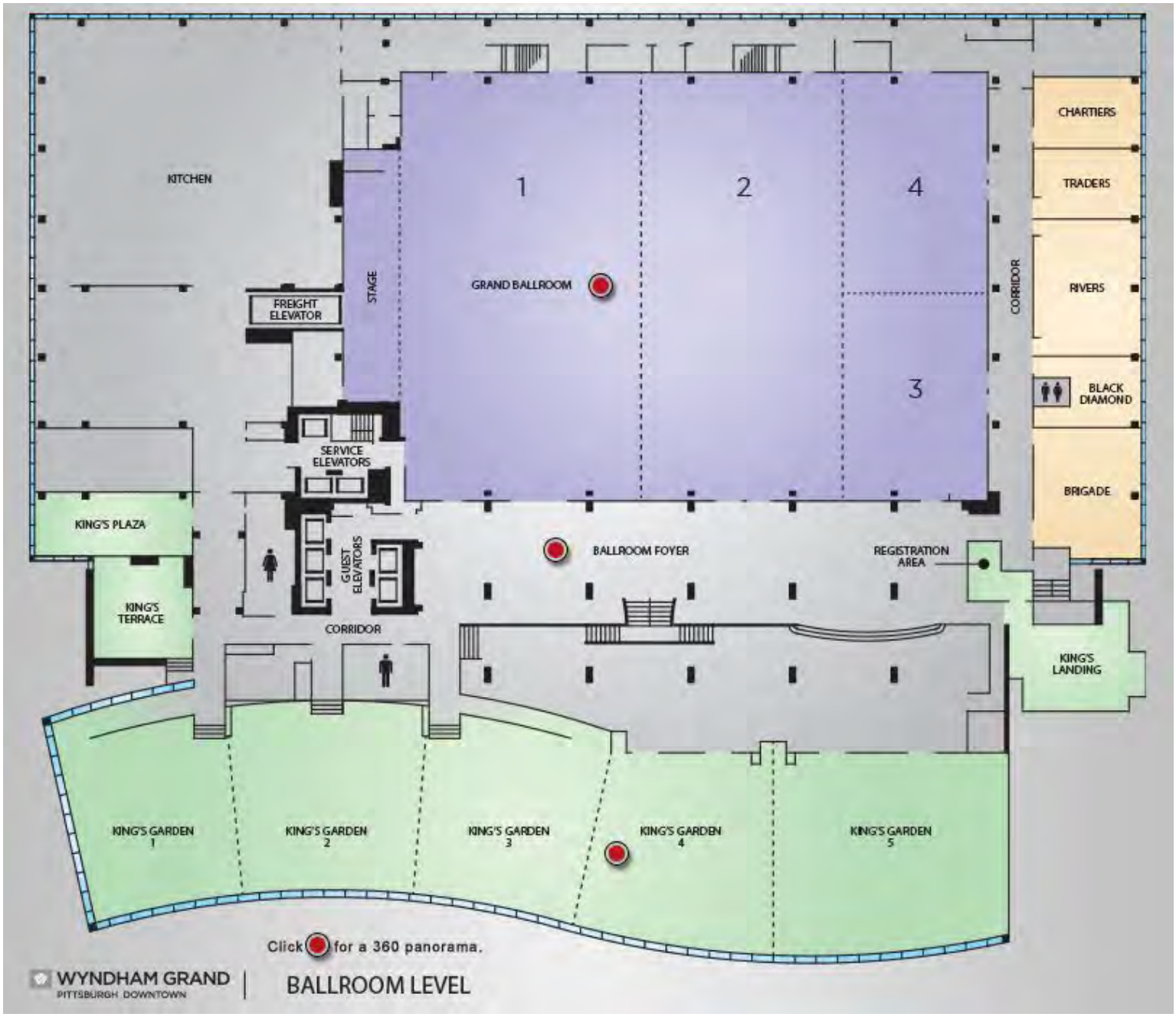
|---|---|
| **7:00 AM – 9:00 AM** | **Transportation from Wyndham Grand to the University of Pittsburgh** |
| **7:30 AM – 8:30 AM** | **Welcome Breakfast-William Pitt Union** |
| **7:30 AM – 12:00 PM** | **Registration-William Pitt Union** |
| **8:30 AM – 12:00 PM** | **Workshops: Lawrence Hall & Scaife Anatomy Lab**<br>Session B1: 8:30 – 9:30 AM<br>Session B2: 9:45 – 10:45 AM<br>Session B3: 11:00 AM – 12:00 PM |
| **12:00 PM – 1:00 PM** | **Lunch (lunch is provided)** |
| **1:00 PM** | **Bus transportation back to the Wyndham Grand** |

# Wyndham Meeting Space Layout



# HAPS 39th Annual Conference Speakers 2025

## Update Seminar I

### Thursday, May 22 from 9:00 AM – 10:00 AM

***Mary Marazita***
*Sponsored by HAPS*

Professor
University of Pittsburgh
Wexford, PA

### *"Our Current Understanding of the Etiology of Orofacial Clefts, and How We Got Here"*

**Abstract:** As common and visible facial anomalies, orofacial clefts (cleft lip and cleft palate) have long been of interest to human populations, leading to a variety of explanations ss to their etiology. The evolution of our understanding of the etiology of orofacial clefts nicely parallels the evolution of human genetics research methods, and of the Human Genome Project in particular. In this talk I will summarize the trajectory of evidence leading to our current understanding of the complex risk factors for orofacial clefts.

**BIO:** Mary L. Marazita, PhD, is a Distinguished Professor of Oral and Craniofacial Sciences in the School of Dental Medicine at the University of Pittsburgh, where she has been a faculty member since 1993. She has more than 500 publications for her research in the genetics of craniofacial birth defects, oral health traits, facial variation and other traits. Further, she has been continuously funded by the NIH since her first grant was awarded in 1985. Her studies have led to collaborations with colleagues across the USA, and in more than 15 other countries, representing all continents except Antarctica.

# NOTES:

# Update Seminar II

## Thursday, May 22 from 11:00 AM – 12:00 PM

### *Kevin Kohl*

*Sponsored by HAPS*

Professor
University of Pittsburgh
Pittsburgh, PA

## *"Through the Microbial Looking Glass: How Microbiomes Act as Mediators of Animal Biology"*

**Abstract:** Over the past decades, there has been a particular expansion in our understanding of the variable and intricate ways in which microbes can influence animal biology. Animal species may display variable reliance on their microbiome, with herbivores relying more heavily on these communities for nutritional needs than carnivores. Heritability of these communities may also vary across animal taxa, depending on birth strategies (live-birth or egg-laying) and the strength of parental care. Comparative approaches offer the power to recognize shared and distinct features of host-microbe interactions across vertebrate taxa to understand how the complexity of life has evolved over time. Moving forward, the field of comparative animal physiology should continue integrating the microbiome, with focus on functional implications of these communities to the physiology, ecology, and evolution of their hosts.

**BIO:** Dr. Kevin Kohl is an "animal-physiologist-at-heart", who uses tools of the microbiome field to understand how these communities impact the physiology, ecology, and evolution of animal hosts. In his previous research, he has studied the nutritional ecology of nestling songbirds. For his PhD in Biology from the University of Utah, he studied wild herbivorous rodents and discovered that their gut microbes allow them to consume toxic plants. Finally, as an NSF postdoctoral fellow he traveled to Argentina to investigate the physiological and microbial adaptations to herbivory in a unique clade of Andean lizards. Now, at the University of Pittsburgh in 2017, his research group investigates various systems to enhance our understanding of the role of host-microbe interactions in animal physiology, ecology, and evolution.

# Notes:

# Update Seminar III

## Thursday, May 22 from 1:15 PM – 2:15 PM

### *Rory Cooper*

*Sponsored by HAPS*

Director and FISA Foundation – Paralyzed Veterans of America
Distinguished Professor
University of Pittsburgh
Pittsburgh, PA

## *"Forging a New Future Participatory Action Design and Engineering Technologies with People with Disabilities"*

**Abstract:** The Human Engineering Research Laboratories (HERL), under the leadership of Dr. Cooper, has been at the forefront of advancing participatory action design and engineering technologies for people with disabilities. HERL is dedicated to empowering individuals with disabilities through the development of cutting-edge assistive devices and accessible technologies. By engaging directly with end-users, the lab incorporates the lived experiences of people with disabilities into the design process, ensuring that the resulting innovations are not only functional but also responsive to their unique needs. Dr. Cooper's pioneering efforts have significantly contributed to breakthroughs in areas such as wheelchair design, smart mobility devices, and robotics, improving quality of life and autonomy for individuals with disabilities.

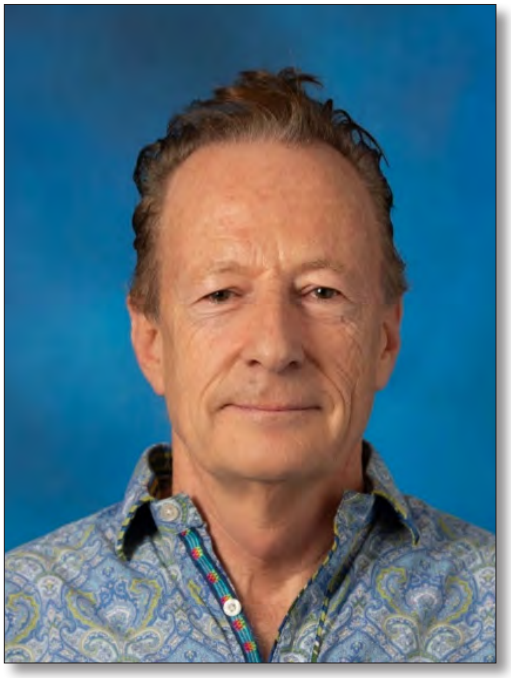
Dr. Cooper's work emphasizes a collaborative approach, where engineers, designers, healthcare professionals, and people with disabilities work in tandem to co-create solutions. His focus on participatory action research fosters a user-centered methodology, ensuring that the technologies developed at HERL are inclusive, practical, and adaptable to a variety of settings. This approach, along with Dr. Cooper's extensive research on accessible interfaces and autonomous systems, is paving the way for a more inclusive future where individuals with disabilities can actively participate in society with greater independence and dignity. Through these advancements, HERL and Dr. Cooper are helping to shape a future where accessibility and inclusion are fundamental aspects of technology development.

**BIO:** National Medal Laureate Rory A. Cooper, PhD, PLY is the founding director of the Human Engineering Research Laboratories, a joint center of the University of Pittsburgh (Pitt) and US Department of Veterans Affairs (VA). He is a VA Senior Research Career Scientist and the FISA Foundation – Paralyzed Veterans of America Distinguished Professor at Pitt. Cooper has authored or co-authored over 400 peer-reviewed journal publications. He has over 30 patents awarded or pending. He is the author of two books: "Rehabilitation Engineering Applied to Mobility and Manipulation" and "Wheelchair Selection and Configuration", and co-editor of "An Introduction to Rehabilitation Engineering", "Warrior Transition Leader: Medical Rehabilitation Handbook" and the award-winning book "Care of the Combat Amputee". Cooper is an elected member of the National Academy of Engineering and Fellow of the National Academy of Inventors, as well as RESNA, IEEE, AIMBE and BMES. In October 2023, he was awarded the National Medal of Technology and Innovation by the President of the United States, and he was inducted into the 50th class of the National Inventors Hall of Fame. His students have won numerous awards and are leaders throughout the world.

# Notes:

# Update Seminar IV

## Thursday, May 22 from 3:15 PM – 4:15 PM



### *Eric Lagasse*

*Sponsored by HAPS*

Professor in the Department of Pathology School of Medicine
University of Pittsburgh
Pittsburgh, PA

## *"Growing a Surrogate Liver"*

**Abstract:** We previously made a serendipitous observation that normal hepatocytes transplanted in the peritoneal cavity migrate into the lymphatic system to develop an ectopic liver capable of rescuing an animal model from a fatal metabolic liver disorder. This observation raised many questions such as where and how hepatocytes were able to engineer in vivo a functional auxiliary liver. Furthermore, its application for patients with end-stage liver disease will be discussed.

**BIO:** Eric Lagasse, PharmD, PhD is a Professor in the Department of Pathology at the University of Pittsburgh, and the Scientific Founder & Chief Science Officer at LyGenesis. Dr. Lagasse earned his Pharmacy Degree from the University Louis Pasteur in Strasbourg, France. Next, Dr. Lagasse worked at Ciba Geigy AG (now Novartis) in Basel while earning his PhD with Summa Cum Laude from the Biozentrum, University of Basel, Switzerland. He completed a postdoctoral fellowship at Stanford University, then joined StemCells Inc as Director of their liver program before accepting a position at the University of Pittsburgh. Dr. Lagasse work has been cited over 13,000 times with issued and pending patents.

# Notes:

# Update Seminar V

## Thursday, May 22 from 4:15 PM – 5:15 PM

### *Panel: David Boone, Pam Cullen, Rebecca Gonda, Pilard Hanna and Andre Samuel*

### *Moderator: Jonathan Wisco*

*Sponsored by HAPS*

### *The Power of Outreach: Expanding A&P Access and Engagement in Higher Education*

**Abstract:** Excellence in A&P education extends beyond the classroom. Some of us would love to give students early exposure to upper-level classes and A&P-related careers. Meanwhile, some of us encounter students walking into our classrooms with negative preconceived notions of A&P and how they will perform. Even more concerning, some students avoid A&P altogether, assuming it is beyond their capabilities – without ever having the opportunity to explore it. How can we allow these students to give A&P a chance or view it through a new lens? Outreach programs help bridge the gap between the now and the potential future for many students, and they've been working well in A&P and other fields. In this panel discussion, hear about the experiences and viewpoints of individuals who are championing outreach in different ways. How can you help? What works? What do you need? How could you get your own outreach program started? What resources and support do educators need? And ultimately, how does outreach contribute to excellence in A&P education? We invite you to join this conversation and discover how you can contribute to the expansion of A&P outreach!

**Bio: David Boone** is faculty in the Department of Biomedical Informatics in the School of Medicine at the University of Pittsburgh. His research centers on the role of lncRNAs in breast cancer initiation and development. He is committed to providing pathways for underrepresented youth into research fields by facilitating authentic research experiences under the mentorship of University of Pittsburgh faculty. He is the Director of the NCI R25 and Doris Duke Charitable Foundation supported Hillman Academy and has also directed a federally funded program for undergraduates. He is also a PI on an NSF Includes Alliance that created and studies a networked improvement community of ~40 precollege STEM programs across the country focused on educational equity in STEM.

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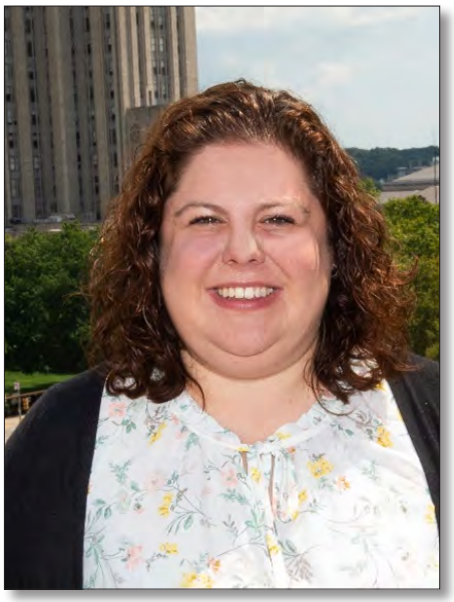
**Bio: Pam Cullen** has been a middle school and secondary science teacher for the past 18 years. Currently, she is the STEM Coordinator at Greensburg Central Catholic and in this role, is responsible for developing, coordinating, and teaching co-curricular and extra-curricular STEM programming for students in grades 7-12. Pam is an advisor and collaborator to teachers, and enjoys creating effective STEM learning experiences for students across all grade levels.



**Bio: Dr. Becky Gonda** is a Teaching Associate Professor and the Director of Outreach for the Department of Biological Sciences at the University of Pittsburgh. She earned her Ph.D. in Molecular, Cellular, and Developmental Biology at Pitt before beginning her career in Outreach in 2011. Throughout her time in Outreach, Dr. Gonda has held various roles to support students and teachers, bridging the gap between the research community and the K-12 community. These include developing and implementing hands-on, inquiry-driven curricula, hosting teacher professional development workshops, providing in-classroom support for teachers, collaborating with partners across the region, and directing the high school research program Gene Team.

**Bio: Dr. Pilard Hanna** is an Assistant Professor of Anatomy at The Ohio State University College of Medicine and Director of the Anatomy Outreach Program. With over six years of experience, Dr. Pilard Hanna teaches anatomical sciences to health professionals, graduates, and undergraduate students, with a current focus on dental anatomy education. She is dedicated to advancing anatomical education both in the classroom and through community outreach

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**Bio: Andre Samuel,** a long-time resident of Washington, DC, graduated from the University of the District of Columbia with a degree in Biology. Following a career in vaccine research and graduate study and at the George Washington University in Genomics and Bioinformatics, he received his PhD in Biology from Duquesne University. At Duquesne, his research focused on studying the structure and function of the cold shock related proteins in E. coli.

As a Ph.D. candidate, Dr. Samuel founded the S.I.G.M.A Science Mentorship Initiative, a summer study program designed to introduce diverse ninth graders to the University's lab with the long-term goal of encouraging the pursuit of careers in scientific research this was the seed that would soon grow into The Citizen Science Lab. Dr. Samuel's research experience includes studying toxicology and carcinogenicity effects of novel drugs, hookworm vaccine development and tuberculosis reactivation in non-human primates.

Dr. Samuel has a passion for STEM education and life science research. He believes that creating fun engaging and hands-on lab experiences for people is the best pathway to an interest in STEM.

Dr. Samuel also has a passion for community service. He has served as Lead for the Remake Learning STE(A)M Working Group and currently serves on the board of directors for the Phipps Conservatory and Botanical Gardens and The CCAC Educational Foundation.

**Moderator:**

**Bio: Dr. Jonathan J. Wisco** is Associate Professor at Boston University Aram V. Chobanian & Edward Avedisian School of Medicine, Department of Anatomy and Neurobiology. He is co-Director for the preclinical curriculum, Principles Integrating Science, Clinical Medicine and Equity (PISCEs); and Director of the Laboratory for Translational Anatomy of Degenerative Diseases and Developmental Disorders (TAD4). Dr. Wisco is interested in the histological validation of innovative imaging of anatomic pathologies, functional activation of the brain during active learning, and the educational scholarship of teaching and learning, notably on the topics of curriculum design, faculty development, learning tools innovation, service-learning, and inclusive learning environments. He directs the non-profit organizations Better Learning Experiences, which provides underserved faculty development for K-12, community college, and undergraduate university instructors; and Anatomy Academy, which teaches anatomy, physiology and nutrition concepts to underserved elementary school children as an effort to promote healthy lifestyles through educational intervention, and to inspire kids to pursue science as a career. Dr. Wisco is currently the Treasurer for the Association of STEMM Pathways and Bridge Programs, and an organization established to provide solidarity to faculty interested in the development, implementation, scalability and scholarship of programs that provide equitable access to STEMM careers.

# Notes:

# Update Seminar VI

## Friday, May 23 from 10:45 AM – 11:45 AM

### *Terrence Sweeney*

*Sponsored by the American Physiology Society*

Professor
University of Scranton
Scranton, PA

## *"Teaching and Learning Physiology through the use of Physical Models, General Models, and Core Concepts"*

**Abstract:** An increasingly broad collection of physiology educators have begun to embrace the employment of a core concepts approach to the teaching and learning of physiology. That said, much work remains in establishing classroom practices that promote these efforts and increase student adoption an integrative, core concepts approach. Modell made clear in his seminar paper (Adv. Physiol. Educ. 23: 101-107, 2000) that student construction of general models can help promote their adoption of a conceptual approach to learning. Classroom active learning exercises will be described that utilize simple physical models to help students generate general models that they can apply to a broad range of physiological phenomena. Followup written assignment can help students cement their new approach as they link several core concepts to promote understanding of bigger ideas in physiology. The goals of the exercises are to help students understand the crossover of these concepts, to help them discover multiple applications of the same concept, to compare and contrast applications that fit a general model, and to developed a more unified understanding of related physiological phenomena.

**BIO:** Terrence E. Sweeney, PhD, FAPS is Professor of Biology and Physiology Program Director at The University of Scranton, a primarily undergraduate institution and one of the twenty-seven American Jesuit colleges and universities. He joined the Biology faculty in 1992 and served as Chair of the department from 2014 to 2020. Sweeney earned his B.A. in Chemistry and Physics from Colgate University and his M.S. and Ph.D in Biophysics from the University of Rochester. His research focused for many years on microvascular control in skeletal muscle, the testis and the ovary, but more recently has shifted to the design, development and implementation of a mechanical model of the cardiovascular system for the purpose of teaching cardiovascular hemodynamics. He holds two patents: for the cardiovascular model, for which he was awarded the 2012 APS ADInstruments Macknight Progressive Educator Award; and for the Sweeney Arterial Demonstration Device, which illustrates the beneficial effects of elastic arteries. As Biology Chair, Dr. Sweeney spearheaded the development of a Bachelors program in Physiology, which he continues to lead. Sweeney has designed and delivered a wealth of undergraduate courses, including Cellular & Integrative Physiology lecture and laboratory, Endocrinology & Reproduction, Core Concepts in Physiology, Experimental Approaches in Physiology, Cardiovascular Physiology, and Extreme Physiology, a unique human performance travel course that exploits the diverse environments of Arizona to teach student subjects about physiological adaptation to extreme environmental and aerobic challenges. An APS member for over thirty years, Sweeney served as co-convener of the task force that established in 2022 the APS Center for Physiology Education (CPE). He will complete his three-year term as inaugural Chair of the CPE Advisory Board this spring.

# Notes:

# Update Seminar VII

## Friday, May 23 from 1:15 PM – 2:15 PM

### *Chandralekha Singh*

*Sponsored by HAPS*

Professor
University of Pittsburgh
Pittsburgh, PA

## *"Towards Meaningful Diversity, Equity and Inclusion in STEM Learning Environments"*

**Abstract:** Inequitable outcomes in science, technology, engineering, and math (STEM) courses point to systemic inequities in higher education for students from historically disadvantaged backgrounds. Investigations focusing on inequities and strategies to make the learning environments equitable and inclusive can be invaluable for others interested in promoting and supporting equity and inclusion in STEM teaching and learning. I will first discuss our studies pointing to inequities in STEM course outcomes. I will then discuss how ecological belonging interventions can be adapted and implemented in science classes to make them more equitable and inclusive. These types of interventions are short even though they have the potential to impact student outcomes significantly—especially for marginalized students in STEM classes.

**BIO:** Chandralekha Singh is a Distinguished Professor of Physics in the Department of Physics and Astronomy and the Founding Director of the Discipline-based Science Education Research Center (dB-SERC) at the University of Pittsburgh. She is a Past President of the American Association of Physics Teachers. She obtained her bachelor's and master's degrees from the Indian Institute of Technology Kharagpur and her Ph.D. in theoretical condensed matter physics from the University of California Santa Barbara. She was a postdoctoral fellow at the University of Illinois Urbana Champaign, before joining the University of Pittsburgh. She co-led the US team to the International Conference on Women in Physics in Birmingham UK in 2017. She is a Fellow of the American Physical Society, American Association for the Advancement of Science and American Association of Physics Teachers. More information about her can be found at https://sites.google.com/site/professorsinghswebpage/

# Notes:

# Update Seminar VIII

## Friday, May 23 from 4:15 PM – 5:15 PM

### *Panel: Hisham Elbatarny, Caroline Evans, Monica Graziani, Karie Suhajda, and Jason Wingert*

### *Moderator: Anya Goldina*

*Sponsored by HAPS*

## *A&P Education Now: Engaging Today's Students and Preparing Them for Future Challenges*

**Abstract:** The mission of the Human Anatomy and Physiology Society is to promote excellence in the teaching of anatomy and physiology. As A&P educators we encounter ever-changing challenges and opportunities during the pursuit of excellence in our teaching. Questions big and small populate our minds and the HAPS-L listserv every day. What do students retain after they leave our classrooms and continue their education? What do they continue to struggle with? What needs will our future students have and how will they prefer to learn? What resources are best for students learning A&P on a budget? How can we train our students to be adept users of information sources in the age of AI? How can we incorporate innovations in science and medicine into our classrooms? In this panel discussion, we'll have a conversation about current opportunities and challenges in A&P education. Our panelists, representing A&P educators from high school to graduate programs, will share their insights and experiences. We invite you to join this dynamic discussion on the evolving landscape of A&P education!

**Bio: Dr. Hisham Elbatarny** is a physician, educator, researcher, and author. He received his medical degrees in Egypt, completed his clinical research fellowship at Southampton University Hospital, UK. Dr. Elbatarny continued his research work as a postdoctoral fellow at Queen's University in Kingston, ON, Canada. His area of research interest was cardiovascular biology. He is currently a professor and tri-campus science lead at the BScN Program at St. Lawrence College and associate professor in the School of Health Sciences at Queen's University. He teaches Anatomy, Physiology, Biomedical Chemistry, Pharmacology, and Pathophysiology. He is the founder of the Human Anatomy Museum at St. Lawrence College. He received a number of teaching awards on Academic excellence and Professionalism. His current educational research focuses on various pedagogical tools and their role in engaging students' and enhancing teaching and learning. He has been an active member of HAPS since 2014 and is currently the Central Region Director.

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**Bio: Professor Caroline Evans** currently teaches Anatomy and Physiology 1 & 2 at the Community College of Allegheny County, where she has developed open educational resources for laboratory curricula emphasizing hands-on learning and clinical applications. Before joining CCAC, she conducted research on cardiovascular dynamics at the University of Pittsburgh where she worked on a variety of projects and trained numerous undergraduate students how to properly conduct laboratory research. She is now actively involved in guiding students to careers in healthcare, helping build foundational knowledge about the human body necessary for success in upstream academic courses. Working at CCAC is highly rewarding and students are dedicated to their studies, making her job as an instructor both fulfilling and impactful. Professor Evans is passionate about sharing effective teaching strategies and looks forward to exchanging ideas with fellow anatomy and physiology educators at the HAPS conference.

**Bio: Monica Graziani** teaches honors anatomy & physiology (for college in high school credits), forensics, and biotechnology at Franklin Regional High School. She is also an adjunct professor at Duquesne University, teaching biology. Before becoming an educator, Monica worked in the biotechnology industry as a cell and molecular biology laboratory technician and research scientist for the CDC (NIOSH), the University of Washington Department of Biochemistry & Medicine, and the private sector. Her scientific research interests included lung diseases caused by workplace hazards, and her pedagogical research focused on increasing student engagement in STEM using a phenomena-based curriculum. She has a BA in Biology, an MS in Occupational Safety & Health, an MA in Teaching, and an EdD in STEM Education from the University of Pittsburgh.

**Bio: Karie Suhajda** is an experienced educator and instructional leader with a passion for science education. She currently serves as an Instructional Team Leader, supporting teachers in implementing engaging, phenomenon-driven instruction. With a strong background in AP Biology, AP Environmental Science, forensic science, and Anatomy and Physiology—particularly focusing on physiological processes—she designs curriculum that fosters critical thinking and scientific inquiry. Karie also mentors student interns and leads professional development sessions to enhance teaching practices. She enjoys incorporating microbiology into her lessons, particularly through studies of Pseudomonas fluorescens and its ecological interactions. Outside the classroom, she finds relaxation in nature, camping, and spending time near water.

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**Bio: Jason Wingert Ph.D., P.T.**, is a professor of Health Sciences at the University of North Carolina Asheville. He earned his PhD in Movement Science and completed post-doctoral training in Neuroscience at Washington University in St. Louis. Dr. Wingert's clinical experiences as a pediatric physical therapist informed his research, which has quantified sensory deficits in young people with cerebral palsy and related those sensory changes to specific central nervous system abnormalities using functional magnetic resonance imaging (fMRI). Dr. Wingert has received several awards for his teaching and research, including the UNC Asheville award for excellence in teaching in the social sciences and the Young Investigator award from the Child Neurology Society for his research. Dr. Wingert directs UNC Asheville's Sensorimotor Laboratory, where he and his team recently completed a large clinical research study on balance, proprioception, and aging. Most recently, Dr. Wingert has been investigating the cognitive factors underlying the challenges to learning about evolution.

**Moderator:**

**Bio: Anya Goldina** received her degrees from Florida International University in Behavioral Endocrinology and is an Associate Professor of Biology at Elizabethtown College, in Pennsylvania. She teaches undergraduate and graduate level courses in Anatomy, Physiology, and Behavioral Endocrinology. Anya is passionate about working with students from various majors and diverse backgrounds to develop classes that are challenging, engaging, relevant, and integrate the full range of human experience. Anya serves as the East Regional Director of HAPS.

# Notes:

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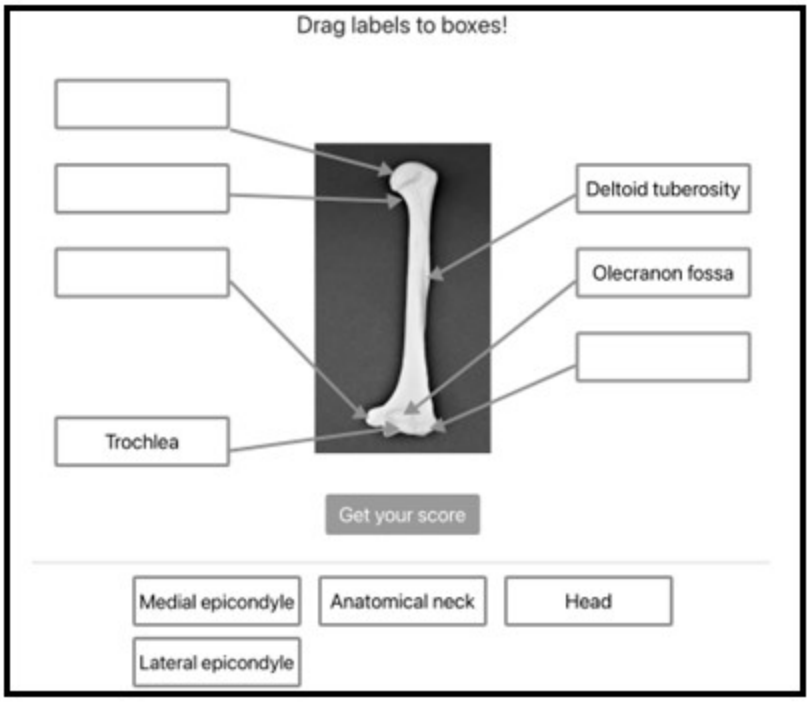


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# HAPS Committee Posters

*You can find these at the membership experience booth throughout Thursday and Friday.*

**Getting to Know ADS**

**Jeremy Grachan, Rutgers New Jersey Medical School, jg1916@njms.rutgers.edu**
**Co-Authors: Kesley Stevens, Briar Cliff University, kelsey.stevens@briarcliff.edu, Abbey Breckling, University of Chicago at Illinois, abreck2@uic.edu, Bobbie Leeper, Seton Hill University, bleeper@setonhill.edu**

The Anatomical Donor Stewardship (ADS) committee is committed to helping HAPS members learn best practices for dissection, gross anatomy lab design, gross anatomy education, and human body donor stewardship. ADS has a number of members who actively participate in Coaching and Mentorship, Ethics, and Laboratory Resource subcommittees. These groups regularly contribute useful surveys, workshops, town halls, and posters that provide the HAPS membership with current practices in gross anatomy practices. This poster will highlight current ADS projects and inform HAPS members about upcoming opportunities.

**Respectful Exposure: Institutional Imaging Practices of Human Body Donors**

**Bobbie Leeper, Seton Hill University, bleeper@setonhill.edu**

**Co-Authors: Rhiannon Robinson, Boston University Aram V. Chobanian & Avedisian School of Medicine, rerbnsn@bu.edu, Kelsey Stevens, Briar Cliff University, kelsey.stevens@briarcliff.edu, Jeremy Grachan, Rutgers New Jersey Medical School, jg1916@njms.rutgers.edu, Danielle Edwards, University of Alabama at Birmingham Heersink School of Medicine, dned222@uab.edu**

Imaging practices of donors across institutions in the United States are highly varied. To characterize institutional approaches to imaging donors, the HAPS Anatomical Donor Stewardship Ethics Subcommittee surveyed anatomists on their donor programs and imaging practices. Of the 70 responses, 24% took photos for use in education and 21% for research, while 48% did not take photos. Only 27% took videos. Institutional regulations limited imaging at 76% of institutions, while 21% were prohibited by institutional regulations. This survey confirmed the variety of institutional guidelines with imaging of donors and suggests efforts into a more unified approach is needed.

**Honoring Our Greatest Anatomical Gifts: Best Practices for Human Body Donor Memorial Ceremonies**

**Bobbie Leeper, Seton Hill University, bleeper@setonhill.edu**

**Co-Authors: Rhiannon Robinson, Boston University Aram V. Chobanian & Avedisian School of Medicine, rerbnsn@bu.edu, Lacy Cleveland, Colorado Christian University, lcleveland@ccu.edu, Danielle Edwards, University of Alabama at Birmingham Heersink School of Medicine, dned222@usb.edu, Nicole Geske, Michigan State University, geskenic@msu.edu, Jeremy Grachan, Rutgers New Jersey Medical School, jg1916@njms.rutgers.edu, Jacqueline Phillips, Drexel University, jp3959@drexel.edu, J.P. Swigart, Carle Illinois College of Medicine, swigart@illinois.edu, Melissa Thompson, Louisiana State University, melissathompson@lsu.edu, Trisha Waldman, University of Mary, tawaldman@umary.edu, Jonathan Wisco, Boston University Aram V. Chobanian & Avedisian School of Medicine, jjwisco@bu.edu, Kelsey Stevens, Briar Cliff University, kelsey.stevens@briarcliff.edu**

Holding a memorial ceremony for human body donors has many benefits. Ceremonies provide donors with the respect and honor that they deserve for their gift, but also assist in fostering empathy in students and provide them a means for closure after an anatomy course. The Anatomical Donor Stewardship (ADS) Ethics Subcommittee will present best-practice guidelines and tips for implementing donor memorial ceremonies to assist in the planning process. Topics covered include: how best to involve donor families, students and faculty; designing invitations and programs; hosting a reception; readings and music; religious involvement; and service components such as candles and flowers.

**Connecting the Dots: The Core Concepts of Human Anatomy and Physiology**
**James Clark, Chamberlain University, College of Nursing, clark.je2@gmail.com**
**Co-Authors: Abbey Breckling, University of Illinois at Chicago, College of Medicine, abreck2@uic.edu, Chris Kule, Pennsylvania College of Technology (Williamsport, PA), ckule@pct.edu, Cheryl Hill, University of Missouri, hillche@umsystem.edu, Chinenye Anako, Creighton University, College of Medicine, ccanako@gmail.com, Beth Eischen, Hamilton College, beischen@hamilton.edu, Krista Rompolski, College Board-AP C&I, Krompolski@collegeboard.org, Staci Johnston, Southern Wesleyan Univeristy, sjohnson@swu.edu, Rachel Hopp, University of Louisville, rachel.hopp@louisville.edu**

The Human Anatomy and Physiology Society (HAPS) has long-identified the need for a set of core concepts for A&P educators. To address this need, the HAPS Curriculum & Instruction Committee, in collaboration with the Exam Committee, have created Core Concepts for Human Anatomy and Physiology. The intent of the Core Concepts is to project unifying themes woven throughout A&P education, offering educators a framework for undergraduate curricula that makes learning and application of A&P knowledge more attainable. This poster offers attendees an opportunity to review and engage with these newly developed HAPS Core Concepts.

**Unlocking Accessibility: Enhancing Anatomy & Physiology Lab Experiences with Student Accommodation Resources**
**Jennifer Stokes, Southwestern University, stokesj@southwestern.edu**
**Co-Authors: Heather Armbruster, Southern Union State Community College, harmbruster@suscc.edu, James Clark, Chamberlain University, College of Nursing, James.Clark@chamberlain.edu Pat Clark, Indiana University Indianapolis, patclark@iu.edu, Youlonda FitzGerald, Texas Women's University, yfitzgerald@twu.edu, Rachel Hopp, University of Louisville, rachel.hopp@louisville.edu, Jenna Jarvis, State College of Florida, jarvisj@scf.edu, J.P. Swigart, Carle Illinois College of Medicine, swigart@illinois.edu, Diane Tice, SUNY Morrisville, ticedg@morrisville.edu, Margaret Weck, University of Health Sci. and Pharm. (ret.), mweck602@gmail.com, Abbey Breckling, University of Illinois at Chicago, abreck2@uic.edu**

The HAPS Curriculum and Instruction Accommodations Subcommittee has transformed previous workshops, town halls, and surveys into a compiled handbook providing suggestions for meeting student accommodations in anatomy and physiology laboratories. This poster highlights where to find this HAPS resource and requests collaboration and feedback from conference attendees as we near the next edition in 2029! Our goal of this outreach is to reveal how instructors can use and share the handbook at varying institutions.

**The HAPS Diversity, Equity, and Inclusion Committee: A Community for YOU!**
**Jennifer Stokes, Southwestern University, stokesj@southwestern.edu**

The Diversity, Equity, and Inclusion (DEI) committee is a community of educators committed to creating spaces of belonging and accessibility for all, through embracing diversity and promoting equity and inclusion. To support this we produce and promote professional development opportunities, share evidence-based A&P teaching resources, and advocate for and ensure inclusive practices within the organization and at HAPS events. We invite you to stop by the DEI committee poster to learn more about our community and opportunities for involvement!

**Everything You Wanted to Know about Publishing in the HAPS Educator.**
**Jacqueline Carnegie, University of Ottawa, jcarnegie@hapsconnect.org**
**Co-Author: Brenda del Moral, Edgewood College, bdelmoral@edgewood.edu; Carol Britson, University of Mississippi, cbritson@olemiss.edu; Tracy Ediger, Georgia State University, tediger@gsu.edu; Elizabeth Granier, St. Louis Community College, egranier@stlcc.edu; Joanne Savory, University of Ottawa, joanne.savory@uottawa.ca; Hisham Elbatarny, St. Lawrence College & Queen's University, helbatarny@sl.on.ca**

Have you recently tried out a teaching innovation inside or outside the classroom and perhaps collected student feedback? Are you conducting educational research or are you interested in writing a literature update on a topic pertaining to anatomy and/or physiology education? We want to hear from you! This poster describes the three categories of HAPS Educator articles and provides guidance on the submission and review processes that can lead to manuscript publication. The HAPS Educator is published 3 times annually, provides helpful guidance during manuscript revision, links articles with DOIs, and is indexed with the Education Resource Information Center (ERIC).

# Poster Presentation Abstracts

## Session 1: Thursday, May 22, from 10:00 – 11:00 am

**Poster: 1**

**Development of novel case studies to teach the intersection between social determinants of health and health outcomes in the physiology classroom**

**Ahsa Sadhukhan, Elizabethtown College, Sadhukana@etown.edu**
**Co-Authors: Nicholas Kuhn, Elizabethtown College, kuhnn1@Etown.edu, Anya Goldina, Elizabethtown College, goldinaa@etown.edu**

Recognizing social determinants of health and the soft skills to navigate conversations regarding these factors are imperative for students who aspire towards careers in healthcare. The physiology classroom is an ideal environment to cultivate these critical skills and cultural awareness while advancing students' physiology knowledge. Here we present how an assignment to develop case studies can be implemented in the physiology classroom to highlight the role of social determinants of health in disease progression, diagnosis, and treatment outcomes. This presentation details the teacher and student perspectives.

**Poster: 2**

**The Impact of Concept Mapping the Skeletal System on Academic Anxiety, Confidence and Belonging in Anatomy and Physiology**

**Lauren Sloane, SUNY Delhi, sloanelb@delhi.edu**
**Co-Authors: Nicole Pinaire, St. Charles Community College, npinaire@stchas.edu, Chasity O'Malley, Wright State University, chasity.omalley@wright.edu, Ronald Gerrits, Milwaukee School of Engineering, gerrits@msoe.edu, Suzanne Hood, Bishop's University, shood@ubishops.ca**

Students often enter classrooms with high anxiety due to the course content, lack of confidence, or a lack of sense of belonging. Concept mapping, an active learning strategy often completed together with classmates, may assist students with piecing ideas together to grasp a larger concept. The goal of concept mapping activities in this study was to help students learn the skeleton, and to reduce anxiety, increase confidence on the course content, and help find a sense of belonging in the classroom, all which could increase student success in the course. Supported through NSF DUE 2111119

**Poster: 3**

**One on one teacher meetings and self regulated learning in a team based active learning Anatomy and Physiology classroom**

**Rebecca Hillary, Portland Community College, rebecca.hillary@pcc.edu**
**Co-Authors: Suzanne Hood, Bishops University, shood@ubishops.ca, Kamie Stack, University of Minnesota, stack180@umn.edu, Ronald Gerrits, Milwaukie School of Engineering, gerrits@msoe.edu**

This study focused on the ways that a team- based active classroom environment paired with a required one on one teacher meeting can affect self-regulated learning through prompting student reflection, change of study habits, and help seeking behaviors. Students were asked about study habits and were surveyed about their help seeking behavior. Analysis of teacher interview notes and reflective post term essays suggested that there was a shift toward more peer learning in study groups and a shift toward active studying in those groups. While not significant, we saw a correlation between increased peer learning and increased help seeking behaviour using subscales of the MSLQ. This study suggests that the relationship building that happens in a team-based active learning classroom and during a one on one teacher meeting, can add value to study groups and relationships outside of the classroom which may support the overall success of the students and lead to positive changes in study skills and help seeking behavior. Supported through NSF DUE 2111119

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**Poster: 4**

**Keeping the Community College Anatomy and Physiology Education Research (CAPER) Project Going: Fresh Updates & Insights on Teaching Human Anatomy and Physiology**

**Chasity O'Malley, Wright State University, chasity.omalley@wright.edu**
**Co-Author: Ron Gerrits, Milwaukee School of Engineering, gerrits@msoe.edu, Suzanne Hood, Bishops University, shood@ubishops.ca, Kerry Hull, Bishops University, khull@ubishops.ca, Kamie Stack, University of Minnesota, stack180@umn.edu, Yulian Segura, University of Minnesota, segur059@umn.edu, Murray Jensen, University of Minnesota, msjensen@umn.edu**

The Community College Anatomy and Physiology Education Research (CAPER) project is concluding its fourth of a five-year design. Participants from Cohorts 1 and 2 continue to publish findings from their classroom research projects, while Cohort 3 participants are currently presenting their projects as posters at this HAPS annual. Participants in our final cohort, Cohort 4, have completed two professional development courses and are preparing to undertake a classroom-based research project in the upcoming academic year. This study includes an examination of the instructors' perspectives on education through a series of interviews in addition to data from all participating students on learning and anxiety, aiming to delve further into the impacts of diverse teaching interventions.

This poster will showcase the CAPER project findings to date and provide updates on the four active cohorts.

**Poster: 5**

**The Impact of Cognitive Wrappers on Self-Efficacy and Metacognition among Community College Non-Biology Majors**

**Ranya Taqieddin, Saint Charles Community College, rtaqieddin@stchas.edu**
**Co-Author: Murray Jensen, University of Minnesota, murray.jensen@umn.edu, Kamie Stack, University of Minnesota, stack180@umn.edu, Ron Gerrits, Milwaukee School of Engineering, gerrits@msoe.edu, Suzanne Hood, Bishops University, shood@ubishops.ca, Chastity O'Malley, Boonshoft School of Medicine, Wright State University, chastity.omalley@wright.edu, Hilary Engebretson, Whatcom Community College, HEngebre@whatcom.edu**

Exam wrappers integrate metacognitive training into course design by utilizing summative assessments as reflection opportunities. This study adds to the growing literature about exam wrappers in community college biology courses by investigating the impact of exam wrappers on two predictors of academic success: self-efficacy and metacognition while taking into consideration different modalities of the course (online and in-person). Data analysis showed approximately 60% of students reported that exam wrappers were extremely beneficial. Findings suggest that exam wrappers support student engagement in metacognitive reflection and assists the development of a sense of self-efficacy. This research was supported through NSF DUE 2111119.

**Poster: 6**

**Concept Mapping affects Metacognition in the A&P Classroom**

**Gillian Backus, Northern Virginia Community College, gbackus@nvcc.edu**
**Co-Authors: Chastity O'Malley, Boonshoft School of Medicine, Wright State University, chastity.omalley@wright.edu, Kamie Stack, University of Minnnesota, stack180@umn.edu, Suzanne Hood, Bishops University, shood@ubishops.ca, Kerry Hull, Bishops University, khull@ubishops.ca, Ron Gerrits, Milwaukee School of Engineering, gerrits@msoe.edu, Murray Jensen, University of Minnnesota, murray.jensen@umn.edu**

**John Martin Second Timer Award Winner**

Undergraduate level Anatomy and Physiology (A&P) is a universally rigorous course with traditionally high failure rates (Higgins-Optiz, 2014). Students who are actively engaged in A&P are more likely to succeed (Vitali et. Al, 2020). This project predicts that students who use concept mapping improve their understanding of the own learning (metacognition). In Fall 2024, A&P students were introduced to concept mapping. Concept mapping was repeated throughout the semester and re-evaluated by survey at the end of the semester. This study evaluates the students' self-assessment of concept maps to improve student engagement in the A&P classroom.

*continued on next page*

**Poster: 7**

**Knowledge Maps as an Evidence-Based Instructional Practice (EBIP) in Human Anatomy**

**Shawn Macauley, Muskegon Community College, shawn.macauley@muskegoncc.edu**
**Co-Authors: Dalia Salloum, Salt Lake Community College, Dalia.salloum@slcc.edu, Gilliam Backus, Northern Virginia Community College, Gbackus@nvcc.edu, Suzanne Hood, Bishops University, shood@Ubishops.ca, Ron Gerrits, Milwaukee School of Engineering, gerrits@msoe.edu, Chasity O'Malley, Wright State University, chasity.omalley@wright.edu, Kamie Stack, University of Minnesota, kstack180@umn.edu, Murray Jensen, University of Minnesota, msjensen@umn.edu**

Knowledge maps were implemented as an EBIP to foster active learning, critical thinking, and deeper understanding in a Human Anatomy course. Students received 12–20 topic-related words and connected them using linker terms while incorporating additional relevant concepts. They then composed four comprehensive review statements based on their maps. Some maps were completed and assessed individually, while others were created and assessed in small groups. Although initially challenging, students reported improved ability to connect seemingly unrelated topics. Data on student anxiety and metacognition were collected before and after these activities and will also be presented.

**Poster: 8**

**Career exploration activity helps A&P2 students with self-reflection and planning**

**Tracy Ediger, Georgia State University, tediger@gsu.edu**
**Co-Authors: Anne-Pierre Goursaud, Georgia State University/Department of Biology, apgoursaud@gsu.edu**

Students enroll in Anatomy & Physiology (A&P) courses in pursuit of a career in healthcare. In our second-semester A&P course, approximately half of the students will apply to nursing school. Other professional paths include pharmacy, medicine, dentistry, public health, and nutrition. To encourage students to be intentional about their academic and career planning, and improve motivation to apply themselves to the course, we have designed an extra-credit activity guiding students to reflect on their current career choice, evaluate other paths, and plan their next steps accordingly. Responses from three semesters suggest that students enjoyed this activity and found it helpful.

**Poster: 9**

**The Effects of Implementing a Guided, Supplemental Draw-to-learn Approach on Student Learning Comprehension and Self-Efficacy Within Introductory Human Anatomy Education**

**Preston Wood, The Ohio State University, wood.1544@osu.edu**
**Co-Authors: Max Nicolaus, The Ohio State University, nicolaus.4@buckeyemail.osu.edu, Kristin Stover, The Ohio State University, stover.353@osu.edu, Richard Thompson, The Ohio State University, richard.thompson@osumc.edu**

Anatomy is an area of study that is solely focused on the visual and hands on aspects of learning. One of the most affordable and accessible methods of this type of education is drawing based anatomy. Drawing-based anatomy education offers a unique, active approach to understanding human anatomy. By engaging students in the process of visually representing anatomical structures, it allows for a deeper cognitive understanding of the material. The goal of this study is to show the positive correlation between the implementation of guided drawing-based anatomy activities in preliminary anatomy courses and its impact on student learning and self-efficacy.

**Poster: 10**

**An open-source model for demonstrating changes in transpulmonary pressure during ventilation**

**John Pattillo, Middle Georgia State University, john.pattillo@mga.edu**
**Co-Authors: Meier Shannon, Middle Georgia State University, shannon.meier@mga.edu, Rigsby Christine, Middle Georgia State University, christine.rigsby@mga.edu**

This project details the construction of a device to demonstrate changes in pleural and alveolar pressure during ventilation, and to measure and display them in real time. A standard "balloon in a bell jar" model is modified to incorporate pressure sensors. As the instructor moves the diaphragm, pressure data is transmitted to a small computer attached to the classroom audiovisual system. The instructor may also demonstrate pneumothorax. The model is designed to be inexpensive, easily constructed, and is compatible with a variety of audiovisual systems. Results of student surveys on the usefulness of the model will also be presented.

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**Poster: 11**

**The Anatomy Experience: 10 Tips to Developing an Anatomical Outreach Program**

**Erika Alor, University of Colorado Anschutz Medical Campus, erika.alor@cuanschutz.edu**
**Co-Authors: Maureen Stabio, University of Colorado Anschutz Medical Campus, maureen.stabio@cuanschutz.edu, Ezra Heeschen, University of Colorado Anschutz Medical Campus, ezra.heeschen@cuanschutz.edu, Noah Leppek, University of Colorado Anschutz Medical Campus, noah.leppek@cuanschutz.edu, Zachary Stetter, University of Colorado Anschutz Medical Campus, zachary.stetter@cuanschutz.edu, Sydney Hayden, University of Colorado Anschutz Medical Campus, sydney.hayden@cuanschutz.edu**

Anatomy courses are a gateway to many health professions; therefore, community outreach in anatomy is vital for inspiring and recruiting the next generation of students into healthcare careers. Across the country, anatomy instructors at post-secondary institutions are frequently asked by middle and high schools to offer field trips or other learning events. Here, we share 10 tips for launching an outreach program, drawn from a decade of experience running the "WELCOME Program" at the University of Colorado Anschutz Medical Campus. These tips include safety, ethics, curriculum development, event planning, and funding to help educators create impactful and sustainable programs.

**Poster: 12**

**PAD in the legs**

**Nalini Broadbelt, MCPHS University, nalini.broadbelt@mcphs.edu**
**Co-Authors: Debesh Sahu, MCPHS Universtiy, dsahu1@stu.mcphs.edu, Chloe Costa, MCPHS Universtiy, ccost3@stu.mcphs.edu**

Peripheral artery disease (PAD) is explored in a middle-aged male named Shaun. As the case study unfolds the cardiovascular system is explored with specific emphasis on blood vessels and blood pressure regulation. Through this narrative, students are presented with Shaun's journey as he experiences pain in his lower extremities that leads to a diagnosis of PAD. This interrupted case study implements discussion questions and fill in diagrams to examine the dangers of an obstructed blood vessel, abnormal blood pressure, and the risk factors. Undergraduate anatomy and physiology students will enhance their foundational knowledge of vessel anatomy and its physiological roles to navigate through the intricacies of Shaun's condition to understand peripheral artery disease.

**Poster: 13**

**Information Regarding the Life Story of Human Donors Enhances Learning of Medical Students During Human Cadaveric Dissection**

**Joydeep Chaudhuri, Central Michigan University, chaud1j@cmich.edu**

Human cadaveric dissection (HCD) is a critical component of medical education. First year medical students were asked if information about a donor's life story would enhance their grit and influence their future interactions with patients. Results showed that knowing the life story of their donor's would significantly increase their grit medical students. Most significantly students reported that this would lead to improved patient communication, and ultimately, higher quality patient care. Consequently, this approach should be a critical component of the anatomy curriculum in the training of future physicians.

**Poster: 14**

**Online Academic Integrity**

**Katie Curry, Montana State University Billings City College, katie.curry2@msubillings.edu**

**HAPS Conference Travel Award Winner**

Online education has the advantage of reaching out to rural areas, providing flexible schedules, and allowing students the opportunity to have an education that may not be viable without the resource of remote learning. The academic integrity of online Anatomy and Physiology courses needs to be evaluated as the transcripts reflect the expected knowledge base. The use of external cameras and placement provides a proctored testing environment that is comparable to in-class learning. Learn about evaluating successful students and finding breaches in academic integrity with this protocol.

**Poster: 15**

**Regular Attendance Taking Increases Student Performance**

**Chris Donnelly, Loyola University Chicago, cdonnelly4@luc.edu**
**Co-Authors: Matthew Bruder, Loyola University Chicago, mbruder@luc.edu**

This poster will present the relationship between student attendance and academic performance in freshman anatomy courses for nursing students. Attendance and final grades were tracked over a semester in six course sections, comparing those with and without attendance tracking. This was done without impact to the students' grade in the class. Our study showed that sections with higher attendance performed better academically. This suggests that attendance, even without inherent reward, leads to student success and can lead to better retention and course policies. Encouraging regular attendance taking by instructors may increase success in the course.

*continued on next page*

**Poster: 16**

**Bilateral Variation in the Branching of the External Carotid Artery: A Case Study**

**Jeremy Grachan, Rutgers New Jersey Medical School, jg1916@njms.rutgers.edu**
**Co-Authors: Maya Jodidio, Rutgers New Jersey Medical School, mej97@njms.rutgers.edu, Sarah Ward, Rutgers New Jersey Medical School, sw1046@njms.rutgers.edu, Robert Abbott, Rutgers New Jersey Medical School, ra1109@njms.rutgers.edu, George Holan, Rutgers New Jersey Medical School, holange@njms.rutgers.edu**

A routine dissection of an 89-year-old female anatomical donor revealed variations in the branching patterns of the external carotid arteries. Immediately superior to the superior thyroid artery, the right-sided external carotid gave off a common trunk giving rise to the occipital, posterior auricular, and ascending pharyngeal arteries, whereas the left side generated the occipital and posterior auricular arteries from a common trunk generated at a similar point. These anatomical variations may impact surgical approaches, endovascular procedures, and vascular pathology management.

**Poster: 17**

**Peer-led BioTEAM Meetings Narrow Achievement Gaps in a Human Physiology Course**

**Kim Hansen, University of Nebraska Lincoln, kim.hansen@unl.edu**
**Co-Author: Jenna Murch-Shafer, University of Nebraska Lincoln, jmurch-shafer3@huskers.unl.edu**

Human Physiology is one of many STEM courses that have historically demonstrated achievement gaps. Faculty teaching these courses have often implemented a variety of strategies to support student success. This study examines the utilization of undergraduate teaching assistants, or BioTEAM Leaders, to increase student success in a Human Physiology course. BioTEAM Leaders held weekly meetings with students in small group settings to focus on reviewing challenging material, instituting good study habits, and developing critical thinking skills. Consistent attendance at BioTEAM meetings narrowed achievement gaps in overall exam averages and improved student performance from the first to the last exam.

**Poster: 18**

**Innovative approaches to overcoming neurophobia**

**Yasith Mathangasinghe, Monash University, Australia, yasith.mathangasinghe1@monash.edu**

Despite advancements in medical education, neurophobia remains prevalent among medical students. This study evaluates the impact of an innovative, multi-modal neuroanatomy curriculum at an Australian medical school in improving students' confidence and engagement. A survey among 189 second-year medical students showed 70% had low confidence in neuroanatomy. The redesigned curriculum included innovative dissection, donor-tissue-based learning, clinical workshops, imaging sessions, problem-based tutorials, and interactive games. Post-course, 80% of the students reported high confidence, indicating significant improvement. This multi-faceted approach effectively mitigates neurophobia and enhances student confidence, demonstrating a scalable strategy for broader accessibility to high-quality neuroanatomy education.

**Poster: 19**

**Small Quizzes vs. Large Exams - Does Size Really Matter?**

**Monica Montes, Cal Poly Pomona, monica.m.montes4@gmail.com**

**John Martin Second Timer Award Winner**

This study explores the impact of frequent, small quizzes versus fewer large exams on student performance in Human Anatomy education. By comparing these two assessment methods, I aim to determine which approach enhances retention, reduces anxiety, and promotes long-term learning. Previous studies suggest that smaller, more frequent quizzes lead to better knowledge retention and increased student engagement, while large exams can cause undue stress and hinder learning outcomes. This might suggest rethinking traditional assessment models, recommending small quizzes as an effective strategy for improving student success in challenging subjects like Human Anatomy.

**Poster: 20**

**The Use of Artificial Intelligence in an Undergraduate Anatomy & Physiology Course to Increase Student Engagement and Success**

**Karen Murch-Shafer, University of Nebraska at Omaha, kmurchshafer@unomaha.edu**

The integration of artificial intelligence (AI) into undergraduate Anatomy & Physiology courses offers innovative ways to enhance student engagement and learning outcomes. This study explores three AI-driven exercises: (1) AI as a "study buddy" for personalized explanations and concept reinforcement, (2) AI-generated practice problems to provide adaptive assessment opportunities, and (3) AI-assisted clinical case analysis to connect theoretical knowledge with real-world applications. Pre- and post-surveys will measure student engagement and success, assessing AI's effectiveness as a supplemental learning tool. Findings will contribute to best practices for AI integration in health science education.

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**Poster: 22**

**Integrating Bioethics into Pre-Medical Education: Cultivating Ethical Practitioners for the Future**

**Adalyne Singh, Dr. Kiran C Patel College of Allopathic Medicine at Nova Southeastern University, as1616@nova.edu**
**Co-Authors: Emily Young, Dr. Kiran C. Patel College of Allopathic Medicine (NSUMD), ey147@mynsu.nova.edu, Keerthika Ravikumar, College of Optometry (COM), kr2026@mynsu.nova.edu, AbbyGail Salcido, College of Optometry (COM), as6274@mynsu.nova.edu, Ricardo Rodriguez-Millan, Dr. Kiran C. Patel College of Allopathic Medicine (NSUMD), rrodriguezmillan@nova.edu, Michelle Demory-Beckler, Dr. Kiran C. Patel College of Allopathic Medicine (NSUMD), mbeckler@nova.edu, Cheryl Purvis, Dr. Kiran C. Patel College of Allopathic Medicine (NSUMD), cpurvis@nova.edu**

As the health professions and interprofessional teams become more complex and technology driven, the need for ethical competences among healthcare professionals has never been more pronounced. Therefore, by educating our students and creating an understanding of theoretical and practical ethical awareness our future healthcare professionals, researchers, policymakers, and global citizens will be empowered to navigate ethical challenges with integrity and emotional intelligence. Incorporating bioethics into medical education ensures students not only have the technical expertise to treat patients but also the ethical insight to provide compassionate, fair and responsible care.

**Poster: 23**

**Impact and implications of a return to proctored examinations in online pharmacology instruction**

**Jeffery Speth, Weber State University, jefferyspeth@weber.edu**

We review a quantitative, retrospective, observational study investigating the impact of a post-pandemic return to proctored examinations on student performance in an online introduction to pharmacology course. Scores and time spent data for exams in two course sections – one unproctored and one proctored – were analyzed. Overall, exam scores were statistically higher in the unproctored group than in the proctored group with students spending significantly more time on exams in the unproctored group as compared to the proctored group. Subsequent implications for identifying optimal exam proctoring strategies in health science education (anatomy, physiology, pathophysiology, pharmacology, etc.) will be discussed.

**Poster: 24**

**BuckeyeView**

**Peter Stordahl, The Ohio State University, peter.stordahl@osumc.edu**
**Co-Authors: Justin Austin, The Ohio State University, justin.austin@osumc.edu, Stephen Andrews, The Ohio State University, stephen.andrews@osumc.edu**

The Buckeye View website and integrated learning platform for medical education is an example of intercollegiate collaboration and problem-solving. The website revolves around cadaveric 3D models that are produced via software developed by the Advanced Computing Center for Arts and Design. In exchange for software access, data is provided to the developers for future updates. The website is developed by computer science students completing their capstone projects under the guidance of the medical and doctoral students in the College of Medicine. This provides the CSE students a real world work experience and the College of Medicine a much needed resource.

**Poster: 25**

**Growth and Gaps: Tracking anatomical knowledge throughout an integrated medical curriculum**

**Lydia Strattan, University of Pittsburgh, les222@pitt.edu**

The University of Pittsburgh School of Medicine recently launched the Three Rivers Curriculum, in which students take 3 weeks of anatomy at the beginning of their first year, followed by integration of anatomy content into organ system (OS) courses throughout the subsequent 1.5 years. To assess whether students were retaining and building on their knowledge over time, I administered exams at the end of their anatomy course, as well as at 2 time points in OS. Students also took NBME progress tests, providing data on a national scale. Test scores improved significantly over time, but remain lower than national averages.

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**Poster: 26**

**Bridging the Gap: The Underutilization of Immersive Learning in Anatomy and Physiology Education in Canadian Nursing Schools**

**Kiara Ukrainetz, MacEwan University, kiaraukrainetz@gmail.com**
**Co-Authors: Raj Narnaware, MacEwan University, narnawarey@macewan.ca, Melanie Neumeier, MacEwan University, Neumeierm@macewan.ca, Sarah Burden, MacEwan University, Burdens@mymacewan.ca, Taj Mann, MacEwan University, mannt1@mymacewan.ca**

Immersive learning technologies, such as augmented reality (AR), virtual reality (VR), and simulation, have transformed education across various fields. However, their use in Canadian nursing schools, particularly for anatomy and physiology, remains limited. This systematic review examines the extent of immersive learning adoption in Canadian nursing programs by reviewing literature from CINAHL, PubMed, and Google Scholar. The study highlights the potential benefits of these technologies in nursing education, emphasizing their integration in clinical simulations and allied health while revealing the lack of application in foundational science education. The findings aim to support curriculum development and promote broader integration in nursing education.

**Poster: 27**

**Breaking Barriers: Expanding Access to Anatomy & Physiology with Open Educational Resources**

**Susan Weiner, Roosevelt University, sweiner02@roosevelt.edu**
**Co-Author: Natalie Brounsuzian, Roosevelt University, nbrounsuzian@roosevelt.edu**

High textbook costs are a barrier for many students, but Open Educational Resources (OER) often lack supplementary materials and illustrations found in commercial textbooks. To bridge this gap, we present a set of supplementary materials for Anatomy and Physiology (A&P) OERs. These materials include two styles of student note-taking guides, three anatomy focused labs and corresponding slide decks. They also include a commissioned updated 3D model of the female reproductive system and several new anatomical illustrations. These materials are appropriate to a range of high school and college A&P classes, including Nursing, Allied Health, and pre-health focused classes.

## Session 2: Thursday, May 22, from 2:15 pm – 3:15 pm

**Poster: 28**

**Teaching physiology through the lens of humanity**

**Ahsa Sadhukhan, Elizabethtown college, Sadhukana@etown.edu**
**Co-Author: Anya Goldina, Elizabethtown College, goldinaa@etown.edu**

Physiology is essential for all healthcare professionals. However, physiology alone is not sufficient to fully appreciate the complexity of human disease, diagnosis, treatment, and prognosis. The ability to recognize the role of social determinants of health (SDOH), while learning physiology, helps students develop empathy and appreciate the many barriers to care that their future patients will experience. Furthermore, most leading causes of death in the United States are chronic conditions significantly impacted by SDOH. Here we present a re-envisioned physiology course to highlight the importance of SDOH on the progression of the main causes of mortality in the United States.

**Poster: 29**

**Effects of Topical Cannabidiol on Blood Pressure and Pulse With Acute Cold Stress**

**Carlota Sandoval, Dallas College, e3244968@student.dcccd.edu**
**Co-Authors: Jose Martinez, Dallas College, e3686197@student.dcccd.edu**

Cannabidiol is an up-and-coming popular remedy that is being used as a stress and anxiety reliever. It can be utilized in various forms from oral ingestion, topical application or even inhalation. In this experiment, we tested a mix of both male and female college students to demonstrate its topical effects on blood pressure (BP) and pulse when exposed to a cold stressor in three separate trials. Through this experiment, we have concluded that overall, topical cannabidiol does result in a decrease in BP, but it does not, however, have any direct correlation to pulse.

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**Poster: 30**
**Efficacy vs. Effectiveness in Online Learning: What's Missing?**
**Carolyn Hess, Keiser University, Southeastern College, fromthewild@outlook.com**

**HAPS Conference Travel Award Winner**

Online learning, once limited to the purview of niche institutions and a small minority of learners, has become an alternative learning format offered by many colleges and universities. Since the Pandemic, research has shown online formats can be useful, but discrepancy exists between offline and online learning knowledge acquisition in some subject areas. This review attempts to compile common factors which negatively impact the results of online learning program effectiveness. Suggestions are offered to higher education institutions as to possible program changes which, if implemented, may have a positive effect on the results of their online programs.

**Poster: 31**
**Near-Peers in A&P Courses Provide Support for Advancement in Health Career Pathways**
**Catherine B. Kirn-Safran, Widener University, cbsafran@widener.edu**
**Co-Authors: Jonathan David, Widener University/ Department of Psychology, jdavid1@widener.edu**

It is well documented that near-peer support reduces barriers and contributes to students' success in gateways courses such as A&P. At Widener University, the recently implemented Learning Assistant (LA) program provides support by embedding directly into the learning environment student facilitators, who recently completed the course successfully. This work explains how to start an LA program and highlights the benefits to learners, LAs, and instructors. Student course evaluations indicated that near-peer support that prioritizes deep learning and metacognitive strategies improved preparedness for A&P exams. Further, the involvement of near-peer improved A&P student's confidence for advancement in health career pathways.

**Poster: 32**
**Innovating Anatomy Education with Video Engagement in Hybrid and Online Clinical Courses**
**Jared Divido, University of Pittsburgh School of Health and Rehabilitation Sciences (SHRS), jad375@pitt.edu**
**Co-Authors: Reivian, Berrios Barillas, University of Pittsburgh School of Health and Rehabilitation Sciences, rbb40@pitt.edu**

This poster highlights an innovative approach to enhancing anatomy education in hybrid and online formats through video demonstrations. These videos feature dynamic faculty-led presentations, clinical applications, and annotations to emphasize key structures and functions. Active learning is highlighted through video skills demonstrations, which provide hands-on visualization of procedures and anatomical interactions. Students have access to self-paced video reviews and live sessions for guided practice. Students also perform skills via video so faculty can provide feedback. By integrating video, anatomy educators create an interactive experience that supports comprehension, participation, and success across diverse learning preferences.

**Poster: 33**
**Two Hit Hypothesis: A Game-Based Approach to Enhancing Retention of Anatomy and Physiology Concepts in Nursing Education**
**Branden Dunn, Chamberlain University, branden.dunn@chamberlain.edu**

Retention of Anatomy and Physiology (A&P) concepts is critical for nursing students to succeed in advanced courses like Pathophysiology and Pharmacology. We have implemented an innovative, game-based active learning strategy tailored to nursing students which employs two decks of cards: one featuring organs and another featuring pathology cards. "Two Hit Hypothesis" introduces a strategic element, requiring two pathology cards to remove an organ. Special cards, such as "Cancer" and "Vaccination," add complexity and simulate real-world clinical considerations relevant to nursing practice. Players engage in a dynamic, interactive learning experience to evaluate their understanding of the topics.

**Poster: 34**
**Just Think About It: Accomplishing Metacognitive Objectives in an Undergraduate Anatomy Class**
**Tyler Hall, Denison University, Hallt@denison.edu**
**Co-Author: Taylor Hamlett, The Ohio State University College of Medicine, wyatt.160@osu.edu, Kristin Stover, The Ohio State University College of Medicine, Kristin.stover@osumc.edu**

**HAPS Conference Travel Award Winner**

Increasingly, anatomy teachers are being asked to help foster skill development in their students, particularly as it relates to learning how to learn. Metacognition may represent an underutilized frontier, as skills such as planning, monitoring, and evaluating are vital tools in the undergraduate students' toolbox. In this study, we aimed to determine the efficacy of implementing metacognitive objectives hierarchically mapped to the cognitive process domains of the revised version of Bloom's taxonomy. More specifically, we desired to see if implementation of activities designed to reach the aforementioned objectives helped students manage the content associated with an undergraduate anatomy class.

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**Poster: 35**

**First-Year Anatomical Knowledge Acquisition in Indian Medical Students**

**Raj Narnaware, MacEwan University, narnawarey@macewan.ca**
**Co-Authors: Sneha Mahalpure, NKP Sallve Institute of Medical Sciences, snehamahalpure16@gmail.com, Deepali Onkar, NKP Sallve Institute of Medical Sciences, drdeepalionkar@gmail.com, Melnie Neumeier, MacEwan University, neumeierm@macewan.ca, Sarah Cuschieri, University of Malta, sarah.cuschieeri@um.edu.mt**

Anatomy education has always been regarded as an essential requirement in the curriculum of medical and other health-related disciplines and nursing (Turney, 2007). However, there is growing concern over these students' loss of anatomical knowledge over time (Narnaware and Neumeier, 2020). This study, the first of its kind in Indian medical students, evaluates base-level anatomical knowledge acquisition in the first year. It is found to be organ system-specific and varies from one organ system to another. This base-level knowledge acquisition can be used to evaluate its transfer/loss, retention and application in the subsequent years of medicine in the future.

**Poster: 36**

**Use of Alternative Final Exam Assessments in Anatomy and Physiology I**

**Caroline Hanson, Georgia Gwinnett College, chanson@ggc.edu**
**Co-Author: Karen Perell-Gerson, Georgia Gwinnett College, kperellg@ggc.edu**

Oral communication is essential to healthcare professions and experience in presenting course material orally benefits students academically. To provide such an experience in Anatomy and Physiology I, students presented a disease topic related to course material. Students constructed an oral presentation either as a Powerpoint file with voice-over presentation or as an oral presentation of a poster. The posters were judged at a mock poster symposium at the end of the semester during a final exam period. Powerpoint files were submitted to the course faculty for grading. We predict that this experience will increase course self-efficacy and benefit academic outcome.

**Poster: 37**

**Advising Pre-Health Majors Interested in Optometry**

**Cheryl Purvis, Nova Southeastern University, cpurvis@nova.edu**
**Co-Authors: Keerthika Ravikumar, Nova Southeastern University, College of Optometry, kr2027@mynsu.nova.edu, AbbyGail Salcido, College of Optometry (COM), as6274@mynsu.nova.edu, Adalyne Singh, Dr. Kiran C. Patel College of Allopathic Medicine (NSUMD), as1616@nova.edu, Emily Young, Dr. Kiran C. Patel College of Allopathic Medicine (NSUMD), ey147@mynsu.nova.edu, Andrew Monk, Dr. Kiran C. Patel College of Allopathic Medicine (NSUMD), am6061@mynsu.nova.edu, Camille Arca, NSU Medical Sonography graduate, camille.arca@gmail.com, Yuri Zagvazdin, Dr. Kiran C. Patel College of Allopathic Medicine (NSUMD), yuri@nova.edu**

As educators for future clinicians, it is imperative we are able to analyze personality traits in pre-health majors. To direct students toward an appropriate career path for them, we must be able to understand attributes of successful healthcare providers. In our study, we focus on identifying characteristics in students who have potential to become astute Optometrists. Optometry is a profession focused on patient care, attention to detail, and creative intuition. In this project, Optometry students (N=125) took a strengths inventory and positive psychology-based personal preference profile test. We found that a significant percentage of Optometry students identified as Emotional Helpers.

**Poster: 38**

**Using a Case Study for Problem Based Learning in a High School Anatomy and Physiology Class**

**David Bowden II, Madonna High School, davidbowdenii@gmail.com**
**Co-Authors: Chloe Orechio, Madonna High School, corecchio25@weirtonmadonna.org, Kayla Szczerbinski, Madonna High School, kszczerbinski25@weirtonmadonna.org**

Secondary instructors that are considering incorporating problem based learning (PBL) into their classroom may be interested in its efficacy with unguided implementation. Students in a small, parochial high school taking Anatomy and Physiology were randomly assigned into two groups. Group 1 received didactic instruction regarding the anatomy of the human cervical spine. Group 2 was provided an instructor generated prompt designed for PBL. Each group participated in each intervention in an AB/BA crossover fashion. The final post-test averages were significantly higher for group1 which implied that didactic instruction preceding case-based application works optimally.

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**Poster: 39**

**Faculty Mentors Understanding Their Role in Helping First-Generation Black College Students Acclimate to College**

**Cynthia Aiken, Galen College of Nursing, caiken@galencollege.edu**

First-Generation Black College Students (FGBCS) are students attending college for the first time, or one or both of their parents attended college but did not complete a degree. I used a basic generic qualitative study to examine the role of faculty in helping FGBCS acclimate to college while being a mentor in a faculty-student mentoring program at a Historically Black Community College (HBCC). My study revealed five common themes from experienced faculty mentors who have been mentors and faculty members for several years at the community college. The results showed how faculty mentors understand their role as mentors.

**Poster: 40**

**Impact of Brief Self-Compassion Training (BSCT) on the Stress, Empathy and Emotional Intelligence of First-Year Medical Students**

**Joydeep Chaudhuri, Central Michigan University, chaud1j@cmich.edu**

Human cadaveric dissection (HCD) is stressful due to a medical student's first encounter with human donors. Therefore, first year medical students were asked if information about a donor's life story would enhance their intrinsic motivation (IM) and ameliorate mental distress during HCD.

Results showed that providing this information would significantly increase IM and lower mental distress ($p<0.05$). Further, students reported that this would assist reflections of mortality and spirituality and enhance development of humane attributes of physicians.

Consequently, this approach could represent a paradigm shift in the pedagogy of HCD and contribute to the development of a revitalized anatomy curriculum.

**Poster: 41**

**Does Modality Matter? A Comparison of Success Rates in Traditional vs Hybrid Courses of Anatomy and Physiology**

**Nickolas Butkevich, Schoolcraft College, nbutkevi@schoolcraft.edu**
**Co-Authors: Steve Cook , Schoolcraft College, scook@schoolcraft.edu, Stacey Gray, Schoolcraft College, sgray@schoolcraft.edu**

Community College students struggling to balance work, school and life obligations often opt for modalities requiring them to spend less time on campus. Educators typically prefer students to attend traditional lectures and laboratory sessions on campus. At Schoolcraft College, a departmentally designed one-semester Anatomy & Physiology hybrid course was launched in 2021 to meet the needs of these students. We compared the success rates of students enrolled in hybrid versus traditional courses. In addition, we surveyed students for their rationale for enrolling in each modality. This information will be used to refine the hybrid course during the upcoming redevelopment cycle.

**Poster: 42**

**Pioneering Women Doctors and the Rise of the Woman's Medical Colleges**

**Dana Evans, University of Rio Grande, danae@rio.edu**

A brief look at the early pioneering women in medicine in America from the 1800s to the end of World War II. The workshop will include a look at the first women doctors, the barriers they faced and how they took matters in their own hands. It explores scientific curiosity, the effects of women's suffrage, those who helped and those who stood in their way. The rise of the all-women medical schools allowed them to bypass barriers but didn't grant equality. Also explored are the additional barriers faced by women of color and the state of early medicine.

**Poster: 43**

**Medical Terminitis – A Game to Learn Medical Terminology**

**Jeremy Grachan, Rutgers New Jersey Medical School, jg1916@njms.rutgers.edu**
**Co-Authors: Anna Mathew, Rutgers New Jersey Medical School, agm129@njms.rutgers.edu, Michael Matott, Rutgers New Jersey Medical School, mpm317@njms.rutgers.edu**

Medical terminology is foundational to health professionals and is like learning a new language. Rutgers New Jersey Medical School piloted "Medical Terminitis," a new game for first-year medical students. Students (n=14) in teams of 3-4 were required to build medical terms. One player verified the terms were real and maintained scores. There was a statistically significant improvement (p=.007) from the 12-point pre-test (M=9.86, SD= 1.29) to the post-test (M=10.50, SD=1.34). Students found the game enjoyable and supportive for knowledge retention. Collectively, the game improved students' knowledge and their enjoyment demonstrates promise for incorporating this game for learners entering health professions.

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**Poster: 44**
**Acute Physical and Auditory Stress Effects on Mental Alertness**
**Kamau Haylett, Dallas College, e3015578@student.dcccd.edu**

Mental alertness is essential for optimal cognitive performance in various tasks. This experiment investigates the impact of acute physical and auditory stress on reaction time and accuracy. Previous research suggests that physical stress may enhance focus and performance, while auditory stress might hinder cognitive abilities. The hypothesis of this study is that acute physical stress will improve mental alertness, as measured by faster reaction times and higher accuracy. In contrast, acute auditory stress will decrease alertness, leading to slower reaction times and lower accuracy. This experiment provides insight into the relationship between stress and cognitive performance.

**Poster: 45**
**The Impact of Instructor-Provided Study Guides on Student Academic Performance in Introductory Anatomy and Physiology**
**Nicola Khalaf, Florida Gulf Coat University, nvarveris@fgcu.edu**

Research indicates a strong correlation between performance in undergraduate gateway courses and student success in degree completion and retention. Anatomy & Physiology-I (A&P-I) is a critical gateway course for health science majors, often associated with high failure rates. This quasi-experimental study analyzed the impact of instructor-provided study guides on A&P-I student performance. Data from twelve sections (N = 353) was collected, with six sections receiving study guides ("Study Guide" group") and six did not receive a study guide ("Control" group"). The study examined the relationship between study guides and academic outcomes, including exam scores, final grades, and pass rates. Results revealed a statistically significant difference in performance between the two groups, supporting faculty efforts to enhance student success in challenging courses.

**Poster: 46**
**Harnessing Generative AI (Gen AI) in healthcare: transformative implications for nursing education.**
**Taij Mann, MacEwan University, mannt1@mymacewan.ca**
**Co-Authors: Kiara Ukraintez, MacEwan University, ukrainetzk3@mymacewan.ca, Melanie Neumeier, MacEwan University, neumeierm@macewan.ca, Sarah Cuschieri, Malta Univesity, sarah.cuschieri@um.edu.mt, Raj Narnaware, MacEwan University, narnawarey@macewan.ca, Sarah Burden, MacEwan University, burdens5@mymacewan.ca**

The implication of Artificial Intelligence (AI) in teaching and learning human anatomy in medicine, allied health and nursing disciplines is highly debated but remains unclear. Our study aims to explore the extent and capacity that AI has been incorporated in the teaching and learning in nursing education compared to medicine and allied health disciplines. Qualitative analysis using databases such as CINAHL, PubMed, BNI, and Google Scholar related to AI use was conducted in our study. Our findings will explore current applications, identify research gaps, and highlight opportunities for advancing AI in nursing education.

**Poster: 47**
**Don't Let the Fufu Fool You!**
**Karen Mends, MCPHS University, karenowusuamends@gmail.com**

This case study demonstrates the practical application of anatomical and physiological principles to real-world health challenges, specifically type 2 diabetes in a 60-year-old Ghanaian male. By analyzing his diet, understanding digestion, and developing a culturally appropriate meal plan, we aimed to improve his metabolic health. Gaining a deeper understanding of the interplay between food groups, digestion, and insulin resistance, this project highlights the crucial link between diet, metabolism, and disease, emphasizing the potential for targeted interventions to promote healthier lifestyles.

**Poster: 48**
**Innovative approaches to address course challenges in a two-semester introductory anatomy and physiology course series**
**Zachary Murphy, St. John Fisher University, zmurphy@sjf.edu**
**Co-Author: Kaitlin Bonner, St. John Fisher University, kbonner@sjf.edu**

Teaching Introductory A&P for majors involves the ever-present challenges of conveying an immense amount of complex content knowledge while also providing opportunities for practical application to ensure we enable success across a population of students with highly diverse background knowledge. Key challenges include keeping students engaged and motivated, designing effective assessments, and cultivating an inclusive environment for all students to succeed. Here we provide lessons learned and preliminary results of implementation of a hybrid-flipped approach to teaching A&P across two semesters. In this model students have enhanced exposure to retrieval practice and active learning through a team-based approach.

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**Poster: 49**

**A case study to connect cellular anatomy with clinically relevant neurophysiology.**

**John Pellegrini, St. Catherine University, jjpellegrini@stkate.edu**

As a researcher studying pediatric cancer survivors, I find that treatment-related neuropathies often persist long after chemotherapy has ended. This poster describes a case study exploring vincristine- induced peripheral neuropathy, a significant side effect of leukemia treatment. Designed for anatomy and physiology instructors, it integrates multiple subdisciplines, including the cytoskeleton, mitosis, neurophysiology, nerve anatomy, and clinical applications. By engaging students in a real-world scenario, the case study should enhance understanding of nerve cell functions, especially axonal transport. The case is well-suited for lectures or labs on the peripheral nervous system.

**Poster: 50**

**Strengthening Basic Science Education for Future Healthcare Professionals: The Impact of Active Learning Strategies**

**Ricardo Rodriguez-Millan, Nova Southeastern University, rrodriguezmillan@nova.edu**
**Co-Authors: Yuri Zagvazdin, Dr. Kiran C. Patel College of Allopathic Medicine (NSUMD), yuri@nova.edu, Cheryl Purvis, Dr. Kiran C. Patel College of Allopathic Medicine (NSUMD), cpurvis@nova.edu, Aymen Arain, Dr. Kiran C. Patel College of Allopathic Medicine (NSUMD), aa3882@mynsu.nova.edu, Katlynn Kenon, Dr. Kiran C. Patel College of Allopathic Medicine (NSUMD), kk1381@mynsu.nova.edu, Adalyne Singh, Dr. Kiran C. Patel College of Allopathic Medicine (NSUMD), as1616@nova.edu**

A solid foundation in basic sciences is critical for pre-health students as they transition into advanced clinical education. As faculty teaching Physiology, Histology, and Neuroanatomy, we recognize the challenges students face in mastering complex concepts. To address this, we surveyed graduate students to assess their learning needs and identify instructional improvements. Based on their feedback, we implemented additional practice questions and problem-based learning (PBL) activities, leading to measurable improvements in student performance and engagement. This study highlights the importance of active learning strategies in optimizing foundational science education and supporting student success.

**Poster: 51**

**Elevation-Induced Anorexia in Female and Male Populations with Acute Exposure: Original research project and mentorship experience**

**Megan Sherbenou, Colorado Mesa University, msherbenou@coloradomesa.edu**

In a continuing project including undergraduate and graduate students, we examined the physiology of elevation-induced anorexia (EIA). Acute exposure to a hypoxic environment appears to stimulate a neuroendocrine response, suppressing appetite and energy intake. Sex differences have rarely been examined with very little data taken from females. This student-led field study examined energy balance and implicated hormones in both males and females exposed to high altitude. We also reflect on the value of research mentorship for undergraduates, particularly with students interested in healthcare professions.

**Poster: 52**

**HAPS Exam Performance and a Summer Excelerator Program**

**Cindy Wingert, Lipscomb University- School of Physician Assistant Studies, cindy.wingert@lipscomb.edu**
**Co-Authors: Matt Steidl, Lipscomb University, matt.steidl@lipscomb.edu**

The Lipscomb School of PA Studies provides updated data from our pilot study evaluating the Human Anatomy and Physiology Society's (HAPS) Comprehensive A&P exam as a predictor of at-risk PA students. Analysis of Cohorts 2025 and 2026 ($n = 100$) confirms strong correlations between HAPS scores and first-semester final grades (Physiology I: $r = 0.64$, Anatomy: $r = 0.57$, $p < 0.05$). To reduce attrition, course directors launched the Excelerator Program, a summer remediation initiative. Qualitative analysis shows that higher engagement in the program is associated with meeting or exceeding final course scores predicted by regression analysis of Cohort 2025.

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**Poster: 53**
**In-Reach Not Outreach: Using the Gross Anatomy Laboratory to Further Engage Pre-Health Undergraduate Students in Anatomical Sciences**
**Marc Spencer, The George Washington University, marc_spencer@gwu.edu**
**Co-Authors: Andrew Ferriby, George Washington School of Medicine & Health Sciences, andrew.ferriby@gwu.edu, Kirsten Brown, George Washington School of Medicine & Health Sciences, kmbrown@gwu.edu**

Outreach events in the gross anatomy laboratory (GAL) have been identified to promote an interest in healthcare careers. However, the literature primarily focuses on events with K-12 or students from outside the institution. We held an in-reach GAL event for undergraduate students enrolled at our institution, all members of a pre-medicine student organization. Participant satisfaction was determined with a survey. Respondents were extremely satisfied with the event (89.4%), noting that it was relevant to their career healthcare aspirations (87.2%). A positive unintended consequence of the event highlighted opportunities for future events and for promoting our anatomical sciences courses.

**Poster: 54**
**Incorporating career-focused teamwork into a lab course**
**Lindy Thibodeaux, Roanoke College, thibodeaux@roanoke.edu**

Teamwork is a critical career readiness skill that enables individuals to collaborate effectively toward shared goals, a competency valued by employers. Integrating career-focused teamwork into coursework can enhance students' professional preparedness. Here we present a highly structured framework for incorporating teamwork into a lab setting, to guide students through the completion of an independent research project. This fosters individual strengths while reinforcing crucial career readiness skills such as communication, time management, and collaboration. By embedding structured teamwork into laboratory experiences, students become equipped with practical skills that translate into the workforce.

**Poster: 55**
**After the Practical: Metacognition and Continued Learning in Human Anatomy Lab**
**Mary Towner, Oklahoma State University, mary.towner@okstate.edu**
**Co-Author: Alejandro Marcillo Lara, Oklahoma State University, alejandro.marcillo@okstate.edu**

We describe an undergraduate Human Anatomy lab practical reflection exercise. Students take summative lab practicals after completing each unit of 3 labs. Despite formative assignments and quizzes, many students still appear to have misconceptions about themselves and the summative practicals that negatively impact their ongoing learning. The reflection exercise asks students to engage in metacognition, thinking about the why behind missed answers and identifying specific strategies for improvement (e.g., working on identifications vs. retrieving the correct word vs. avoiding confusing similar terms). We present sample student reflections and compare practical scores between semesters with and without the reflection exercise.

## Session 3: Friday, May 23, from 9:45 – 10:45 am

**Poster: 56**
**Engaging Optometry Students in Histology: Active Learning with Problem- and Team-Based Approaches**
**Mainlyng Duenas, Nova Southeastern University Dr. Kiran C. Patel College of Allopathic Medicine, md2221@mynsu.nova.edu**
**Co-Authors: Nichole Sainz, Nova Southeastern University Dr. Kiran C. Patel College of Allopathic Medicine, ns2045@mynsu.nova.edu, Anastasia Mashukova, Nova Southeastern University Dr. Kiran C. Patel College of Allopathic Medicine, amashukova@nova.edu, Dawn Owens, Nova Southeastern University Dr. Kiran C. Patel College of Allopathic Medicine, dowens@nova.edu**

Histology is not emphasized on the NBEO exam in optometry but plays a crucial role in patient care and treatment. Histology sessions, offered to first year students enrolled in the Doctor of Optometry Program (DOP) evolved from didactic lectures to problem-based learning activities and expanded class time. Group activities were followed by discussion with content experts and a qualitative assessment was given at the end of the course. During active learning sessions, students displayed high engagement. Improved exam scores were also observed. Evidence-based active learning strategies have potential to improve knowledge retention in histology sessions within the DOP.

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**Poster: 57**

**Cardiac Conundrum: Investigating Transposition of the Great Arteries to Compare Adult and Fetal Cardiac Anatomy and Circulation**

**Lacy Cleveland, Colorado Christian University, lcleveland@ccu.edu**
**Co-Authors: Julia Primak, Colorado Christian University, jprimak@students.ccu.edu, Amber Obbink, Colorado Christian University, abobbink@ccu.edu**

Looking for a way to teach content while encouraging critical thinking and student engagement? If so, be sure to check out our poster! This interactive case study follows the fictional journey of Callie and Nate as they experience the joy of pregnancy and the heartbreak of learning their child has transposition of the great arteries. Through this case study, students will: (1) review adult cardiac anatomy and circulation, (2) explore fetal cardiac anatomy and circulation, (3) compare adult and fetal cardiac structures, (4) analyze differences in circulation, and (5) practice synthesizing and evaluating complex information. Tailored for undergraduate anatomy, physiology, and pathophysiology courses, this case study is an invaluable teaching resource. Stop by to learn more and grab your free copy!

**Poster: 58**

**Investigation of undergraduate student exposure to clinical correlates, clinical experiences, and potential healthcare professions**

**Jenna Kuczek, The Ohio State University College of Medicine, kuczek.7@osu.edu**
**Co-Authors: Claudia Mosley, The Ohio State University College of Medicine, claudia.mosley@osumc.edu, Kristin Stover, The Ohio State University College of Medicine, stover.353@osu.edu**

**Sam Drogo Technology in the Classroom Award**

This study investigated what undergraduate courses at OSU include clinical components. Clinical exposure may directly relate to the type of healthcare profession students choose for their future career. We investigated different avenues where students gain exposure to healthcare career options, and if students feel confident enough in their background knowledge to choose a profession that is right for them. This study has led us to develop an Undergraduate Clinical Anatomy course to expose students to clinical applications of their anatomy foundation early in their career. We plan to investigate how this course may change or reinforce student career choice.

**Poster: 59**

**Using Hangman to Teach Medical Terminology: The Old-Fashioned Way!**

**Nazish Siddiqi, Chamberlain University, nsiddiqi@chamberlain.edu**
**Co-Authors: Jill McMillin, Chamberlain University, jMcMillin@chamberlain.edu, Puja Shahi, Chamberlain University, pshahi@chamberlain.edu**

Gamification is being used in science as an effective teaching tool that promotes classroom interaction and enhances learning. An interactive classroom activity based on 'Hangman' is designed to promote retention of medical terminology. The class is divided into two groups and each team selects terms for their opponents from the current weekly material. Each group researches the term and then challenges the other group. The opposing team plays hangman to identify the term for points and then defines it for additional points. The group with the highest points wins the game. Both teams enhance their comprehension of concepts through this interactive game.

**Poster: 60**

**The Duff Center for Science and Technology Innovation: Transforming Teaching Spaces, Courses, and Student Learning**

**Carol Britson, University of Mississippi, cbritson@olemiss.edu**
**Co-Authors: Carla Carr, University of Mississippi, cbcarr@olemiss.edu, Josh Schmerge, University of Mississippi, jdschmer@olemiss.edu, Lydia Lytal, University of Mississippi, lytal@olemiss.edu**

Initially conceived in the early 2010s, and open August 2024, the Duff Center for Science and Technology Innovation at the University of Mississippi is an inter-disciplinary teaching facility for student learning. Teaching laboratories, active-learning classrooms, and auditoriums for biology, chemistry, physics, geology, engineering and computer science courses are interspersed to stimulate cross-collaboration among students and faculty. Specifically, the new spaces led to a completely new course format for our Human Biology course. Human A&P laboratory spaces were doubled, both in individual room size and in number of rooms, enabling an efficient and enjoyable experience for all.

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**Poster: 61**

**Evaluating factors that impact success in an undergraduate anatomy and physiology course**

**Michele Holcombe, Purdue University, mholcom@purdue.edu**
**Co-Authors: Piper Feese, Purdue University, pfeese@purdue.edu, Natalie Marraccini, Purdue University, nmarracc@purdue.edu, Worthey Ciara, Purdue University, cworthey@purdue.edu, Stephanie Gardner, Purdue University, sgardne@purdue.edu**

Undergraduate Anatomy and Physiology (UAP) is a required and challenging course for students in diverse pre-health majors. It is important to explore how demographic factors, including major, differentially influence student performance in UAP. Assessment questions were analyzed using Bloom's Taxonomy for the cognitive demand and tagged for the content area. Binary logistic regression will be used to analyze how student demographic factors vary with student performance on assessment questions. Results from this study can help with the development of targeted ancillary curriculum material to support UAP student learning and promote discussion about how curricular sequencing may differentially affect student success.

**Poster: 62**

**A Two-Step Exam Review Process to Improve Accessibility and Equity in a Large STEM Clas**

**Ann Massey, The University of Virginia, rmx4tw@virginia.edu**
**Co-Author: Jessica Taggart, Center for Teaching Excellence, University of Virginia, jt2bb@virginia.edu**

Metacognitive strategies that help students plan, monitor, and evaluate their learning can improve academic performance in STEM courses. To support students in developing these strategies, we implemented an exam review process in Human Anatomy and Physiology. Following each of four exams, students completed the Student Metacognition, Affect and Study Habits inventory. They were then invited to small-group, peer-led reviews, where they completed a Writing, Reflection and Planning assessment as part of the review. We describe the process, its impact on students' metacognition and performance, and how it serves to improve accessibility and equity in large STEM courses.

**Poster: 63**

**Second-Year Indian Medical Students' Perspectives and Experiences of Teaching and Learning in Physiology**

**Raj Narnaware, MacEwan University, narnawarey@macewan.ca**
**Co-Authors: Dr. Rakhee Tirpude, N.K.P. Salve Institute of Medical Sciences and Research Center, rakheetirpude@gmail.com, Paul Chhal, MacEwan University, chahalp@macewan.ca**

Human physiology is a foundational health sciences course in medicine, allied health and nursing (McVicar et al., 2015). However, teaching and learning of physiology is impacted by fewer teaching hours, time of the class, program of the study, demographic factors, modes of course delivery, instructor's teaching experience, excessive reliance on self-directed learning, students' prior knowledge of science and the use of the labs (Narnaware, Y. 2021). This study evaluates first-year medical students' perspectives and experiences of teaching and learning physiology. Based on students' responses to a Google survey, this study will allow physiology professors to modify/revise their teaching strategies to improve the learning experience of future first-year medicine students in physiology.

**Poster: 64**

**The Hidden Curriculum in Gross Anatomy – Fostering Humanistic Values in Health Sciences Students Through Anatomy Pedagogy**

**Emily Gardiner, Duquesne University, gardinere1@duq.edu**
**Co-Authors: Kimberly Szucs, Duquesne University, szucsk@duq.edu**

Donor dissection is essential in anatomy education; through a "hidden curriculum," dissection can promote humanistic values, including altruism and respect. Occupational therapy students were surveyed throughout their anatomy course about their attitudes and experiences using an adapted Human Dissection Questionnaire. Initially, students felt predominantly negative valence emotions towards dissection, despite strongly recognizing its value. Students felt neutral about connecting with donors and their readiness to dissect. Over the semester, negative emotions decreased 80%, positive emotions increased 40%, and students reported greater respect and connection with donors. Results suggest lab activities can foster humanistic values, critical soft skills for healthcare practitioners.

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**Poster: 65**

**Active Learning and Gamification: A Multi-Semester Evaluation of Anatomy and Physiology Outcomes in Diverse Allied Health Students.**

**Mahmoud Aly, Suny Plattsburgh, maly002@plattsburgh.edu**

Anatomy and physiology present significant challenges for many allied health students. Here we are exploring the impact of active learning and gamifying technology approaches on enhancing learning outcomes and overcoming traditional teaching limitations. In this study, we are exploring the efficacy of incorporating different gamifying and active learning techniques into the Anatomy and Physiology curriculum. Moreover, to evaluate its outcome on student engagement and knowledge retention across a diverse group of allied health students. Over a four-semester period (2023-2025), data are collected from over 230 students representing various disciplines, including biomedical sciences, nursing, medical technology, biology, fitness & wellness, nutrition, and psychology. Preliminary findings indicate statistically significant variations in engagement and knowledge retention. Currently, we are collecting and analyzing qualitative data, including student surveys and additional quantitative assessments to provide a more comprehensive understanding of these observed effects.

**Poster: 66**

**Anatomical and Demographic Correlations in Carpal Tunnel Structures: Insights into Carpal Tunnel Syndrome Risk**

**Simran Aulakh, Kansas City University, simran.aulakh@kansascity.edu**
**Co-Authors: Dr. Farida Mehrhoff, Kansas City University, fmehrhoff@kansascity.edu, Talyn Smith, Kansas City University, talyn.smith@kansascity.edu**

This study examines anatomical risk factors for carpal tunnel syndrome (CTS), focusing on the flexor retinaculum (FR), extensor retinaculum (ER), palmar carpal ligament (PCL), and carpal bone morphology. Twenty-eight cadaveric upper limbs were dissected to measure these structures and carpal bone width. Results showed ER length increased with age, with wrist asymmetry observed. Carpal bone width also increased with height, while carpal arch width decreased with age. A correlation was found between height and ER/FR length, but no link to BMI. These findings highlight age-related changes, bone size, and skeletal structure in CTS risk and wrist function.

**Poster: 67**

**Testing Personalized Interactive Computer Graphic Programs in the Anatomy and Physiology Teaching Laboratory**

**Jason Dechant, University of Pittsburgh, jdec@pitt.edu**
**Co-Authors: Andrew Wright, University of Pittsburgh, apw73@pitt.edu, Lydia Strattan, University of Pittsburgh, les222@pitt.edu, Cynthia Chew, University of Pittsburgh, chewc@pitt.edu, Julia dos Santos, University of Pittsburgh, jum150@pitt.edu**

The study aims to compare the academic performance of undergraduate students in the anatomy and physiology laboratory (n=901) using cadavers and 3D digital cadaver tables with and without 3D digital cadaver tablets. Select skeletal muscle quiz grades were compared across 3 semesters with distinct teaching modalities (cadaver, table, table with tablets) and analyzed with one-way ANOVA followed by Tukey post hoc test. Quiz grades were lower using table only (8.21±1.66) compared to the cadavers and table plus tablet (8.82 ± 1.12 and 8.57 ± 1.48, respectively). 3D anatomic table with tablets resulted in similar outcomes to use of cadavers.

**Poster: 68**

**Enhancing Biomedical Science Exam Reviews with Interactive Learning via Nearpod**

**Asha Eapen, University of Illinois at Chicago, ashasara@uic.edu**
**Co-Authors: Lianna Chacon, University of Illinois Chicago, lchaco2@uic.edu, Eddie Castillo, University of Illinois Chicago, ecasti37@uic.edu**

At the University of Illinois Chicago (UIC) College of Dentistry, traditional and online tutoring methods often fail to meet diverse learning needs. To address this, peer educator-led review sessions using Nearpod were introduced for the Class of 2028. The study aimed to evaluate if these sessions improved attendance, engagement, collaboration, and understanding of biomedical sciences. Nearpod's interactive features, such as quizzes and polls, were used to assess understanding and encourage collaboration. Attendance rates exceeded 80%, with strong participation in optional reviews. These findings show that Nearpod-driven sessions enhanced engagement and collaboration, supporting their continued use in dental education.

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**Poster: 69**
**Collaborative Guided Inquiry: Changing the Landscape in Group Activities**
**Youlonda FitzGerald, Texas Woman's University, yfitzgerald@twu.edu**
**Co-Author: Karen Goodwin, Texas Woman's University, kgoodwin2@twu.edu**

This longitudinal perspective seeks to analyze differences in A&P I lecture course outcomes before and after the introduction of group activities that employ collaborative guided inquiry. The authors hypothesized that the introduction of collaborative guided inquiry activities in group settings would lead to higher outcomes on student assessments. The authors will also assess several markers of qualitative self-efficacy data, including whether the activities increased a student's likelihood of attending; likelihood of forming interpersonal connections with classmates; gain feedback on their current grasp of the material; and feelings of being engaged with the course.

**Poster: 70**
**Trust the Process: Leveraging Formative Assessment in an Undergraduate Course**
**Taylor Hamlett, The Ohio State University, hamlett.26@osu.edu**
**Co-Authors: Kristin Stover, PhD, The Ohio State University, kristin.stover@osumc.edu, Tyler Hall, PhD, Denison University, hallt@denison.edu**

The autonomic nervous system is a complicated topic, particularly for individuals encountering it for the first time. One method whereby anatomy instructors can assist their students in understanding the autonomic nervous system is formative assessment. Formative assessment involves the use of low-stake activities to discern student learning gaps. In this study, we aimed to determine if specifically designed formative assessments improved student understanding of the autonomic nervous system. In particular, we wanted to see if no-stake activities (in which students received all of the possible points) resulted in better subjective and objective student outcomes.

**Poster: 71**
**Incidence of Intraluminal Thrombus in a Post-EVAR Abdominal Aortic Aneurysm**
**Kathryn Jespersen, University of Saint Mary, kathryn.jespersen@stmary.edu**
**Co-Authors: Konlynn Druse, University of Saint Mary,konlynn.druse@my.stmary.edu, Tanea Sims, University of Saint Mary, tanea.sims@my.stmary.edu, Trisha Waldman University of Mary, tawaldman@umary.edu, Dustin Douglas, SERC Physical Therapy, ddouglas2@serctherapy.com**

This case study highlights the development of an intraluminal thrombus (ILT) within the aortic lumen of a cadaver donor presenting with abdominal aortic aneurysm (AAA). A large AAA was found in a male donor who underwent endovascular aortic repair (EVAR) of the infrarenal aorta and proximal bilateral common iliac arteries. AAA treatment using EVAR and the Endurant II Stent Graft have demonstrated high rates of success in complicated AAA anatomies. Approximately one in four AAA patients will develop ILT following EVAR treatment, and the presence of post-EVAR ILT is associated with increased negative symptoms for AAA patients.

**Poster: 72**
**The Use of Art and Metaphors to Help Students Cope with the Dissection Process**
**Bobbie Leeper, Seton Hill University, bleeper@setonhill.edu**
**Co-Authors: Dana Elmendorf, Seton Hill University, elmendorf@setonhill.edu**

A technique within art therapy is to use metaphors which help guide patients to process difficult emotions through art expression. This same technique can be utilized to help students cope with the emotions elicited after working with human body donors during an art expression workshop. Students use the selected metaphor/theme to generate artwork that is focused on honoring the donors. The art creations can then be incorporated into a memorial ceremony to further honor the donors, providing a theme for the ceremony. This poster will present several metaphors that have been used at Seton Hill University's art expression workshops.

**Poster: 73**
**Understanding Perceptions of Learning in a Human Anatomy Lab Course: Changes in Learning Modality through Time**
**Aubree Marshall, Michigan State University, marsh537@msu.edu**
**Co-Authors: Nicole Geske, Michigan State University, geskenic@msu.edu**

This project aimed to understand student perceptions of learning in an undergraduate human gross anatomy lab during the 2023-2024 school year. We created a survey asking students about their use of study resources before and after exam 1. Exam 1 is used as a marker as the outcome of the first exam often informs students about their study habits, which may then be modified for later exams. We found that study habits did change, with students participating in open labs more and becoming more effective with their use of lab guides and learning objectives.

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**Poster: 74**

**BioTEAM Leader Positions in Physiology Classes Encourage the Growth of STEM Identities Among Student Leaders**

**Jenna Murch-Shafer, University of Nebraska Lincoln, jkmurchshafer@gmail.com**
**Co-Author: Kim Hansen, University of Nebraska Lincoln, kim.hansen@unl.edu**

Giving undergraduate students academic leadership positions offers the opportunity for personal growth not only in soft skills, but also improvements in their STEM Identity. BioTEAM leaders are prior Physiology students that hold review sessions every week over material covered in lecture. This study will look at how one semester of being a BioTEAM Leader helps improve the leader's own perspective on their STEM identity and growth as an overall leader. Pre and post surveys will be analyzed to compare the evolution of BioTEAM Leaders STEM identities throughout the semester.

**Poster: 75**

**Effects of Group-Based Guided Inquiry Activities on Students Sense of Belonging and Enthusiasm**

**Jeffrey Sadler, Kirkwood Community college, jeff.sadler@kirkwood.edu**
**Co-Author: Suzanne Hood, Bishop's University, shood@ubishops.ca**

The use of evidence based instructional practices (EBIP) has been well documented to improve student learning, guided inquiry activities place students into small groups to complete activities that scaffold concepts to facilitate a structured experience. We wanted to explore the effects of these activities on students sense of belonging and enthusiasm for learning. We did see a significant improvement in students sense of belonging from the beginning of the semester to the end. When asked what factors contributed most to your enthusiasm for learning 22% reported the group activities had a positive effect.

**Poster: 76**

**Auditory Reaction Times are Faster than Visual Reaction Times in College Students**

**David Sheridan, Otterbein University, dsheridan@otterbein.edu**
**Co-Authors: Beryl Dulo, Otterbein University, bdulo@yahoo.com, Michael Kleman, Otterbein University, michaelkleman98@gmail.com**

This study compared reaction times (RTs) to stimuli and at which trial the difference between fixed and random stimuli RTs appeared. The results showed RTs to auditory stimuli were faster vs. visual stimuli ($p<0.001$) and mean RTs to fixed interval stimulus presentation were quicker vs. random interval stimulus presentations ($p<0.001$). The fixed versus random stimulus effect can be seen after 3 trials ($H(19)=370.1$, $p<0.001$). We speculate that the faster RTs in the auditory system may be attributed to the time it takes for different types of receptors to transduce stimulus energy into an electrical signal in the nervous system.

**Poster: 77**

**The Fibrous Anatomy of the Upper Lip: A Cadaveric Study**

**Abhishek Suresh, Boston University, asuresh@bu.edu**
**Co-Authors: Tania Hassanzadeh, Nazarian Plastic Surgery, tania.hassanzadeh@gmail.com, Jonathan Wisco, Boston University Chobanian and Avedisian School of Medicine, jjwisco@bu.edu, Jeffrey Spiegel, Boston University Chobanian and Avedisian School of Medicine; The Spiegel Center, drspiegel@drspiegel.com**

This study investigates the fibrous anatomy and vascular distribution of the upper lip, which is important for maximizing outcomes of augmentation procedures, but not well understood. Full-thickness upper lip samples from 4 cadaver donors were H&E stained and analyzed using CIELUV color space imaging to map the vascular anatomy. The vessels, which are surrounded by fibrous tissue, for each specimen were visualized on a spatial scatterplot. The philtrum had the highest concentration of vessels. Understanding this distribution may better facilitate procedural planning and enhance our understanding of embryology. Future directions using this data for 3D modeling.

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**Poster: 78**

**Blood, Bones, and Barriers: Incorporating the Social Determinants of Health into A&P**

**Cristy Tower-Gilchrist, Emory University, cristy.tower-gilchrist@emory.edu**
**Co-Authors: Christine Eckel, Indiana University School of Medicine, ceckel@iu.edu, Beth Eischen, Hamilton College, beischen@hamilton.edu, Marian Leal, Sacred Heart University, lealm@sacredheart.edu, Melanie Schroer, Stockton University, melanie.schroer@stockton.edu, Matt Smith, Pacific Lutheran University, smithmf@plu.edu, Jonathan Wisco, Boston University Aram V. Chobanian & Edward Avedisian School of Medicine, jjwisco@bu.edu, Leslie Worrell, Chamberlain University, lworrell@chamberlain.edu, Jennifer Stokes, Southwestern University, stokesj@southwestern.edu**

Integrating the Social Determinants of Health (SDOH) into the undergraduate Anatomy and Physiology (A&P) curriculum fosters a deeper student understanding of systemic impacts on health disparities and builds a solid foundation of the complex intersection between scientific knowledge, science communication, and healthcare. This poster presentation offers an opportunity to engage in discussions on the core basics of SDOH education and its impacts, including a demonstration of how to apply the SDOH checklist to curricular content planning that highlights the contextual role of SDOH in learning science.

**Poster: 79**

**Teleological reasoning and evolution understanding in the health sciences**

**Jason Wingert, UNC Asheville, jwingert@unca.edu**

Integrating evolutionary principles into anatomy and physiology courses can enhance students' appreciation of evolutionary theory and deepen their understanding of human health and disease. However, students often have a fragile grasp of evolution, which is influenced by several factors, including teleological reasoning. This cognitive bias leads individuals to explain natural phenomena based on perceived functions, purposes, or goals, rather than on the underlying natural processes that shape them. We will present findings from a series of studies that assess undergraduate students' propensity for teleological reasoning and evaluate how pedagogical interventions can effectively reduce this tendency.

**Poster: 80**

**Graduate and Undergraduate Student Perceptions of Learning Through Guided Illustration and Storytelling**

**Cindy Wingert, Lipscomb University- School of Physician Assistant Studies, cindy.wingert@lipscomb.edu**
**Co-Authors: Jill Kirby, Lipscomb University, jill.kirby@lipscomb.edu**

This study explores student perceptions of a novel guided illustration and storytelling approach, developed by an aspiring medical illustrator, to teach the brachial plexus. Fifty first-year graduate Physician Assistant (PA) students and 20 undergraduate students were surveyed after their first assessments to determine the effectiveness of alternative learning strategies. Within-group analysis and between-group comparisons revealed that over 95% of graduate students found the approach valuable for exploring different learning techniques. These preliminary results suggest that guided illustration and storytelling may enhance students' understanding of diverse learning strategies, with the potential for broader application across educational levels.

**Poster: 81**

**The pre-health professions advising toolkit for helping students succeed on their career pathway**

**Jonathan Wisco, Boston University Aram V. Chobanian & Edward Avedisian School of Medicine, jjwisco@bu.edu**
**Co-Authors: Anya Goldina, Elizabethtown College, goldinaa@etown.edu**

Students look to their Anatomy and Physiology instructors as mentors as well as teachers. However, on the subject of pre-professional career advising, many instructors feel ill-equipped to help their students. This poster highlights an advising toolkit from the perspective of members of medical, PA, and basic science graduate admissions committees. We will discuss important considerations for students to become an "outstanding person" in the context of academics, service, leadership, research, and clinical work that help students engage in significant learning experiences to become amazing candidates, and help instructors write better letters of recommendation.

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**Poster: 82**
**Electrical Neurostimulation and IBS: A Systematic Review and Meta Analysis**
**William Zucker, Saint George's University, wzucker@sgu.edu**
**Co-Authors: Veda Shukla, St. George's University, vshukla@sgu.edu, Prakash Ramdass, St. George's University, pramdass@sgu.edu**

IBS is often described as a disorder of the communication between the gut and the brain. It is an often painful condition that can cause serious psychological stress to a person. Management with medication has limited effectiveness, can be costly. Neurostimulation methods could be a more cost effective alternative. Previous reviews examined the effect size on pain reduction. This systematic review and meta-analysis aims to compare the effect size of various neurostimulation methods on gut dysmotility. We will also examine the effect on pain.

## Session 4: Friday, May 23, from 2:15 – 3:15 pm

**Poster: 83**
**Coke to Caries**
**Veda Shukla, St. Georges School of Medicine, vshukla@sgu.edu**
**Co-Author: Nalini Broadbelt, MCPHS Universtiy, nalini.broadbelt@mcphs.edu**

This case study explores the journey of a woman who seeks guidance regarding her cavities. Despite her nerves she visits Dr. Cheng learns that she has several cavities and lesions causing her to have extensive pain while eating. Her history of drinking large amounts of soda, almost two liters daily, has been noted as the underlying cause of her pain. Ultimately, her soda intake has led to severe decay in her posterior teeth. This case study will explore the significance of tooth anatomy, signalling pathway for pain, chemical composition that leads to dental erosion, as well as prevention/reduction strategies.

**Poster: 84**
**Renal Revolt: Using Rhabdomyolysis as a Vehicle for Teaching Nephron Anatomy & Physiology**
**Lacy Cleveland, Colorado Christian University, lcleveland@ccu.edu**
**Co-Authors: Julia Primak, Colorado Christian University, jprimak@students.ccu.edu, Amber Obbink, Colorado Christian University, abobbink@ccu.edu**

Is your classroom flipped? Are you looking for innovative ways to help students apply their physiological knowledge to real-world scenarios? If so, this poster is for you! It highlights the work of an undergraduate team that developed a teaching case study focused on: (1) nephron anatomy, (2) urine formation—including glomerular filtration, absorption, and secretion—and (3) glomerular filtration rate. In addition to core physiology concepts, the case also delves into bioethics and the role of coaches in monitoring athletes' health. Specifically designed for undergraduate anatomy and physiology courses, this engaging case study is now available—stop by and grab your copy!

**Poster: 85**
**Clinical Pathology of Cadavers in Science Education**
**Ashlyn Kendrick, Northern Kentucky University, kendricka7@mymail.nku.edu, Mary Schilling, Northern Kentucky University, schillingm2@nku.edu**

While technological alternatives in medical education are expanding, human cadaver dissection remains valuable for understanding anatomical variations and pathologies. This project documented pathological findings from Northern Kentucky University's 2024-2025 anatomy lab cadavers, creating educational autopsy reports. Pathologies identified included a pacemaker, aortic aneurysm, inguinal hernia, rotator cuff repair, Alzheimer's disease, and a kidney tumor. These reports support NKU's anatomy courses and outreach programs, enhancing anatomical education by connecting physical findings with fundamental concepts.

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**Poster: 86**

**Surface vs. Deep Learning in Nursing Students**

**Sarah Burden, MacEwan University, burdens5@mymacewan.ca**
**Co-Authors: Taij Mann, MacEwan University, mannt1@mymacewan.ca, Kiara Ukraintez, MacEwan University, ukrainetzk3@mymacewan.ca, Melanie Neumeier, MacEwan University, neumeierm@macewan.ca, Sarah Cuschieri, Malta Univesity, sarah.cuschieri@um.edu.mt, Paul Chahal, MacEwan University, chahalp@macewan.ca, Raj Narnaware, MacEwan University, narnawarey@macewan.ca**

Surface and deep learning approaches significantly influence nursing students' educational outcomes and clinical readiness. Surface learning emphasizes rote memorization, often leading to limited application in real-world settings. In contrast, deep learning fosters critical thinking, integration of knowledge, and practical skills essential for patient care. Recent studies (e.g., Dolmans et al., 2016; Khong & Tanner, 2024) highlight that active learning strategies and reflective practices enhance deep learning in nursing curricula. This abstract evaluates evidence-based approaches to promote deep learning, including problem-based learning and blended educational models, ensuring nursing students are equipped to meet complex healthcare demands.

**Poster: 87**

**Immunity: Outsmart, Outlast, Outplay**

**Jill McMillin, Chamberlain University College of Nursing, JMcMillin@chamberlain.edu**
**Co-Authors: Nazish Siddiqi, Chamberlain University, Nsiddiqi@Chamberlain.edu, Puja Shahi, Chamberlain University, Pshahi@Chamberlain.edu**

To facilitate the retention of anatomy & physiology concepts, gaming techniques can be applied in the classroom. We developed an interactive multi-level card game for college students that tests their understanding of the immune system. Students advance from the first to the second to the third lines of defense as they identify correct factors and defense mechanisms.

Our objective for applying interactive games is to increase student engagement with peers, practice communication and focus on motivation which will support retention of concepts and critical-thinking skills. Games allow immediate feedback and provide hands-on learning opportunities in an enjoyable and safe environment.

**Poster: 88**

**A Historical View of Anatomy in Physical Therapist Education**

**Ashley Simons, Bowling Green State University, ash.simons22@gmail.com**
**Co-Authors: Jennifer Burgoon, Lake Erie College of Medicine, jbrugoon@lecom.edu, Susan Appling, The Ohio State University, susan.appling@osumc.edu**

The purpose of this research is to investigate anatomy education practices in physical therapist programs prior to the COVID-19 pandemic. Physical therapist were asked to indicate the anatomy laboratory instruction method they received within their physical therapist education: dissection, prosection, plastination, technology driven, or lecture only. Data was collected based on anatomical region: upper extremity, lower extremity, abdominothoracic, pelvis, spine, and cranium. A total of 3,345 responses were valid for analysis across 47 US states. Prevalence of use and trends can be seen for each educational method and based on anatomical region over a 40-year span.

**Poster: 89**

**Importance of the Circle of Willis in Anatomical Education**

**Cheryl Purvis, Nova Southeastern University, cpurvis@nova.edu**
**Co-Authors: Andrew Monk, Dr. Kiran C. Patel College of Allopathic Medicine (NSUMD), am6061@mynsu.nova.edu, Liliya Ryshchak, Dr. Pallavi Patel College of Health Care Sciences (CHCS), lryshchak@nova.edu, Emily Young, Dr. Kiran C. Patel College of Allopathic Medicine (NSUMD), ey147@mynsu.nova.edu, Keerthika Ravikumar, Nova Southeastern University, kr2027@mynsu.nova.edu, AbbyGail Salcido, Nova Southeastern University, as6274@mynsu.nova.edu, Yuri Zagvazdin, Dr. Kiran C. Patel College of Allopathic Medicine (NSUMD), yuri@nova.edu**

Pre-health students routinely take Anatomy classes which incorporate challenging neuroanatomy concepts. This material can be difficult to master but is relevant to practicing healthcare professionals. To engage students and prepare them for future clinical practice, we have developed an interactive diagram of the arterial Circle of Willis which they can label to visualize the healthy vasculature. They then can correlate this understanding with radiographic images showing anatomical variations known to be associated with clinical visual abnormalities. Our approach is designed to help pre-health majors integrate class material regarding brain vasculature with clinical cases.

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**Poster: 90**
**From Books to Bytes: Evaluating Student Motivation with Integrated Reading Assignments"**
**Kim Loscko, Capital University, kloscko@capital.edu**
**Co-Author: Medhane Negasi, Capital University, mnegasi@capital.edu**

This research project investigates the frequency of integrated e-book assignments in a two-semester anatomy sequence and their correlation with student motivation. Three key variables were examined: the frequency of e-book assignments, engagement metrics, and self-reported motivation levels. Throughout the semester, sixteen e-book assignments were administered, with average completion rates recorded. Engagement metrics were assessed using two Likert scale questionnaires that focused on student experiences and interactions with e-book features, while motivation levels were compared across the two semesters. The study aimed to evaluate how integrated e-book assignments influenced student engagement and motivation.

**Poster: 91**
**Associations between exam wrappers in Anatomy and Physiology and students' anxiety and academic self-efficacy.**
**Meghan Andrikanich, Lorain County Community College, mandrika@lorainccc.edu**

Exam wrappers are a pedagogical strategy using pre- and post-exam questions to encourage students' reflection on preparation and understanding of material; however, some evidence shows that exam wrappers may worsen psychological variables like anxiety and confidence. Students in Human Anatomy and Physiology 1 completed two exam wrappers during one term and two surveys including questions on anxiety and academic self-efficacy. Results suggest that many reported performing worse on their exams than expected, and furthermore that academic self-efficacy decreased over time. Student comments also provide insights into how exam wrappers may influence approaches to studying and confidence in academic abilities.

**Poster: 92**
**Praise, Encouragement, and Humor in Undergraduate STEM**
**Katie Chamberlain, University of St. Francis, kchamberlain@stfrancis.edu**

This study investigated the use of praise, encouragement, and humor in an undergraduate biology classroom. Praise and/or encouragement were implemented via individually tailored pre-exam and post-exam messaging. Humor was implemented via costumes, pun answer choices, and brain breaks. Midpoint and endpoint surveys assessed students' self-image, perceived success in the course, and relationship with the instructor before and after the interventions. Some preliminary observations suggest: encouragement is the tool most-valued by students; the interventions correlate with improved performance, relationship with instructor, and confidence; the interventions correlate with reduced test anxiety. Analysis of intervention impacts versus academic performance will also be reported.

**Poster: 94**
**Flipping the A&P Lecture: Lessons learned**
**Tamrya d'Artenay, Penn State Shenango, tdd12@psu.edu**

Penn State Shenango is located in Sharon, PA and serves mostly low to middle income students, many of whom are first generation college students, who commute to campus. In order to better serve the needs of this student body, a flipped classroom style lecture was applied for the introductory Anatomy and Physiology. This class serves mostly students in two-year programs of nursing, physical therapy assistant, and occupational therapy was performed in fall of 2024. Students' attitudes about the mode of delivery were assessed at the end of class using a survey.

**Poster: 95**
**Comparison of cast skull models and real human skull osteology**
**Julie Doll, University of St. Francis, jdoll@stfrancis.edu**
**Co-Authors: Jennah Russum, University of St. Francis, jennahrussum@stfrancis.edu**

As atrocities committed against vulnerable populations in the early study of human anatomy continue to be recognized, many universities and teaching institutions are turning away from real human skeletal collections to model bones as their primary osteological education materials. There is some concern that models will not be detailed enough for demonstrations in pre-clinical courses. This study provides a direct comparison of real human skulls to cast models to determine feasibility of model-only osteology. We hypothesize that model skulls will be sufficiently accurate for use in undergraduate anatomy education, but not for residency workshops or graduate forensic anthropology.

*continued on next page*

**Poster: 96**

**Physiological and Biomechanical Perspectives on Elbow Function During Forehand and Backhand Disc Golf Throws: A Novel Investigation**

**Lauren Giles, Mercyhurst University, lgiles@mercyhurst.edu**

Over 81% of disc golf players report injuries, mainly from overuse. This study is the first to examine disc golf throw biomechanics, analyzing 41 players to identify kinetic factors linked to safety. We investigated relationships between lean body mass and disc distance, elbow torque and distance, and grip strength and elbow torque. Biometric data and elbow torque (via Bluetooth sensor) were collected during forehand and backhand throws. While some correlations emerged, none were statistically significant. Notably, some torque measures exceeded limits seen in other sports, highlighting opportunities for future research on throwing and swinging mechanics.

**Poster: 97**

**An Analysis of Human Remains: A Preliminary Report**

**Erica Hollister, Harrisburg Area Community College, elhollis@hacc.edu**
**Co-Authors: Gianina Galati, Harrisburg University, gsg94966@hawkmail.hacc.edu, Matthew Yoffe, Harrisburg Area Community College, mxy29894@hawkmail.hacc.edu, Sandi Kadric, Harrisburg Area Community College, sxk74281@hawkmail.hacc.edu, Ava Becker, Harrisburg Area Community College, agb27191@hawkmail.hacc.edu**

Various human skeletons were found in old teaching materials at Harrisburg Area Community College. We are currently working to determine age, gender, and ethnicity of the specimens using multiple techniques, mainly forensic metrics. We partnered with Dr. Carrie Wise at Harrisburg University as well as utilizing HACC dental and radiology technology programs to gather and analyze our data. We are currently comparing our data with several databases which are, however, limited. Future plans include facial reconstruction, DNA analysis, and osteon evaluation using electron microscopy.

**Poster: 98**

**The Struggle to Maintain Standards in Human A&P Courses at 4-Year Institutions when Accepting Transfer Courses**

**Karen Keller, Frostburg State University, klkeller@frostburg.edu**

**John Martin Second Timer Award Winner**

Changes in higher education are pushing institutions to accept transfer courses that may not reach acceptable standards in core health-care related courses, including human anatomy and physiology. There are several reasons for this trend. Students are taking new online courses from institutions that may be unknown to staff responsible for accepting transfer credits. Institutions suffering from decreased enrollments may feel pressured into accepting unvetted courses to attract students. One unique example in Maryland, which passed the "Transfer with Success Act", requires public institutions to accept courses between state institutions if at least 70% of the learning outcomes are equivalent.

**Poster: 99**

**How Can We Help Our Students Remember What We Teach Them? The Impact of Robust Interventions to Improve Their Long-term Knowledge Retention.**

**Raj Narnaware, MacEwan University, narnawarey@macewan.ca**

Human anatomy and physiology are considered a cornerstone of health care disciplines (Young et al. 2016). Numerous studies have expressed concern over students' ability to acquire the knowledge of these courses in the first year and successfully transfer, retain, and apply it throughout their program (Narnaware and Neumeier, 2020). This interactive workshop will evaluate the comparisons and trends of the body systems over time and clearly understand the gaps in knowledge retention between the first-year classroom and future nursing courses and clinical. Based on that assessment, the impact of the robust interventions to address those gaps to improve long-term knowledge retention will be presented.

**Poster: 100**

**Repeat Testing in Human Anatomy and Physiology I**

**Gilbert Pitts, Austin Peay State University, pittsg@apsu.edu**

Anatomy and Physiology students are often told that effective studying is the key to success. However, they rarely practice active recall. I examined the impact of repeated testing on student outcomes in Human Anatomy and Physiology I. Average test scores improved after three attempts at the exams. The number of students making successive test attempts declined throughout the course. Retesting did not impact mid- exam scores compared to pre-COVID and COVID classes. Retesting produced significantly different mid-term and final exam scores than those in a post-covid class. Repeated testing may improve student outcomes in Human Anatomy and Physiology I.

*continued on next page*

**Poster: 101**
**Identification of Sino Nasal Anatomical Variants in Sinusitis on Computed Tomography**
**Maryam Faiz Qureshi, Western University of Health Sciences, qureshim@westernu.edu**
**Co-Authors: Ambreen Usmani, Jinnah Medcial and Dental College, ambreenusmani1@yahoo.com**

Anatomical variations of sinonasal region have been identified across the globe with prevalence of 10%-95% in sinus-mucosal-infections. The aim was to determine frequency of anatomical variations of sinonasal-region in sinusitis on computed tomography (CT). This cross-sectional study included cases of sinusitis, underwent computed-tomographic scanning and revealed septal and ethmoidal-air-cells variants prevalent in males also headache as most common symptom. This draws attention towards the anatomical-variations which can be a causative factor of sinus-mucosal infections and emphasizes their clinical importance due to nearby structures like brain/orbit. CT is the best tool to visualize sinonasal anatomy for educational purposes including therapeutic/surgical outcomes.

**Poster: 102**
**Educating the educators: Developments in anatomy training for the current health sciences job market**
**Jane Rumely, The Ohio State Unversity, rumely.1@buckeyemail.osu.edu**
**Co-Authors: Tyler Hall, Denison University, hallt@denison.edu, Brooke Sendik, The Ohio State University, sendik.2@osu.edu, Kristin Stover The Ohio State University, stover.353@osu.edu**

Given the growing need, programs training future anatomy educators should consider the context for which they are training students. We aimed to identify the number of new health science programs in the United States and to determine requisite training for new anatomy educators. Results indicated 983 recently created accredited health science programs, indicating a demand for more anatomy educators. Most new job postings mentioned anatomical subdiscipline training, though only gross anatomy was mentioned more than half the time. These findings support calls for additional avenues for preparing future anatomy educators, though requisite training for those individuals remains unclear.

**Poster: 103**
**Pathogen Showdown: The Battle for Survival in the Human Body**
**Haneen Salhieh, Chamberlain University, Hsalhieh@chamberlain.edu**
**Co-Author: Puja Shahi, Chamberlain University, pshahi@chamberlain.edu**

"Pathogen Showdown" is an interactive, gamified approach to teaching the immune system through competitive gameplay. Students select a pathogen, each with unique abilities, and navigate a game board that represents the body's immune defenses. By rolling dice, players encounter immune responses, hazards, and special events, while utilizing strategy, chance cards, and pathogen-specific traits to outmaneuver competitors. The game encourages collaboration and critical thinking, fostering an engaging learning environment. Players gain an in-depth understanding of immune functions, pathogen behavior, and immune evasion tactics, all while competing to be the first to overcome the body's defenses and win.

**Poster: 104**
**Adapting A&P: Multi-Modal Strategies For Engaging Neurodiverse Learners**
**Puja Shahi, Chamberlain University, pshahi@chamberlain.edu**
**Co-Author: Haneen Salhieh, Chamberalin University, hsalhieh@chamberlain.edu**

In our nursing program, Anatomy and Physiology form an integral part of the first-year curriculum. To enhance student engagement and foster lifelong learning, we have implemented a multi-modal strategy designed to address the neurodiverse learners. This innovative approach supports equity by accommodating various learning styles, including visual, auditory, read/write, and kinesthetic learners.

This comprehensive approach aims to address the unique needs of neurodiverse student population by using range of instructional materials. This promotes the development of skills that are critical for lifelong learning and adaptation in the dynamic field of healthcare.

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**Poster: 105**

**Impact of co-administration of apricot kernels and caffeine on adult male diabetic albino rats**

**Ahmed Taha, Faculty of Dentistry, Zarqa University, Jordan, ataha@zu.edu.jo**
**Co-Authors: Ahmed Nour El-Deen, Faculty of Dentistry, Zarqa University, Jordan, a.nourelden@zu.edu.jo, Almoatazbellah Elsayed, Faculty of Dentistry, Zarqa University, Jordan, a.mohamad@zu.edu.jo, Ahmed Ali, Faculty of Dentistry, Zarqa University, Jordan, aelmezayn@zu.edu.jo, Reda Taha, Faculty of Dentistry, Zarqa University, Jordan, rtaha@zu.edu.jo**

The purpose of this study is to evaluate the impacts of apricot kernels and caffeine on blood glucose, lipid profile, insulin secretion, and antioxidant effect in diabetic rats. Forty adult male albino rats were divided into five groups: normal control, diabetic control, diabetic rats treated with apricot kernels, diabetic rats treated with caffeine, and diabetic rats treated with apricot kernels plus caffeine. Fasting samples were collected at the end of the study for analysis, and pieces of liver and pancreatic tissues were removed for histological analysis. There was a significant decrease in blood glucose, glycated hemoglobin, body weight, total cholesterol, triglyceride, and low-density lipoprotein cholesterol (LDL-C) levels and a significant increase in insulin and high-density lipoprotein cholesterol (HDL-C) levels in the kernel and caffeine-treated groups. However, there was little histological alteration in the liver or pancreas, and no significant differences were observed in the histological findings between groups. Overall, it can be concluded that apricot kernel and caffeine had a positive effect in decreasing blood glucose and harmful lipid profile and that caffeine had a synergistic effect on the apricot kernel.

**Poster: 106**

**Using Clinical Problems to Increase Clinical Relevancy of Embryology**

**Victor Taylor II, George Washington University School of Medicine, vwtaylorii@gwu.edu**
**Co-Authors: Melissa Carroll, George Washington University, macarroll@gwu.edu**

Embryology is a difficult subject, and students may not be confident in applying their knowledge. However, using real-world clinical problems may help students develop critical thinking and problem-solving skills. Clinical practice problems were used in undergraduate embryology review sessions to increase student motivation and perceived relevance. For example, a case report on thoracic ectopia cordis was used to demonstrate smoking effects on the process of embryo folding. To assess these clinical problems' impact, students were given the optional question, "Do you think embryology is relevant in the healthcare field?" for extra credit on their final exam.

**Poster: 107**

**Improving instructional equity in multi-section laboratories with an online scientific writing intervention**

**Nanette Tomicek, Thomas Jefferson University, nanette.tomicek@jefferson.edu**

Maintaining instructional equity in multi-section courses taught by new faculty is a challenge. Guiding students through the scientific writing process is difficult to standardize. Comparing 2023 to 2022 40% of A&P laboratories had first time instructors. Despite use of a grading rubric, a significant decrease in student lab report scores, and a greater variance in scoring of writing assignments was observed. In 2024 an online scientific writing module was developed to reduce the initial training burden and improve equity of writing instruction across sections. Student scores increased significantly with the addition the online module despite increased instructor variance in scoring.

**Poster: 108**

**Cooperative quizzing promotes sense of belonging and engagement in Introductory A&P courses**

**Meagan Valentine, Mountwest Community and Technical College, lester64@mctc.edu**
**Co-Authors: Kamie Stack, University of Minnesota, stack180@umn.edu, Suzanne Hood, Bishop's University, shood@ubishops.ca**

Active learning strategies foster collaboration between students and can increase students' sense of belonging. In this study, we investigated whether cooperative quizzes impacted students' perceptions of belonging and engagement in Introductory A&P courses. Students were surveyed at the beginning and end of the semester. Students reported that cooperative quizzes contributed to their sense of belonging, and preliminary results indicate that they positively impacted engagement during class. This suggests that cooperative quizzing is an effective strategy that can increase engagement and help cultivate a sense of belonging in students in the classroom. Supported through NSF DUE 2111119.

*continued on next page*

**Poster: 109**

**Recruiting Generation Z Students to Become Anatomy Educators Using Innovative Teaching Methods**

**Mitzi Glover, Burnett School of Medicine at TCU, glovermitzi@gmail.com**

The scarcity of anatomy faculty, particularly in medical education, is expected to worsen as senior faculty retire and fewer students enter the field. Adaptations in curricular structure, including time reduction for content and a shift toward active learning, have necessitated increased integration of technology in anatomy teaching. These changes have been aided by Generation Z students' comfort with technology and their preference for educational methods that optimize efficiency. Our experiences suggest that students constructing educational activities of their own, often choose to utilize more innovative approaches. Can recent modifications in teaching approaches be promoted to appeal to prospective anatomy faculty?

Joan Gabel
Chancellor

107 Cathedral of Learning
4200 Fifth Avenue
Pittsburgh, PA 15260
412-624-4200
Fax: 412-624-7539

May 21, 2025

Human Anatomy and Physiology Society
2025 Annual Conference

Dear Colleagues,

As chancellor of the University of Pittsburgh, I'm pleased to welcome you to Pittsburgh and our campus for the HAPS Annual Conference. We're honored to host you, and we're confident that you'll find Pittsburgh to be the perfect setting for exploring the latest developments in your field, along with best practices that will shape the field.

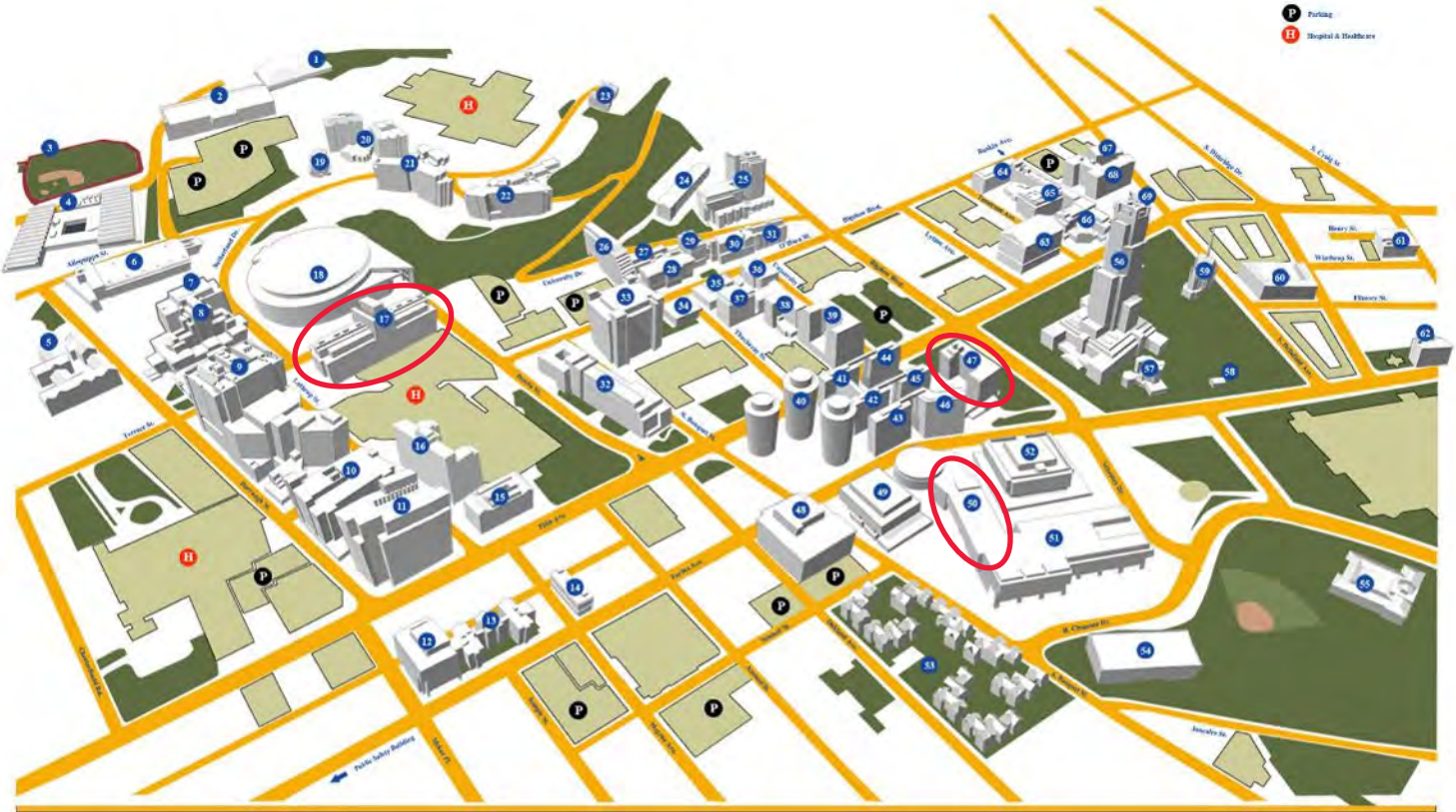
I invite you to immerse yourself in all that our university and city have to offer. At Pitt, we understand the transformative power of what you do and firmly believe that "It's Possible at Pitt." Through our world-renowned programs, including in biological sciences, psychology and the health sciences, Pitt is dedicated to providing high-quality, accessible and affordable academic and clinical training to the next generation of scientists and health care professionals. In this spirit, we're pleased to welcome you.

On behalf of the University of Pittsburgh, I wish you a memorable time in our city and on our campus and a successful and enjoyable conference fostering connections, gaining valuable insights, and sharing with each other.

With warm regards,

Joan Gabel

# University of Pittsburgh Campus Map



| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Allen Hall | 28 | Charles E. Cost Center | 2 | Heinz Chapel | 59 | Music Building | 69 | Space Research Coord. Ctr. | 31 |
| Alumni Hall | 63 | Craig Hall | 61 | Hillman Library | 52 | Nordenberg Hall | 39 | Sports Dome | 1 |
| Amos Hall | 44 | Crawford Hall | 64 | Holland Hall | 42 | O'Hara Student Center | 36 | Stephen Foster Memorial | 57 |
| Barco Law Building | 49 | Darraugh Apartments | 5 | Information Sciences Bldg. | 67 | Old Engineering Hall | 29 | Sutherland Hall | 20 |
| Bellefield Hall | 60 | Eberly Hall | 24 | K. Leroy Irvis Hall | 22 | Oxford Building | 12 | Thackeray Hall | 37 |
| Benedum Hall | 33 | Engineering Auditorium | 34 | Langley Hall | 65 | Panther Hall | 21 | Thaw Hall | 30 |
| Biomedical Tower 3 | 11 | Falk Medical Building | 15 | Lawrence Hall | 50 | Parran/Crabtree Halls | 32 | Thomas E. Starzl Tower | 9 |
| Bookstore | 41 | Falk School | 23 | Learning Research Dev. Ctr. | 26 | Petersen Events Center | 18 | Trees Hall | 4 |
| Bouquet Gardens | 53 | Fitzgerald Field House | 6 | Litchfield Towers | 40 | Petersen Sports Complex | 3 | University Club | 38 |
| Bruce Hall | 46 | Forbes Craig Apartments | 62 | Loeffler Building | 14 | Ruskin Hall | 68 | Van de Graaff Building | 27 |
| Brackenridge Hall | 43 | Forbes Pavilion | 13 | Log Cabin | 58 | Salk Hall | 8 | Victoria Building | 10 |
| Cathedral of Learning | 56 | Fraternity Housing | 19 | Lothrop Hall | 16 | Salk Pavilion | 7 | Wesley Posvar Hall | 51 |
| Chevron Science Center | 25 | Frick Fine Arts Building | 55 | McCormick Hall | 45 | Scaife Hall | 17 | William Pitt Union | 47 |
| Clapp Hall | 66 | Gardner Steel Conf. Center | 35 | Mervis Hall | 54 | Sennott Square | 48 | | |

# Don't forget to attend the HAPS Committee Meetings!

## Become more involved with HAPS by joining a committee.

### Saturday, May 24: University of Pittsburgh, 12:00 – 1:00 PM

Awards & Scholarship –WPU 539
Anatomical Donor Stewardship – WPU Dining Room B
Communications – WPU Dining Room C
Conference – WPU 542
Curriculum & Instruction – WPU 540
Diversity, Equity, and Inclusion –WPU Dining Room A
Fundraising – WPU 538
HAPS Educator - WPU 527

# Workshop Shuttle Schedule

**The hotel is roughly 15 minutes from the University.**
*Please keep that in mind when planning your travel to and from the various locations.*

## Saturday, May 24:

Morning Shift: 7:00 – 9:00 am – 3 shuttles running from the Wyndham to the University of Pittsburgh
Afternoon Shift: 4:00 – 6:00 pm – 3 shuttles running from University of Pittsburgh to the Wyndham
7:00 am – 6:00 pm – 1 shuttle running between the Wyndham to the University of Pittsburgh

## Sunday, May 25:

Morning Shift: 7:00 – 9:00 am – 2 shuttles running from the Wyndham to the University of Pittsburgh.
Afternoon Shift: 12:30 – 2:30 pm – 2 shuttles running from University of Pittsburgh to the Wyndham
7:00 am – 2:30 pm – 1 shuttle running between the Wyndham to the University of Pittsburgh.

## ADS Workshop:

8:00 AM - Noon on both Saturday and Sunday: A small shuttle will be traveling between William Pitt Union and the ADS Workshop in Scaife Anatomy Lab.

# WORKSHOPS 5/24 – A

| Session 1<br>8:30-9:30 | Session 2<br>9:45-10:45 | Session 3<br>11:00-12:00 | Session 4<br>1:15-2:15 | Session 5<br>2:30-3:30 | Session 6<br>3:45-4:45 |
|---|---|---|---|---|---|
| Workshop number = Letter and three-digit number \| Location = LH (Lawrence Hall); three-digit number or Scaife Anatomy Lab | | | | | |
| **A101 (LH 121)**<br>Crime Scenes and Crania<br>Role-playing activities in anatomy and forensic science education<br>Deborah Neidich | **A201 (LH 104)**<br>From Learning to Careers: The Anatomy Outreach Initiative<br>Pilard Hanna | **A301 (LH 203)**<br>The Joys of Timely Feedback<br>Mani Kurian | **A401 (LH 207)**<br>Enhancing Student Engagement and Skill Development in Large Cohort Laboratories through Pass/Fail Competency-Based Assessments<br>Chantal Hoppe | **A501 (LH 121)**<br>Human Sexual Dimorphism and Estrogen<br>Jennifer Ellsworth | **A601 (LH 232)**<br>**Sponsored by Anatomy in Clay**<br>Insights into forms and functions of and within the Rotator Cuff<br>Jon Zahourek |
| **A102 (LH 203)**<br>Oral Viva Voce Assessments in Large Cohorts: Enhancing Anatomical Literacy, Application, and Communication Skills in an AI-Driven Era<br>Chantal Hoppe | **A202 (LH 121)**<br>Clinical Implications of Treating Fascia<br>Kathryn Oland (Gilligan) | **A302 (LH 121)**<br>**HAPS Conference Travel Award Winner**<br>Cellular Respiration Made Simple<br>Lori Fetter | **A402 (LH 205)**<br>HAPS Exam Program 2025 Update: Learn More about HAPS comprehensive A&P and stand-alone anatomy exams<br>Valerie O'Loughlin | **A502 (LH 120)**<br>Beating the Bots: Education in the Age of AI<br>Kathleen Ahles | **A602 (LH 120)**<br>**HAPS Conference Travel Award Winner**<br>From start to heart: Measuring what sticks in A&P programs<br>Luis Rosado |
| **A103 (LH 205)**<br>**Sponsored by ADInstruments**<br>Creating Interactive Lessons and Assessments with Lt (ADInstruments)<br>Dee Silverthorn | **A203 (LH 203)**<br>Utilizing a Continuous Quality Improvement (CQI) Process in Student Assessments<br>Brian Hill | **A303 (LH 205)**<br>**Sponsored by HHMI BioInteractive**<br>Using BioInteractive's Sex Verification Testing of Athletes to discuss biological sex and body systems<br>Holly Basta | **A403 (LH 120)**<br>Using Progressive Team Based Concept Mapping to Increase Student Engagement, Feelings of Belonging and Understanding of Core Concepts in an Introductory AP1 course<br>Beth Eischen | **A503 (LH 203)**<br>Bringing Outsiders into the Classroom: Pitfalls and Benefits<br>Mitzi Glover | **A603 (LH 121)**<br>**HAPS Conference Travel Award Winner**<br>Transform Your Teaching by Redesigning Courses for Active Learning<br>Lydia Lytal |
| **A104 (LH 106)**<br>Converging in the Classroom: How to Make the Classroom Inclusive for Neurodivergent Students<br>Erin Amerman | **A204 (LH 207)**<br>**HAPS Conference Travel Award Winner**<br>You Reap What You Sow: Leveraging Bloom's Taxonomy in an Undergraduate Anatomy Class<br>Tyler Hall | **A304 (LH 120)**<br>Immunity: Outsmart, Outlast, Outplay<br>Jill McMillin | **A404 (LH 121)**<br>How to help your students succeed on their pathway to health professions careers<br>Jonathan Wisco | **A504 (LH 105)**<br>Designing Infographics to Facilitate Participation, Discussion and Active Learning.<br>Soma Mukhopadhyay | **A604 (LH 106)**<br>Getting to know you: Tips to help you help your students with their professional school interviews<br>Jonathan Wisco |
| **A105 (LH 104)**<br>Turning Students into Teachers Using Project-Based Learning<br>Beth Kersten | **A205 (LH 107)**<br>Games promote office hour participation by undergraduate students<br>Patrick Cafferty | **A305 (LH 104)**<br>**HAPS Conference Travel Award Winner**<br>AI detectors used in aggregate can assist A&P instructors in distinguishing AI- vs. human-written work<br>Jon-Philippe Hyatt | **A405 (LH 106)**<br>Writing for the HAPS Educator: Promote Your Work and Add to Your Teaching Portfolio<br>Brenda Del Moral | **A505 (LH 106)**<br>Blood, Bones, and Barriers: HOW we incorporate the Social Determinants of Health into A&P<br>Cristy Tower Gilchrist | **A605 (LH 105)**<br>Reviewing Manuscripts for the HAPS Educator: A Way to Expand Your Experience Related to Manuscript Writing and to Add to Your Teaching Portfolio.<br>Jacqueline Carnegie |

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# WORKSHOPS 5/24 – A

| Session 1<br>8:30-9:30 | Session 2<br>9:45-10:45 | Session 3<br>11:00-12:00 | Session 4<br>1:15-2:15 | Session 5<br>2:30-3:30 | Session 6<br>3:45-4:45 |
|---|---|---|---|---|---|
| Workshop number = Letter and three-digit number \| Location = LH (Lawrence Hall); three-digit number or Scaife Anatomy Lab | | | | | |
| - | **A206 (LH 106)**<br>Adapting A&P: Multi-modal Strategies for Engaging Neurodiverse Learners<br>Puja Shahi | **A306 (LH 207)**<br>**Sponsored by ADInstruments**<br>Align your Design! The art of mapping content to your learning outcomes<br>Arianna Boulet | **A406 (LH 104)**<br>Neuronal Communication – Modeling Potentials<br>Patrice Capers | **A506 (LH 104)**<br>Mapping Success: Using Concept Maps to Enhance Anatomy & Physiology Learning and Teaching<br>Larry Young | **A606 (LH 207)**<br>Embracing Personality Diversity to Empower Modern Learners: Raising the Bar with Emotional Intelligence<br>Adalyne Singh |
| **A107 (LH 105)**<br>Leveraging accessible, "out-of-the-box", hands on lab activities and technology to create engaged and impactful anatomy and physiology learning.<br>Travis Price<br>laboratory manuals and study guides in | **A207 (LH 205)**<br>**Sponsored by AIBODY**<br>Beyond the Textbook: Leveraging Simulation in Physiology Teaching<br>Heather Tuttle | **A307 (LH 105)**<br>It's more than just teaching: What I'd tell my first-year instructor self<br>Todd Gordon | **A407 (LH 107)**<br>Cracking the chest: Learning thoracic anatomy through radiologic imaging<br>Danielle Edwards | **A507 (LH 107)**<br>**Gail Jenkins Teaching and Mentoring Award Winner**<br>Edible Anatomy: Creative Food Projects for A&P Mastery<br>Carley Parkison | **A607 (LH 104)**<br>From Notes to Narration: Crafting Engaging Lecture Videos<br>Brandon Flom |
| **A108 (LH 207)**<br>From Urgency to Intentionality: Exploring Online Anatomy & Physiology Education<br>Kathleen Ahles | **A208 (LH 120)**<br>Integrating metabolism and nutrition to hopefully dispel myths and misconceptions about each<br>James Clark | **A308 (LH 106)**<br>Inclusive Digital Documents<br>Amanda Rosenzweig | **A408 (LH 105)**<br>Reel Tok: incorporating social media into your classroom<br>Katie Salmeron | **A508 (LH 205)**<br>From Case Study in the Classroom to Publication<br>Rema Suniga | **A608 (LH 203)**<br>**Sponsored by McGraw Hill**<br>A&P Digital Suite: Digital Tools for Better Student Outcomes<br>Steve Sullivan |
| **A109 (LH 107)**<br>**Sam Drogo Technology in the Classroom Award Winner**<br>Use of virtual reality and 3D anatomy visualization to prepare students for simulated surgery wet lab experiences<br>Jenna Kuczek | **A209 (LH 105)**<br>Putting Faces on the Study of Anatomy and Physiology<br>Jacqueline Carnegie | **A309 (LH 107)**<br>Hands-On, Minds-On: Transforming A&P with Simple and Interactive Learning<br>Krista White | **A409 (LH 203)**<br>Boosting Scientific Literacy and Understanding of the Scientific Method: A Quasi-experiment Study on the Impact of AI Tutoring Among Anatomy and Physiology Students.<br>Philomena Behmer DEd | **A509 (LH 207)**<br>How to use physiological simulation for a discovery lab experience<br>Thad Wilson | **A609 (LH 205)**<br>Enhancing Anatomy and Physiology Education Through Cadaver Lab Projects<br>Sudipta Biswas |
| **A1**<br>**(Scaife Anatomy Lab)**<br>Getting "A-Head" in Dissecting: Coach-Guided Dissections of the Head on Human Body Donors<br>Jeremy Grachan<br>**pre-registration requested* | **A2**<br>**(Scaife Anatomy Lab)**<br>Getting "A-Head" in Dissecting: Coach-Guided Dissections of the Head on Human Body Donors<br>Jeremy Grachan<br>**pre-registration requested* | | | | |

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# WORKSHOPS 5/25 –B

| Session 1<br>8:30-9:30 | Session 2<br>9:45-10:45 | Session 3<br>11:00-12:00 |
|---|---|---|
| Workshop number = Letter and three-digit number \| Location = LH (Lawrence Hall); three-digit number or Scaife Anatomy Lab | | |
| **B101 (LH 107)**<br>I love quizzes, and so can you:<br>strategies for using frequent quizzes<br>to increase student success<br>Carrie Long | **B201 (LH 104)**<br>**HAPS Conference Travel Award Winner**<br>Giant Jenga Trivia<br>Marian Leal | **B301 (LH 107)**<br>3D Connective Tissue Models<br>Jaime Mergliano |
| **B102 (LH 205)**<br>There Has to Be A Better Way<br>Lauren Giles | **B202 (LH 120)**<br>Tips and strategies to<br>improve student learning<br>through examinations<br>Jon Runyeon | **B302 (LH 120)**<br>Color through Human Body<br>Jenny Yearby |
| **B103 (LH 106)**<br>Are your students prepared for Graduate-level<br>Anatomy and Physiology course work<br>Chinenye Anako | **B203 (LH 121)**<br>Making molarity, osmolarity, and tonicity<br>visible for allied health students<br>Pat Clark | **B303 (LH 121)**<br>Anatomy and Physiology of a<br>Multiple Choice Question<br>Brian Hill<br>Burhan Gharaibeh |
| **B104 (LH 121)**<br>From Slides to Stories:<br>Integrating Case Studies<br>into Histology Education<br>Kathleen Ahles | **B204 (LH 106)**<br>Enhancing Student Success<br>in Anatomy & Physiology<br>with RESILIENT Resources<br>Nahel Awadallah | **B304 (LH 104)**<br>Overcoming Neurophobia<br>Through Gamification<br>Yasith Mathangasinghe |
| **B105 (LH 120)**<br>**John Martin Second Timer's Award Winner**<br>Team based learning: combining the flipped<br>classroom and cooperative learning on steroids<br>Elita Partosoedarso | **B205 (LH 205)**<br>**Sponsored by Mcgraw Hill**<br>"Silence is overrated: Flipping large classes with<br>McGraw Hill Connect"<br>David Katz | **B305 (LH 106)**<br>Guide to Formative Assessment: Facilitating Dialogue<br>Between Instructors and Students<br>Steven Semadeni |
| **B106 (LH 104)**<br>Pathogen Showdown:<br>The Survival in the Human Body<br>Haneen Salhieh | **B206 (LH 105)**<br>Flipping the Script:<br>Helping Students to Write and<br>Publish Teaching Case Studies<br>Lacy Cleveland | **B306 (LH 105)**<br>Set Sail on your Path to Promotion to Full Professor:<br>Advice from Those Who Completed the Journey<br>Valerie O'Loughlin |
| **B107 (LH 207)**<br>A hands-on workshop on employing mixed reality<br>software to teach anatomy.<br>Prasanna Abeyrathna<br>laboratory manuals and study guides in | **B207 (LH 107)**<br>Causality is the Foundation for<br>Critical Thinking in Physiology<br>Erik Silldorff | **B307 (LH 205)**<br>Hashtag You're It: Leveraging Online Tools and Social<br>Media to Increase Student Engagement<br>Hadley Dean |

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# WORKSHOPS 5/25 –B

| Session 1<br>8:30-9:30 | Session 2<br>9:45-10:45 | Session 3<br>11:00-12:00 |
|---|---|---|
| Workshop number = Letter and three-digit number \| Location = LH (Lawrence Hall); three-digit number or Scaife Anatomy Lab | | |
| **B108 (LH 105)**<br>**Sponsored by Carolina Distance Learning**<br>Hands-On, Minds-on:<br>Transforming Online A&P with Lab Kits<br>Kerry Balbirona | **B208 (LH 207)**<br>LGBTQIA+ Inclusivity in Anatomy and Physiology Courses<br>Christine Dubowy | |
| **B1 (Scaife Anatomy Lab)**<br>Don't Be "Disjointed" When Dissecting:<br>Coach-Guided Musculoskeletal Dissections on Human Body Donors<br>Jeremy Grachan<br>**pre-registration requested* | **B2 (Scaife Anatomy Lab)**<br>Don't Be "Disjointed" When Dissecting:<br>Coach-Guided Musculoskeletal Dissections on Human Body Donors<br>Jeremy Grachan<br>**pre-registration requested* | |

# Workshop Abstracts

## Session 1: May 24 @ 8:30 - 9:30 AM

**A101 - Crime Scenes and Crania Role-playing activities in anatomy and forensic science education**

**Deborah Neidich, University of Missouri, dneidich@health.missouri.edu, Allison Nesbitt, University of Missouri, nesbitta@health.missouri.edu, Sean Greer, University of Missouri, sygreer@health.missouri.edu, Sarah Zaleski, University of the Incarnate Word, szaleski@uiwtx.edu**

Role playing and narrative-based learning are recognized tools for education. By simulating real-world (or fantasy) scenarios like patient interactions, or interactive crime scenes, these methods help students apply abstract concepts in practical settings. In this workshop we will share strategies for developing new immersive role-playing activities relating to anatomy, osteology, DNA, pathology, and crime scene recovery, adapting pre-written modules to different learning environments, and adjusting materials for learners with different levels of experience We will close with an interactive demonstration of a role-playing activity. Come apply your anatomy skills to help us solve a crime!

**A102 - Oral Viva Voce Assessments in Large Cohorts: Enhancing Anatomical Literacy, Application, and Communication Skills in an AI-Driven Era**

**Chantal Hoppe, Monash University, chantal.hoppe@monash.edu, Yasith Mathangasinghe, Monash University, yasith.mathangasinghe1@monash.edu**

We will offer workshop participants an interactive, "choose your own adventure" style session, where they can explore one of three key themes for integrating oral viva voce assessments into their units: Educative Design – Developing rubrics, resources, and scaffolding for effective assessment. Logistics – Managing the who, what, and when for large cohorts. Standardisation – Ensuring consistency across multiple markers. Following the themed sessions, all participants will reconvene to share insights and experiences. Relevant resources will be provided before and after the workshop to support implementation.

**A103 - Creating Interactive Lessons and Assessments with Lt (ADInstruments)**

**Dee Silverthorn, U Texas at Austin, silverthorn@utexas.edu**

**Sponsored by ADInstruments**

Looking for a different way besides your LMS to create interactive lessons with a variety of question types and maximum flexibility in terms of grading? The online software Lt from ADInstruments will let you develop stand-alone lessons with unusual question types, such as drawing on images, drag-and-drop labeling, and matching items. You can allow students multiple attempts or require them to complete a section before they can move ahead. This workshop will show you the Lt features and let you start creating a lesson on your own. Bring a storyboard.

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**A104 - Converging in the Classroom: How to Make the Classroom Inclusive for Neurodivergent Students**

**Erin Amerman, Florida State College at Jacksonville, ecamerman@aol.com, Elise Amerman, Arizona State University, eliseamerman@aol.com**

Did you know that 10% or more of your students are neurodivergent? And did you know that your neurodivergent students are about half as likely to graduate as your neurotypical students? Let's talk about why this is, and what we can do about it. We'll focus largely on autism and ADHD—neurotypes that are often misunderstood and misrepresented as mental health conditions—and discuss practical strategies for making our classrooms and labs friendlier for neurodivergent students. It's easier than you might think to create an educational experience that celebrates neurodiversity and promotes effective learning for all students.

**A105 - Turning Students into Teachers Using Project-Based Learning**

**Beth Kersten, State College of Florida, Sarasota-Manatee, kersteb@scf.edu**

Empowering students to teach fosters deeper engagement and understanding. This workshop explores strategies for integrating project-based learning in lecture and lab settings. I'll share insights on student buy-in, effective design strategies, successful (and unsuccessful) design-strategies, and the impact on learning. What types of projects did students create? Did this method enhance comprehension? Join me to explore how shifting students into teaching roles can transform learning outcomes.

**A107 - Leveraging accessible, "out-of-the-box", hands on lab activities and technology to create engaged and impactful anatomy and physiology learning.**

**Travis Price, Weber State University, tprice@weber.edu, Jordan West, Weber State University, jordanwest@weber.edu, Maddison Johnston, Weber State University, maddisonjohnston@weber.edu, JD Speth, Weber State University, jefferyspeth@weber.edu**

At Weber State University, we teach large sections of anatomy and physiology with an associated lab. We have had success with improving student outcomes through the use of impactful lab activities and technology-driven classroom content delivery. In this workshop, we will give examples of a wide range of low-cost, accessible activities that create impactful learning opportunities for our students. We will give a hands-on demonstration of these activities.

**A108 - From Urgency to Intentionality: Exploring Online Anatomy & Physiology Education**

**Kathleen Ahles, Tarrant County College, kathleen.ahles@tccd.edu, Chinenye Anako, Nightingale College, ccanako@gmail.com, Heather Armbruster, Southern Union State Community College, harmbruster@hapsconnect.org, Abbey Breckling, University of Illinois - Chicago, abreckling@hapsconnect.org, Jeff Huffman, Salt Lake Community College, jeff.huffman@slcc.edu**

While COVID-19 left instructors scrambling to transition their on-ground courses to an online format, faculty now have the opportunity to more strategically design their virtual Anatomy & Physiology classes. In this workshop, presenters will discuss online teaching "best practices" and share concrete examples of the effective (and ineffective) elements of their own online courses. A discussion will follow, giving attendees the opportunity to share their own successes and failures in the eLearning environment. Let's work together to address the unique challenges of teaching online Anatomy & Physiology!

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**A109 - Use of virtual reality and 3D anatomy visualization to prepare students for simulated surgery wet lab experiences**

**Jenna Kuczek, The Ohio State University College of Medicine, kuczek.7@osu.edu, Claudia Mosley, The Ohio State University College of Medicine, claudia.mosley@osumc.edu, Kristin Stover, The Ohio State University College of Medicine, stover.353@osu.edu**

**Sam Drogo Technology in the Classroom Award Winner**

3D visualization and spatial relationships of anatomical structures can be difficult to comprehend, especially for undergraduate students with limited lab time. Early exposure and mastery of these concepts may help improve student confidence and performance later in their career. This workshop outlines the use of virtual reality technology followed by simulated surgical procedures on donors for undergraduate anatomy courses. We will discuss building guided VR and 3D activities, followed by simulated surgery experiences for hands-on learning. Participants will consider their own current laboratory activities and how these techniques can be incorporated to enhance student learning.

**A1-2 - Getting "A-Head" in Dissecting: Coach-Guided Dissections of the Head on Human Body Donors**

**Jeremy Grachan, Rutgers New Jersey Medical School, jg1916@njms.rutgers.edu, Abbey Breckling, University of Illinois at Chicago, abreck2@uic.edu, Bobbie J. Leeper, Seton Hill University, bleeper@setonhill.edu, Danielle Edwards, University of Alabama at Birmingham Heersink School of Medicine, dned222@uab.edu, Jonathan J. Wisco, Boston University Aram V. Chobanian & Edward Avedisian School of Medicine, jjwisco@bu.edu, Rhiannon Robinson, Boston University Aram V. Chobanian & Edward Avedisian School of Medicine, rerbnsn@bu.edu, Kelsey Stevens, Briar Cliff University, kelsey.stevens@briarcliff.edu**

The HAPS Anatomical Donor Stewardship (ADS) Coaching Subcommittee will facilitate a head and neck dissection workshop using human anatomical donors for both beginner and advanced dissectors. Participants will have the opportunity to dissect with support from ADS coaches, highlighting: dissection techniques, clinically-relevant discussions, and ways to approach variations or dissection and donor maintenance challenges. The goals of this workshop include learning how the ADS Support Team can help with dissection and teaching skills related to human body donors. Participants will be able to review head and neck anatomy by choosing to do a craniotomy or other various head dissections.

## Session 2: May 24 @ 9:45 – 10:45 AM

**A201 - From Learning to Careers: The Anatomy Outreach Initiative**

**Pilard Hanna, The Ohio State University, College of Medicine, pilardhanna@gmail.com**

This workshop focuses on Anatomy Education Outreach Programs, which provide hands-on experiences to enhance community access to cadaveric resources and engage participants in exploring human anatomy. At The Ohio State University's Division of Anatomy, we aim to improve accessibility, raise awareness, and expand outreach initiatives. This discussion-based workshop will share our experiences and insights on implementing successful educational outreach program, targeting diverse audiences, and fostering interest in careers in science and medicine. Additionally, we will explore research opportunities, discussing how to advance the field of anatomy education outreach for broader impact.

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**A202 - The Fascial System: Why It Deserves A Central Place in A&P Education**
**Kathryn Oland, Saint Louis University, kateogalligan@gmail.com**

It is only in the past 50 years that we have had the technology to observe the fascial system in vivo. This new perspective on this dense, irregular connective tissue has inspired scientists to put more efforts into understanding the importance of the fascial system. At the clinical level, body work therapists have been applying fascia treatments with incredible results. This presentation will walk you through the clinical aspects of treating fascia, what is happening at the cellular level of fascia during myofascial release treatment, as well as take a gross look at the whole body through the lens of an advanced level myofascial release therapist. There is a call to make the medical community more aware of the clinical presentation of fascial dysfunction in the forms of fibromyalgia, endometriosis, and many of the autoimmune diseases as well as to generate interest in support of future research projects.

**A203 - Utilizing a Continuous Quality Improvement (CQI) Process in Student Assessments**
**Brian Hill, Via College of Osteopathic Medicine, bhill@vcom.edu**

CQI is a philosophy that encourages team members to ask "What can we do to improve?" It is adept at providing a functional interpretation of qualitative data, and using these findings to drive meaningful and productive change. While it is widely used the healthcare and higher education committees and administration, in this workshop it will be applied to course assessments. CQI provides a superior mechanism to handle student comments, and it also trains students to address their concerns by brainstorming to find practical and workable solutions, and then to professionally present their concerns and solutions to course instructors.

**A204 - You Reap What You Sow: Leveraging Bloom's Taxonomy in an Undergraduate Anatomy Class**
**Tyler Hall, Denison University, Hallt@denison.edu, Taylor Hamlett, The Ohio State University, wyatt.160@osu.edu, Kristin Stover, The Ohio State University, Kristin.stover@osumc.edu**

**HAPS Conference Travel Award Winner**

Curricular design is an important responsibility of anatomy and physiology instructors, and learning objectives are at the heart of this process. In this workshop, attendees will explore the knowledge and cognitive process dimensions of the revised version of Bloom's taxonomy to develop their own learning objectives. We will examine how we have implemented learning objectives in our curriculum, resulting in a course whose total points align with both the aforementioned knowledge dimensions and the hierarchical nature of the cognitive process dimensions. We hope that attendees leave with ideas of how to maximize the potential of learning objectives in their courses.

**A205 - Games promote office hour participation by undergraduate students**
**Patrick Cafferty, Emory University, pcaffer@emory.edu**

Office hours are a widely used, optional form of academic support that allow students to meet with their instructors. Despite evidence that students benefit from student-faculty interactions, instructors broadly report that office hour attendance is poor. During this workshop, I will present how I used different card games in a weekly "Alternative Office Hour" to encourage my students attend office hours. I will present my observations, attendance rates, and anonymous survey results that reveal the use of games promoted student office hour participation. Together, we will brainstorm ways to promote office hour attendance and student engagement in different settings.

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**A206 - Adapting A&P: Multi-modal Strategies for Engaging Neurodiverse Learners**
**Puja Shahi, Chamberlain University, pshahi@chamberlain.edu, Haneen Salhieh, Chamberlain College of Nursing, Chamberlain University, hsalhieh@chamberlain.edu**

In our nursing program, Anatomy and Physiology form an integral part of the first-year curriculum. To enhance student engagement and foster lifelong learning, we have implemented a multi-modal strategy designed to address the neurodiverse learners. This innovative approach supports equity by accommodating various learning styles, including visual, auditory, read/write, and kinesthetic learners.

This comprehensive approach aims to address the unique needs of neurodiverse student population by using range of instructional materials. This promotes the development of skills that are critical for lifelong learning and adaptation in the dynamic field of healthcare.

**A207 - Beyond the Textbook: Leveraging Simulation in Physiology Teaching**
**Heather Tuttle, AIBODY, heather.tuttle@aibody.io**

**Sponsored by AIBODY**

Traditional physiology education often relies on static diagrams and theoretical instruction, limiting student engagement and comprehension. Advances in high-resolution physiological simulations, such as AIBODY, offer a transformative approach by enabling interactive, real-time modeling of complex biological processes. This presentation explores how simulation-based learning enhances conceptual understanding, fosters critical thinking, and bridges the gap between theoretical knowledge and clinical application. Case studies from large-scale university implementations highlight the impact on student engagement, retention, and assessment outcomes. By integrating simulation into curricula, educators can create immersive learning experiences that elevate physiology education beyond the textbook.

**A208 - Integrating metabolism and nutrition to hopefully dispel myths and misconceptions about each**
**James Clark, Chamberlain Univeristy, College of Nursing, clark.je2@gmail.com**

Metabolism and nutrition are interrelated factors of human physiology, so much to the point that they cannot be throughout about independent of each other. Yet, how we approach both leads to questions about how well this interrelationship is understood or how we can dispel many of the myths that students and faculty encounter daily. Here we will delve into some of the misconceptions that are perpetuated in media while working through activities to show the interrelationship between metabolism and nutrition into our class can combat many of these misconceptions and share tips to overcome our own bias on the subject.

**A209 - Putting Faces on the Study of Anatomy and Physiology**
**Jacqueline Carnegie, University of Ottawa, jcarnegie@uottawa.ca, Brenda del Moral, Edgewood College, BdelMoral@edgewood.edu, Joanne Savory, University of Ottawa, Joanne.Savory@uottawa.ca**

Anatomy and physiology are disciplines replete with factual information pertaining to body form and function. Medical and nursing students, however, can be impatient with learning basic science concepts in their rush to link their learning to real people and their care. This workshop will discuss personalizing the study of A&P by linking basic science concepts to current and historical health-related events (e.g. concepts of energy and the 1982 Tylenol murders) or to individuals (e.g. Rosalyn Yalow) who faced challenges while making key medical discoveries. These stories can engage students and foster understanding of the relevance of what they are learning.

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**A1-2 - Getting "A-Head" in Dissecting: Coach-Guided Dissections of the Head on Human Body Donors**

**Jeremy Grachan, Rutgers New Jersey Medical School, jg1916@njms.rutgers.edu, Abbey Breckling, University of Illinois at Chicago, abreck2@uic.edu, Bobbie J. Leeper, Seton Hill University, bleeper@setonhill.edu, Danielle Edwards, University of Alabama at Birmingham Heersink School of Medicine, dned222@uab.edu, Jonathan J. Wisco, Boston University Aram V. Chobanian & Edward Avedisian School of Medicine, jjwisco@bu.edu, Rhiannon Robinson, Boston University Aram V. Chobanian & Edward Avedisian School of Medicine, rerbnsn@bu.edu, Kelsey Stevens, Briar Cliff University, kelsey.stevens@briarcliff.edu**

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## Session 3: May 24 @ 11:00 AM – 12:00 PM

**A301 - The Joys of Timely Feedback**

**Mani Kurian, Comminity College of Baltimore County, mkurian@ccbcmd.edu**

Timely feedback helps learners efficiently direct their attention and energies, helps them avoid major errors and dead ends, and keeps them from learning things they later will have to unlearn. It can a great motivator in the learning process. This workshop will show some of the ways instructors could incorporate timely feedback in their courses.

**A302 - Cellular Respiration Made Simple**

**Lori Fetter, Marion Technical College, fetterl@mtc.edu**

**HAPS Conference Travel Award Winner**

Have your students ever become overwhelmed by the intricate diagrams and verbiage presented by publisher course materials regarding cellular respiration? If you are looking to explore a straightforward, interactive approach to focus students' attention for retention of knowledge necessary to comprehend this complex topic, fear not – you've come to right workshop! This presentation will engage participants in an activity utilizing low-cost materials to untangle the complexities of cellular respiration often encountered by students who are actively studying anatomy and physiology.

**A303 - Using BioInteractive's Sex Verification Testing of Athletes to discuss biological sex and body systems**

**Holly Basta, Rocky Mountain College, holly.basta@rocky.edu, Kaitlin Bonner, St. John Fisher University, kbonner@sjf.edu**

**Sponsored by HHMI BioInteractive**

Many students harbor misconceptions about biological sex, including how it differs from gender and sexuality. In this workshop, participants will use HHMI BioInteractive's Sex Verification Testing in Athletes and the Crash Course video Gender, Sex, and Sexuality, together with primary sources, to both dispel misconceptions on these topics and review body systems. The workshop addresses HAPS learning objectives across multiple body systems and the Vision and Change competency Science in Society. Participants will explore a model for culturally-relevant A&P, gain tools to engage in conversations about societal issues with their students, and reflect on adapting these resources to their courses.

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**A304 - Immunity: Outsmart, Outlast, Outplay**
**Jill McMillin, Chamberlain University College of Nursing, JMcMillin@chamberlain.edu, Nazish Siddiqi, Chamberlain University College of Nursing, Nsiddiqi@Chamberlain.edu, Puja Shahi, Chamberlain University College of Nursing, Pshahi@Chamberlain.edu**

To facilitate the retention of anatomy & physiology concepts, gaming techniques can be applied in the classroom. We developed an interactive multi-level card game for college students that tests their understanding of the immune system. Students advance from the first to the second to the third lines of defense as they identify correct factors and defense mechanisms. Our objective for applying interactive games is to increase student engagement with peers, practice communication and focus on motivation which will support retention of concepts and critical-thinking skills. Games allow immediate feedback and provide hands-on learning opportunities in an enjoyable and safe environment.

**A305 - AI detectors used in aggregate can assist A&P instructors in distinguishing AI- vs. human-written work**
**Jon-Philippe Hyatt, Arizona State University, jphyatt@asu.edu**

**HAPS Conference Travel Award Winner**

This presentation focuses on a study conducted in A&P I where we collected student-written and AI-generated essays pertaining to plasma membrane structure and function. We assessed the accuracy of human raters/graders and the veracity of AI detectors in identifying the origin of each essay. Human raters and the best-performing AI detectors identified the correct origin of the essays at a similar rate, but AI detectors labeled fewer false-positive (human writing incorrectly labeled as AI) than human raters. We will then show how AI detectors, when used in aggregate, can inform instructors to correct mis-identified false-positives.

**A306 - Align your Design! The art of mapping content to your learning outcomes**
**Arianna Boulet, ADInstruments, a.boulet@adinstruments.com**

**Sponsored by ADInstruments**

Ensuring learning activities are engaging and aligned with academic standards is hard! HAPS has a comprehensive set of learning outcomes, so why not learn how to use them effectively? Do your students have difficulty grasping certain A&P concepts? In this workshop, we'll use a free content design template that brings a structured approach to creating captivating content. We'll apply HAPS learning outcomes to the template and practice designing focused, student-centered activities. Join us to pick up your template and get a taste for how mapping out goals, key activities, and delivery strategies can leave you with organized and engaging learning solutions.

**A307 - It's more than just teaching: What I'd tell my first-year instructor self**
**Todd Gordon, Kansas City Kansas Community College, gordo@kckcc.edu**

Should you say yes to every committee assignment? Should you pay attention to every in-service session? Is lecturing obsolete? Is academic assessment important? Should you allow students to re-take exams? Over the course of a long career as a community college instructor, the presenter has learned that there is much more to a career in education than merely what happens in the classroom. Join the presenter for a stimulating, interactive hour where we can answer some of above questions and share some of the characteristics that allow for a successful, rewarding career!

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**A308 - Inclusive Digital Documents**
**Amanda Rosenzweig, Delgado Community College, arosen@dcc.edu**

This workshop provides essential guidelines for designing accessible Word documents that meet diverse user needs, including individuals with disabilities. Participants will learn best practices for structuring documents with headings, using alternative text for images, ensuring proper color contrast, and formatting tables for screen readers. The session will also cover built-in accessibility tools in Microsoft Word to check and enhance document accessibility. By the end of the workshop, attendees will have practical skills to create documents that are clear, navigable, and inclusive for all users.

**A309 - Hands-On, Minds-On: Transforming A&P with Simple and Interactive Learning**
**Krista White, Anne Arundel Community College, kywhite1@aacc.edu**

Struggling to keep students engaged in anatomy and physiology? This interactive workshop will showcase hands-on activities that are easy to implement and make challenging A&P concepts stick. You'll learn practical strategies to boost comprehension and retention and increase a sense of belonging in the classroom. These techniques will help energize your lessons and keep students actively involved. Walk away with ready-to-use ideas that transform passive learning into dynamic, student-centered experiences!

## Session 4: May 24 @ 1:15 – 2:15 PM

**A401 - Enhancing Student Engagement and Skill Development in Large Cohort Laboratories through Pass/Fail Competency-Based Assessments**
**Chantal Hoppe, Monash university, chantal.hoppe@monash.edu, Jack Mayhew, Monash University, jack.mayhew@monash.edu, Yasith Mathangasinghe, Monash University, yasith.mathangasinghe1@monash.edu**

Join us as we introduce a competency-based assessment system emphasising essential lab skill development in a low-stakes environment, aiming to increase student engagement across multiple courses. By shifting focus away from high-pressure, weighted assessments, we encourage deeper learning and skill mastery, rather than rote memorisation for grades. We will guide you through developing key lab competencies and designing simple pass/fail rubrics tailored to your own courses. Drawing from our experience, we'll help you implement effective, student-centered assessments that prioritise hands-on learning. Participants are encouraged to bring a list of skills they'd like to be workshopped for their courses.

**A402 - HAPS Exam Program 2025 Update: Learn More about HAPS comprehensive A&P and stand-alone anatomy exams**
**Valerie O'Loughlin, Indiana University School of Medicine - Bloomington, vdean@iu.edu, Janet Casagrand, University of Colorado – Boulder, janet.casagrand@colorado.edu, Dee Silverthorn, University of Texas at Austin, silverthorn@utexas.edu**

The HAPS Exam Program leadership will provide information about the HAPS Comprehensive A&P and stand-alone anatomy exams. These exams allow you to compare your class performance with other schools, assess learning gains, and/or examine equity and diversity issues in learning. Learn about these validated exams with their secure online testing platform and proctoring options! We explain exam purchases and provide examples of ways to utilize and fund them at your institution. We also will update you on the development of two additional A&P exam versions, which have a balance of lower and higher order questions that focus on global concepts.

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**A403 - Using Progressive Team Based Concept Mapping to Increase Student Engagement, Feelings of Belonging and Understanding of Core Concepts in an Introductory AP1 course**

**Beth Eischen, Hamilton College, beischen@hamilton.edu**

Concept mapping and cooperative learning are proven methods of active learning that increase student understanding and engagement. In my classroom, I have found success in combining team based learning with EBIPs, including concept mapping, in a progressive round robin style circuit. In this workshop, attendees will be guided through a few exercises that progress in stages (think progressive dinner!!) that have worked with AP1 curriculum to increase student understanding, feelings of belonging and engagement through team based learning and have potential to improve outcomes on assessments.

**A404 - How to help your students succeed on their pathway to health professions careers**

**Jonathan Wisco, Boston University Aram V. Chobanian & Edward Avedisian School of Medicine, jjwisco@bu.edu**

Anatomy and Physiology instructors have the first opportunity to engage pre-health professions students on the first steps of their career pathway. This faculty development workshop is intended to provide instructors with a toolkit of advising skills that will help their students become successful. From the perspective of a member of medical, PA, and basic science graduate admissions committees, we will cover the tips that instructors should advise their students regarding academics, service, leadership, research, and clinical work. This workshop will help instructors find opportunities for students to engage in significant learning experiences that help them become amazing candidates.

**A405 - Writing for the HAPS Educator: Promote Your Work and Add to Your Teaching Portfolio**

**Brenda Del Moral, Edgewood College, bdelmoral@edgewoomed.edu, Jacqueline Carnegie, University of Ottawa, jcarnegie@hapsconnect.org, Carol Britson, University of Mississippi, cbritson@olemiss.edu, Brenda del Moral, Edgewood College, BdelMoral@edgewood.edu, Tracy Ediger, Georgia State University, tediger@gsu.edu, Hisham Elbatarny, St. Lawrence College & Queen's University, helbatarny@sl.on.ca, Elizabeth Granier, St. Louis Community College, egranier@stlcc.edu, Kimberly Jeckel, Colorado State University, Kimberly.Jeckel@colostate.edu, Joanne Savory, University of Ottawa, Joanne.Savory@uottawa.ca**

Join us for this workshop where we will explore categories of manuscripts published by the HAPS Educator, brainstorm ideas with editors and colleagues for your publishable work, and discuss how our reviewers and editorial staff work together to enhance your manuscript. We want to help you share your ideas, data, and expertise with fellow educators. The HAPS Educator is published 3 times annually, has a short turn-around time, provides helpful guidance for manuscript revision, links each article with a DOI, and is indexed with the Education Resource Information Centre (ERIC).

**A406 - Neuronal Communication – Modeling Potentials**

**Patrice Capers, The Citadel, pcapers@citadel.edu**

Students have a difficult time understanding both the process and the connection between graded potentials and action potentials. This workshop will explore approaches used to review neuron structure, ion concentration and ion channels while modeling resting membrane potential, graded potential, and action potentials. In this hands-on workshop, the audience will receive handouts with materials and a drag and drop PowerPoint activity to create models to demonstrate how potentials are generated and propagated. We will then share and reflect on 1) this hands-on experience and 2) our experience teaching membrane potentials.

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**A407 - Cracking the chest: Learning thoracic anatomy through radiologic imaging**
**Danielle Edwards, University of Alabama at Birmingham, dned222@uab.edu**

Radiology is essential in identifying gross anatomical structures and pathology in preclinical and clinical anatomy education classrooms. Unfortunately, many anatomy educators struggle to include imaging in their courses due to a lack of training and/or confidence in reading and teaching the images. This workshop intends to build the skills of anatomy educators by 1) introducing them to key concepts in plain film (x-Ray), CT, and MR imaging, 2) use these key concepts to work through images of normal and abnormal anatomy of the thorax, and 3) participate in a clinical case of the thorax using the different modalities.

**A408 - Reel Tok: incorporating social media into your classroom**
**Katie Salmeron, University of Kentucky College of Medicine, k.salmeron@uky.edu**

Engaging the newest generation of anatomy learners has never been more competitive. With the world of knowledge and entertainment at their fingertips, it is easy for the attention of the student to ebb during a typical lecture. So if you can't compete with them, join them! Come and learn how to incorporate social media into your classroom to help gain and maintain the attention of your students.

**A409 - Boosting Scientific Literacy and Understanding of the Scientific Method: A Quasi-experiment Study on the Impact of AI Tutoring Among Anatomy and Physiology Students.**
**Philomena Behmer DEd, Saint Joseph's University, pbehmer@sju.edu, Amy Troyer, Saint Joeseph's University, atroyer@sju.edu**

Artificial Intelligence (AI) integration in anatomical sciences education shows promise for enhancing learning and broadening access to resources. This workshop introduces an ongoing quasi-experimental study evaluating AI's effectiveness in enhancing A&P students' ability to analyze primary research articles and apply the scientific method. The study compares AI-assisted and traditional learning groups, using pre- post-tests, surveys, and project scores to assess outcomes. Findings will assess AI's impact on scientific literacy and students' ability to use AI critically and ethically, informing best practices for AI integration in health sciences education.

## Session 5: May 24 @ 2:30 – 3:30 PM

**A501 - Human Sexual Dimorphism and Estrogen**
**Jennifer Ellsworth, Moorpark College, jellsworth@gmail.com**

Human sex chromosomes impact development uniquely and separately in females and males. This workshop will explore the effects of both membrane-bound and intracellular estrogen receptor stimulation at different stages of the lifecycle. GPER are found in all musculoskeletal tissues and all major body systems including neural, digestive, immune, urinary, and cardiovascular systems in females. In males, estrogen receptors are found in bones, the brain, and male reproductive organs. Changes in females during puberty and menopause affect all somatic cells with estrogen receptors. Yet most physicians have received little to no training on how female homeostasis is estrogen-dependent throughout life. It is time to update clinical care based on sexual dimorphism. Females are separate from men and need care developed specifically for females.

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**A502 - Beating the Bots: Education in the Age of AI**
**Kathleen Ahles, Tarrant County College, kathleen.ahles@tccd.edu**

For better or worse, Generative AI tools like ChatGPT have become a staple of the modern college student's toolkit. This fundamentally alters the educational landscape, and it is imperative that instructors re-evaluate the relevance of their courses in the Age of AI. In this workshop, we will use Oregon State University's "Bloom's Taxonomy Revisited" to explore the distinctly human skills that are crucial to modern student success. By purposefully incorporating more of these skills into our Anatomy & Physiology courses, we will better prepare our students to thrive in the Age of AI.

**A503 - Bringing Outsiders into the Classroom: Pitfalls and Benefits**
**Mitzi Glover, Burnett School of Medicine at TCU, glovermitzi@gmail.com, Prasanna Abeyrathna, Burnett School of Medicine at TCU, p.abeyrathna@tcu.edu**

Faculty at the Burnett School of Medicine at TCU often incorporate "outsiders" into our educational sessions. These outsiders include local practitioners, researchers, patients, and patient families, whose experiences help to bring a sense of relevance to the material being covered. Looking beyond medical schools, virtually any course at any level may benefit from varying degrees of outside involvement to enrich student interest and engagement. Using cases based on true experiences, we will discuss the problems and possibilities of bringing outsiders in, and will provide tools to help you find the appropriate path to the benefits of this resource.

**A504 - Designing Infographics to Facilitate Participation, Discussion and Active Learning.**
**Soma Mukhopadhyay, Augusta University, soma.mukhopadhyay.08@gmail.com**

Student engagement is important for recruiting interest but could be challenging. Infographics are becoming a powerful tool for engagement and comprehension of difficult topics like human anatomy and physiology. Creating visually attractive infographics to illustrate hierarchical organization and physiological processes has a transformative impact which allows both vocal and non-oral students in the same comfort zone to actively participate. The presenter will demonstrate how the process has evolved to foster learning. Join this session to get ideas for designing infographics to encourage communication and stimulate critical thinking and take away some infographics developed to use in your classroom.

**A505 - Blood, Bones, and Barriers: HOW we incorporate the Social Determinants of Health into A&P**
**Cristy Tower Gilchrist, Emory University, cristy.tower-gilchrist@emory.edu, Christine Dubowy, Community College of Baltimore County, cdubowy@ccbcmd.edu, Marian Leal, Sacred Heart University, lealm@sacredheart.edu, Melanie Schroer, Stockton University, melanie.schroer@stockton.edu, Diane Tice, SUNY Morrisville, ticedg@morrisville.edu, Jonathan J. Wisco, Boston University Aram V. Chobanian & Edward Avedisian School of Medicine, jjwisco@bu.edu, Jennifer Stokes, Southwestern University, stokesj@southwestern.edu**

Social determinants of health (SDOH) are factors that contribute to health inequalities and directly impact health care outcomes of patients. Despite major endeavors to incorporate SDOH into professional health science curricula, there are limited guidelines for human anatomy and physiology (A&P) courses. This workshop will provide guidance for integrating SDOH concepts into A&P curricula. The three goals for this workshop are 1) to introduce the SDOH in a global context, 2) provide teaching strategies that encompass the four pillars of SDOH, and 3) to modify existing course material by using a checklist that identifies SDOH.

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**A506 - Mapping Success: Using Concept Maps to Enhance Anatomy & Physiology Learning and Teaching**

**Larry Young, Florida Southern College, lyoung@hapsconnect.org, Heather Armbruster, Southern Union State Community College, harmbruster@suscc.edu**

This interactive session introduces concept mapping as a powerful tool for engaging students and enhancing their understanding in Anatomy & Physiology. Participants will explore practical strategies, actively create concept maps, and learn how to implement them effectively in their courses, both in preparation for lectures and in-class activities. By the end of the session, attendees will leave with a ready-to-use concept mapping activity designed to promote deeper student learning.

**A507 - Edible Anatomy: Creative Food Projects for A&P Mastery**

**Carley Parkison, State College of Florida, carleyparkison@gmail.com**

**Gail Jenkins Teaching and Mentoring Award Winner**

This workshop, "Edible Anatomy: Creative Food Projects for A&P Mastery," introduces innovative, food-based activities to tackle challenging Anatomy and Physiology topics. Participants will explore engaging projects such as crafting a skin layer cake, neuron cookies, and edible cell wall models. These hands-on activities simplify complex concepts like integumentary layers, neural communication, and cellular structure, fostering better understanding and retention. Attendees will learn how to design, implement, and assess these creative activities in their own classrooms, promoting collaboration and critical thinking while making learning both fun and memorable for students.

**A508 - From Case Study in the Classroom to Publication**

**Rema Suniga, Ohio northern university, r-suniga@onu.edu, William H. Cliff, Ph.D., Niagara University, bcliff@niagara.edu**

A case study fosters student critical thinking, analytical skills and life-long learning. In this 60-minute workshop, (1) the presenters will share the use of case study in the classroom and subsequent publication in a peer-reviewed medium. (2) participants: a. network with colleagues interested in the use of case study. b. are introduced to basic case study writing (e.g., NSTA Case Submission Guidelines). c. brainstorm to start writing a case study. d. may continue to write (individually or with a group) the case study virtually/electronically for use in one's course, sharing with colleagues, and(or) submission/publication

**A509 - How to use physiological simulation for a discovery lab experience**

**Thad Wilson, University of Kentucky, Thad.Wilson@uky.edu**

Discovery laboratories are partial inquiry-based learning activities where the student identifies a hypothesis within a guided research question related to scientific relationship or concept. The student determines how to test their hypothesis, generating both supportive and non-supportive data. Because students are involved in independent and dependent variable selection and methodology (within constraints), discovery laboratories can have multiple outcomes and learning opportunities. Simulation is an ideal method to allow exploration and multiple experimental iterations that are completed safely, with less supervision, and without consuming excess resources. This workshop will guide participants through the instructional design of creating a simulation-based discovery laboratory.

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## Session 6: May 24 @ 3:45 – 4:45 PM

**A601 - Insights into forms and functions of and within the Rotator Cuff**
**Jon Zahourek, Zoologik®Foundation, jon.z@zoologik.org**

In this workshop, participants will build elements of musculature, in clay, onto scale models of the disarticulated human pectoral skeleton. We will focus on fascicular myology and its implications in movement and range-of-motion. Participants will take home the models of the scapula and humerus on which they have built.

**A602 - From start to heart: Measuring what sticks in A&P programs**
**Luis Rosado, Worcester State University, lrosado@worcester.edu**

**HAPS Conference Travel Award Winner**

Assessing information retention across the two-semester A&P sequence is vital for understanding student success and improving our programs. This workshop highlights using a short 15-question entrance and exit survey tool to evaluate retention of key A&P concepts. Participants will explore trends in student learning, discuss how assessment data informs program changes, and develop additional survey questions tailored to their needs. Through discussions and breakout sessions, attendees will refine their approach to retention assessment and gain practical tools to implement effective strategies at their institutions.

**A603 - Transform Your Teaching by Redesigning Courses for Active Learning**
**Lydia Lytal, University of Mississippi, lytal@olemiss.edu, Josh Schmerge, University of Mississippi, jdschmer@olemiss.edu, Carla Carr, University of Mississippi, cbcarr@olemiss.edu**

**HAPS Conference Travel Award Winner**

Join our interactive workshop where you will learn how TEAL classrooms and collaborative techniques promote student engagement. We are part of an instructional team that is eager to share earned wisdom about redesigning courses focused on active learning. We will discuss the benefits and challenges of teaching in an innovative, student-centered classroom and present real-world examples from our conversion of Human Biology from a lecture-based approach into an active-learning style course. This workshop is perfect for educators looking to elevate their impact and energize learning.

**A604 - Getting to know you: Tips to help you help your students with their professional school interviews**
**Jonathan Wisco, Boston University Aram V. Chobanian & Edward Avedisian School of Medicine, jjwisco@bu.edu, Anya Goldina, Elizabethtown College, goldinaa@etown.edu**

Anatomy and Physiology instructors are the first mentors for students on their pre-health career pathway. This faculty development workshop will provide instructors with a toolkit of advising skills to help their students become successful interviewers. From the perspective of members of medical, PA, and basic science graduate admissions committees, we will work through mock interview vignettes focusing on essential skills, including how to 1) determine the hidden meaning behind questions; 2) consider and discuss major viewpoints; 3) demonstrate cultural sensitivity and awareness of diverse approaches to solving problems; 4) reason using the scientific method; and 5) be approachable and genuine.

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**A605 - Reviewing Manuscripts for the HAPS Educator: A Way to Expand Your Experience Related to Manuscript Writing and to Add to Your Teaching Portfolio.**
**Jacqueline Carnegie, University of Ottawa, jcarnegie@hapsconnect.org, Carol Britson, University of Mississippi, cbritson@olemiss.edu, Brenda del Moral, Edgewood College, BdelMoral@edgewood.edu, Tracy Ediger, Georgia State University, tediger@gsu.edu, Hisham Elbatarny, St. Lawrence College & Queen's University, helbatarny@sl.on.ca, Elizabeth Granier, St. Louis Community College, egranier@stlcc.edu, Kimberly Jeckel, Colorado State University, Kimberly.Jeckel@colostate.edu, Joanne Savory, University of Ottawa, Joanne.Savory@uottawa.ca**

Join us as we discuss reviewing manuscripts for the HAPS Educator. Reviewing manuscripts, be they educational research articles with data, teaching innovations implemented in-person or online, or literature updates pertaining to A&P topics, is an excellent way to become familiar with advances in A&P education made by HAPS members. Manuscript review is an important addition to teaching portfolios when exploring pathways to promotion. You would be asked to review maximum 2-3 articles annually and your contribution is acknowledged in each edition. Evaluating journal submissions can promote collaborations related to A&P teaching and/or inspiration and confidence to write your own manuscript!

**A606 - Embracing Personality Diversity to Empower Modern Learners: Raising the Bar with Emotional Intelligence**
**Adalyne Singh, Nova Southeastern University, as1616@nova.edu, Ricardo Rodriguez-Millan, Nova Southeastern University, rrodriguezmillan@nova.edu, Cheryl Purvis, Nova Southeastern University, cpurvis@nova.edu**

Our workshop aims to enhance educators' ability to create learner-centered environments, crucial for fostering academic and personal success. We will explore how recognizing and valuing different personality types can transform group dynamics and improve learning outcomes. Participants will delve into positive psychology with a focus on the strengths of different personality types. By embracing emotional intelligence, including self-awareness, self-management, and social awareness, educators can create an atmosphere of inclusivity and respect for cultural differences. Our workshop will provide practical strategies for educators to enhance their interactions and build a classroom environment that truly supports and elevates modern learners.

**A607 - From Notes to Narration: Crafting Engaging Lecture Videos**
**Brandon Flom, Indiana University, bflom@iu.edu**

Lecture videos don't have to be static slides or faceless voiceovers, there are simple ways to bring content to life. This workshop explores how educators can create engaging lecture videos where notes appear as an overlay on screen, mimicking a translucent glass notepad effect. Participants will learn practical techniques for structuring content, using accessible tools, and enhancing student engagement by blending instructor presence with dynamic note-taking. Whether you're new to video creation or refining your approach, this session will equip you with the skills to transform your notes into visually compelling, interactive learning experiences.

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**A608 - A&P Digital Suite: Digital Tools for Better Student Outcomes**
**Steve Sullivan, Bucks County Community College, stephen.sullivan@bucks.edu**

**Sponsored by Mcgraw Hill**

Today's students are digital natives. They used tablets instead of books in high school, they scour YouTube, Instagram, TikTok, Quizlet, ChatGPT, and more to help them learn complex concepts in simple ways. Unfortunately, most of these sources are unvetted, oversimplified, and insufficient to be successful in our courses. We can engage our students with reliable and tested active learning via assignable digital tools like anatomy and physiology lab simulations, tutor videos with adaptive learning, and high level quizzes for exam preparation. Let's meet our students where they are so we can guide them to where they need to be.

**A609 - Enhancing Anatomy and Physiology Education Through Cadaver Lab Projects**
**Sudipta Biswas, South Mountain Community College, sudipta.biswas@southmountaincc.edu**

Human cadaver labs have been integrated into Anatomy and Physiology courses as hands-on learning for a long time. However, undergraduate students often find the experience unnerving. This workshop explores the integration of cadaver lab in a research project format by bridging theoretical knowledge with practical application, and development of critical thinking skills. The session will focus on ethical considerations, collaboration with medical institutions along with strategies to design impactful projects, assessment methods, and ways to make the cadaver lab a transformative element in the curriculum. This session is ideal for educators seeking innovation to engage students in learning anatomy.

## Session 1: May 25 @ 8:30 – 9:30 AM

**B101 - I love quizzes, and so can you: strategies for using frequent quizzes to increase student success**
**Carrie Long, Anne Arundel Community College, clong9@aacc.edu**

Frequent, low-stakes quizzes are evidence-based learning and assessment tools that students like (really – I'll show you my data!) as they come to understand their value in both enhancing and providing rapid feedback on their understanding of course content. These quizzes can be given during class, delivered by your learning management system, or by using a combination of these modalities. Let's discuss how to implement this inclusive strategy, gain student buy-in, and reap the benefits…all while minimizing instructor workload along the way. It can be done!

**B102 - There Has to Be A Better Way**
**Lauren Giles, Mercyhurst University, lgiles@mercyhurst.edu, Kelly Lucore, Mercyhurst University, klucore@mercyhurst.edu**

Join us for an interactive workshop where participants will exchange tips, tricks, and experiences on delivering effective lab practicals. Whether you're a seasoned instructor or new to leading hands-on sessions, this discussion-based event offers a collaborative space to share strategies that have worked and troubleshoot challenges you've faced. From setting clear instructions to managing time and student engagement, come ready to learn from your peers, reflect on your own practices, and leave with fresh insights to enhance your lab teaching techniques. Don't miss this opportunity to build a wealth of tricks from resourceful lab instructors!

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**B103 - Are your students prepared for Graduate-level Anatomy and Physiology course work**

**Chinenye Anako, Creighton University School of Medicine, ccanako@gmail.com**

Anatomy and Physiology is a pre-requisite course for many advanced degrees in the health professions. Undergraduate courses should prepare students for the rigor of graduate level course work. This workshop would be highlighting the different challenges that students encounter in advanced anatomy and physiology courses and how we can help ameliorate some of those challenges by looking at how we design our undergraduate anatomy and physiology course curriculum. I invite you to hear about my experiences as I transitioned from teaching undergraduate anatomy and physiology courses to teaching graduate level courses. Were the student's prepared? How can we improve?

**B104 - From Slides to Stories: Integrating Case Studies into Histology Education**

**Kathleen Ahles, Tarrant County College, kathleen.ahles@tccd.edu, Abbey Breckling, University of Illinois – Chicago, abreckling@hapsconnect.org, Sharada Gollapudi, San Jacinto College – South, sharada.gollapudi@sjcd.edu, Rachel Hopp, University of Louisville, rhopp@hapsconnect.org, Judy Maloney, Marquette University, jmaloney@hapsconnect.org, Deborah Merritt, University of Hawaii, dmerritt@hawaii.edu, Soma Mukhopadhyay, Augusta University, smuk@hapsconnect.org, Yuli Pernia, San Jacinto College – North, yuli.pernia@sjcd.edu, Hiranya Roychowdhury, New Mexico State University, hroychow@hapsconnect.org, Nina Zanetti, Siena College, zanetti@siena.edu**

While histology is a staple of Anatomy & Physiology education, maintaining student interest in this topic can be challenging. By introducing tissue samples through case studies - which highlight the real-world applications of this information, instructors can increase student engagement in the learning process. The HAPS Histology Subcommittee has created several case studies using the member-exclusive images in the HAPS Histology repository. In this workshop, we will review a few of these case studies and will explore how to incorporate them into your classrooms.

**B105 - Team based learning: combining the flipped classroom and cooperative learning on steroids**

**Elita Partosoedarso, OntarioTech University, elita.partosoedarso@ontariotechu.ca**

**John Martin Second Timer Award Winner**

Team based learning (TBL), a type of cooperative learning, involves assigning preclass work to cover key concepts so that class time is used to test and extend their understanding. Groups are pre-assigned for the entire duration to promotes a good working relationship and the development of groupwork strategies. Classes are highly structured with a fixed format and ranged from small (18 students) to large (240 students). This built student confidence in their content understanding, especially when applied to case studies and clinical applications. This workshop will focus on TBL structure, tips for effective implementation, group allocation, and marking minimization.

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**B106 - Pathogen Showdown: The Survival in the Human Body**
**Haneen Salhieh, Chamberlain University, Hsalhieh@chamberlain.edu, Puja Shahi, Chamberlain University, pshahi@chamberlain.edu**

"Pathogen Showdown" is an interactive, gamified approach to teaching the immune system through competitive gameplay. Students select a pathogen, each with unique abilities, and navigate a game board that represents the body's immune defenses. By rolling dice, players encounter immune responses, hazards, and special events, while utilizing strategy, chance cards, and pathogen-specific traits to outmaneuver competitors. The game encourages collaboration and critical thinking, fostering an engaging learning environment. Players gain an in-depth understanding of immune functions, pathogen behavior, and immune evasion tactics, all while competing to be the first to overcome the body's defenses and win.

**B107 - A hands-on workshop on employing mixed reality software to teach anatomy.**
**Prasanna Abeyrathna, Texas Christian University, p.abeyrathna@tcu.edu, Miti Glover, Texas Christian University, mitzi.glover@tcu.edu**

The use of mixed reality to teach anatomy has become increasingly popular at both the undergraduate and graduate levels. With rising laboratory maintenance costs and decreasing mixed reality hardware costs, this trend is expected to grow. In this workshop, we will provide a step-by-step guide on planning and preparing a virtual reality anatomy lesson. Additionally, we will discuss strategies we have used to enhance student engagement through mixed reality. This workshop will be valuable for anatomy educators at any level who are considering integrating mixed reality into their teaching.

**B108 - Hands-On, Minds-on: Transforming Online A&P with Lab Kits**
**Kerry Balbirona, Carolina Distance Learning, kerry.balbirona@carolina.com**

**Sponsored by Carolina Distance Learning**

Engaging students in online and hybrid Anatomy & Physiology courses can be challenging, especially when it comes to lab work. Carolina Distance learning offers hands-on lab kits that provide students with real, tactile experiences to reinforce key A&P concepts. In this interactive workshop, discover how our kits support active learning, critical thinking, and student success. Explore a sample lab and discuss implementation strategies. Whether you teach online, hybrid, or hyflex courses, learn how to enhance student engagement and retention with hands-on lab experiences-wherever learning takes place!

**B1-2 - Don't Be "Disjointed" When Dissecting: Coach-Guided Musculoskeletal Dissections on Human Body Donors**
**Jeremy Grachan, Rutgers New Jersey Medical School, jg1916@njms.rutgers.edu, Abbey Breckling, University of Illinois at Chicago, abreck2@uic.edu, Bobbie J. Leeper, Seton Hill University, bleeper@setonhill.edu, Danielle Edwards, University of Alabama at Birmingham Heersink School of Medicine, dned222@uab.edu, Jonathan J. Wisco, Boston University Aram V. Chobanian & Edward Avedisian School of Medicine, jjwisco@bu.edu, Rhiannon Robinson, Boston University Aram V. Chobanian & Edward Avedisian School of Medicine, rerbnsn@bu.edu, Kelsey Stevens, Briar Cliff University, kelsey.stevens@briarcliff.edu**

The HAPS Anatomical Donor Stewardship (ADS) Coaching Subcommittee will facilitate a musculoskeletal dissection workshop using human anatomical donors for both beginner and advanced dissectors. Participants will have the opportunity to dissect with support from ADS coaches, highlighting: dissection techniques, clinically-relevant discussions, and ways to approach variations or dissection and donor maintenance challenges. The goals of this workshop include learning how the ADS Support Team can help with dissection and teaching skills related to human body donors. Participants will be able to review musculoskeletal anatomy and choose from various dissections.

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## Session 2: May 25 @ 9:45 – 10:45 AM

**B201 - Giant Jenga Trivia**
**Marian Leal, Sacred Heart University, lealm@sacredheart.edu**

**HAPS Conference Travel Award Winner**

The incorporation of gameplay during class has increased in popularity and has demonstrated pedagogical value. I have found that using interactive activities during long summer classes has led to better student outcomes. I created a group activity using a 4-foot Jenga that is integrated with questions about the human body. The questions are color coded according to the level of difficulty and are linked to Jenga blocks. At first the easier questions can be selected and may allow several blocks to be removed but as competition increases it may be necessary to answer harder questions to avoid toppling the Jenga.

**B202 - Tips and strategies to improve student learning through examinations**
**Jon Runyeon, University of Oregon, jrunyeon@uoregon.edu**

The goal of this workshop is to place a spotlight on how exams are used in the participant's courses, and to introduce strategies to increase the amount of learning that occurs through the examination process. The discussion will include various exam question types, the implementation of group exams, and grading paradigms that allow student to "fail" and learn from their mistakes, without failing the course. The workshop will be participant-centered and dynamic and will include time for the participants to critique their current exam paradigms and map out changes they hope to make in the future.

**B203 - Making molarity, osmolarity, and tonicity visible for allied health students**
**Pat Clark, Indiana University Bloomington, patclark@iu.edu**

Students taking non-majors physiology courses often come into the course with limited experience working with abstract concepts in chemistry and biology. Molarity, osmolarity, and tonicity are examples of abstract concepts they often find difficult to understand and appreciate. I will present some hands-on activities designed to help students visualize and utilize these important concepts in physiology.

**B204 - Enhancing Student Success in Anatomy & Physiology with RESILIENT Resources**
**Nahel Awadallah, Nash Community College, nwawadallah755@nashcc.edu**

Learn how the RESILIENT Student Success Tools can help Anatomy & Physiology students overcome academic and personal obstacles. During this session, we will discuss how to enhance student engagement, self-motivation, and time management and make available necessary resources like tutoring and technical support. Find out how to incorporate these tools into your teaching to create a more inclusive environment and support student retention. Join us and help your students become proficient in A&P skills required to succeed in A&P courses and in life!

**B205 - "Silence is overrated: Flipping large classes with McGraw Hill Connect"**
**David Katz, Marquette University, david.katz@marquette.edu**

**Sponsored by Mcgraw Hill**

Making the jump to a flipped classroom environment is daunting enough. Finding the right materials to keep your students engaged in Pre, In, and Post-Class activities adds to the challenge. Join me on my large-class post two-year adventure, as I implement engaging activities using the one-stop-shop McGraw Hill Connect platform. Discover how this tool has enhanced both lab and active-based in-class learning environments, leaving students encouraged and raising overall class average. I have no idea what a silent class sounds like anymore!

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**B206 - Flipping the Script: Helping Students to Write and Publish Teaching Case Studies**

**Lacy Cleveland, Julia Primak, Colorado Christian University, lcleveland@ccu.edu, Julia Primak, Colorado Christian University, jprimak@students.ccu.edu**

This workshop is designed to provide you with the tools and strategies needed to support undergraduate students in writing and publishing a teaching case study. Participants will receive comprehensive templates to guide them through each step of the process, including: (1) a timeline outlining key tasks for students, (2) a case study template that highlights the essential components of a strong case, and (3) a teaching notes template, offering both timing recommendations and valuable background information for instructors. To enrich your experience, we will also share examples of published case studies, and an undergraduate student will offer firsthand insights into her journey through the process.

**B207 - Causality is the foundation for critical thinking in physiology**

**Erik Silldorff, Towson University, esilldorff@towson.edu, Gerald Robinson, Towson University, jvmrobi@netscape.net**

Critical thinking in physiology requires conveyance of causal relationships. The fundamental nature of causality stems from the fact that all logically valid predictions rely on an understanding of, and confidence in, the link between cause and effect determined by prior observations. In physiology, prior studies provide the evidence of physical, chemical or biological causes linking steps within any mechanism. The question is how to employ causality in physiological descriptions such that students can better recall the details and order of mechanisms while also developing the cognitive tools to predict outcomes upon perturbations of those systems.

**B208 - LGBTQIA+ Inclusivity in Anatomy and Physiology Courses**

**Christine Dubowy, Community College of Baltimore County, cdubowy@ccbcmd.edu**

This workshop will discuss strategies for LGBTQIA+ inclusivity in Anatomy and Physiology courses, including using gender-neutral and inclusive terminology and discussing issues that impact the LGBTQIA+ community in an empowering and non-stigmatizing way. Participants will see examples from our classes and get practice putting gender-neutral terminology into action. Authors: Christine Dubowy, PhD and Leslie Worrell, MS, ABO.

**B1-2 - Don't Be "Disjointed" When Dissecting: Coach-Guided Musculoskeletal Dissections on Human Body Donors**

**Jeremy Grachan, Rutgers New Jersey Medical School, jg1916@njms.rutgers.edu, Abbey Breckling, University of Illinois at Chicago, abreck2@uic.edu, Bobbie J. Leeper, Seton Hill University, bleeper@setonhill.edu, Danielle Edwards, University of Alabama at Birmingham Heersink School of Medicine, dned222@uab.edu, Jonathan J. Wisco, Boston University Aram V. Chobanian & Edward Avedisian School of Medicine, jjwisco@bu.edu, Rhiannon Robinson, Boston University Aram V. Chobanian & Edward Avedisian School of Medicine, rerbnsn@bu.edu, Kelsey Stevens, Briar Cliff University, kelsey.stevens@briarcliff.edu**

The HAPS Anatomical Donor Stewardship (ADS) Coaching Subcommittee will facilitate a musculoskeletal dissection workshop using human anatomical donors for both beginner and advanced dissectors. Participants will have the opportunity to dissect with support from ADS coaches, highlighting: dissection techniques, clinically-relevant discussions, and ways to approach variations or dissection and donor maintenance challenges. The goals of this workshop include learning how the ADS Support Team can help with dissection and teaching skills related to human body donors. Participants will be able to review musculoskeletal anatomy and choose from various dissections.

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## Session 3: May 25 @ 11:00 AM – 12:00 PM

**B301 - 3D Connective Tissue Models**
**Jaime Mergliano, Brightpoint Community College, jmergliano@brightpoint.edu, Donna Hoefner, Piedmont Community College, dhoefner@pvcc.edu**

Teaching and learning histology is a challenge. 3D tissue models can help students envision three-dimensional tissues that build on the 2 dimensional microscopic images students study. 3D models provide an improved tactile and visual representation of microscopic images. We will present ten 3D connective tissue prototype models using resin and 'craft' materials that represent structural components. We will share an activity utilizing the models to help students make connections to better understand and visualize connective tissue components.

**B302 - Color through Human Body**
**Jenny Yearby, Oak Grove High School, jyearby@jefcoed.com**

"Color Through the Human Body" offers an innovative coloring resource designed to enhance learning in Anatomy and Health Science classrooms. Participants will explore detailed illustrations that cover major structures and functions of each body system, along with relevant diseases and disorders. This interactive approach not only engages students in active learning but also provides ample space for personal notes and doodles, encouraging creativity and deeper understanding. By integrating art with science, this resource aims to foster a more holistic grasp of complex concepts, making anatomy more accessible and enjoyable for all learners. Join us to discover how coloring can transform the way we teach and learn about the human body!

**B303 - Anatomy and Physiology of a Multiple Choice Question**
**Brian Hill, Via College of Osteopathic Medicine, bhill@vcom.edu**

In writing exams, most faculty merely imitate their former instructors in terms of constructing multiple choice questions (MCQs). The literature says that this lack of formal training results in poor construction quality and an abundance of MCQs testing lower cognitive levels or obscure, unimportant factoids. This workshop will help correct the most common technical flaws and teach how to write MCQs that test to higher cognitive function. Additionally, it will teach item analysis (using the statistics generated by the grading software) to improve question construction, improve question validity, and improve classroom instruction in topics that need greater emphasis or clarity.

**B304 - Overcoming Neurophobia Through Gamification**
**Yasith Mathangasinghe, Monash University, Australia, yasith.mathangasinghe1@monash.edu, Jack Mayhew, Monash University, Australia, jack.mayhew@monash.edu**

Neurophobia, the fear of neural sciences, is a persistent challenge in medical education. This hands-on workshop, based on a proven curriculum, demonstrates how gamification can make neuroanatomy engaging and memorable. Participants will learn how to design online games and integrate them into Learning Management Systems, while also exploring effective physical game-based activities. They will leave with practical skills and ready-to-use course materials to apply these strategies in any teaching environment, including resource-limited settings. Additionally, the workshop will provide insights into the latest trends in educational gamification and offer opportunities for collaborative research and networking.

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**B305 - Guide to Formative Assessment: Facilitating Dialogue Between Instructors and Students**

**Steven Semadeni, University of Nebraska-Lincoln, ssemadeni2@huskers.unl.edu**

Formative assessments are low-stakes activities that give students experience with course content, such as in-class quizzes and out-of-class homework. Ideally, formative assessments facilitate back-and-forth communication between instructors and students. This helps students know what is expected of them, and also shows instructors know where their learners are at. However, while formative assessments provide many learning benefits, students may face barriers that hinder engagement and may need additional guidance on how to make productive use of learning activities. Workshop discussion will include formative assessment design, student perceptions of formative assessments, barriers students may face, and facilitating student engagement.

**B306 - Set Sail on your Path to Promotion to Full Professor: Advice from Those Who Completed the Journey**

**Valerie O'Loughlin, Indiana University School of Medicine - Bloomington, vdean@iu.edu, Kerry Hull, Bishop's University, khull@hapsconnect.org, April Hatcher, University of Kentucky College of Medicine, arich3@uky.edu**

The guidelines for promotion from Assistant Professor to Associate Professor at most universities are well-defined. However, the path to promotion to Full Professor is less clear. What constitutes an "international reputation"? How do you know if you have gathered enough evidence for a successful promotion to Full? In this hybrid presentation and panel discussion, full professors from the US and Canada will share their stories and provide advice to those who are considering the promotion to Full. Welcome aboard the "Promotion to Full Professor" Cruise and let your Cruise Directors help you chart your course!

**B307 - Hashtag You're It: Leveraging Online Tools and Social Media to Increase Student Engagement**

**Hadley Dean, University of Pittsburgh, hmd4@pitt.edu**

This workshop will explore the integration of online tools and social media platforms into A&P classrooms to enhance student engagement and learning outcomes. As digital technologies become increasingly prevalent, educators have a unique opportunity to bridge the gap between traditional teaching methods and modern, interactive learning experiences. This session will discuss strategies for incorporating online resources to create dynamic, student-centered learning environments that will stimulate interest, facilitate peer learning, and reinforce complex anatomical and physiological concepts. Attendees will leave with actionable ideas to integrate into their own classrooms, enhancing both student participation and comprehension.


# Thanks to:

**Pittsburgh Area HAPS Conference Committee:**
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Bridget Deasy
Jordan Hooks
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**Pitt School of Dental Medicine Faculty & Staff, especially:**
Elia Beniash (Chair, Department of Oral and Craniofacial Sciences)
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# Notes:

# Notes:

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