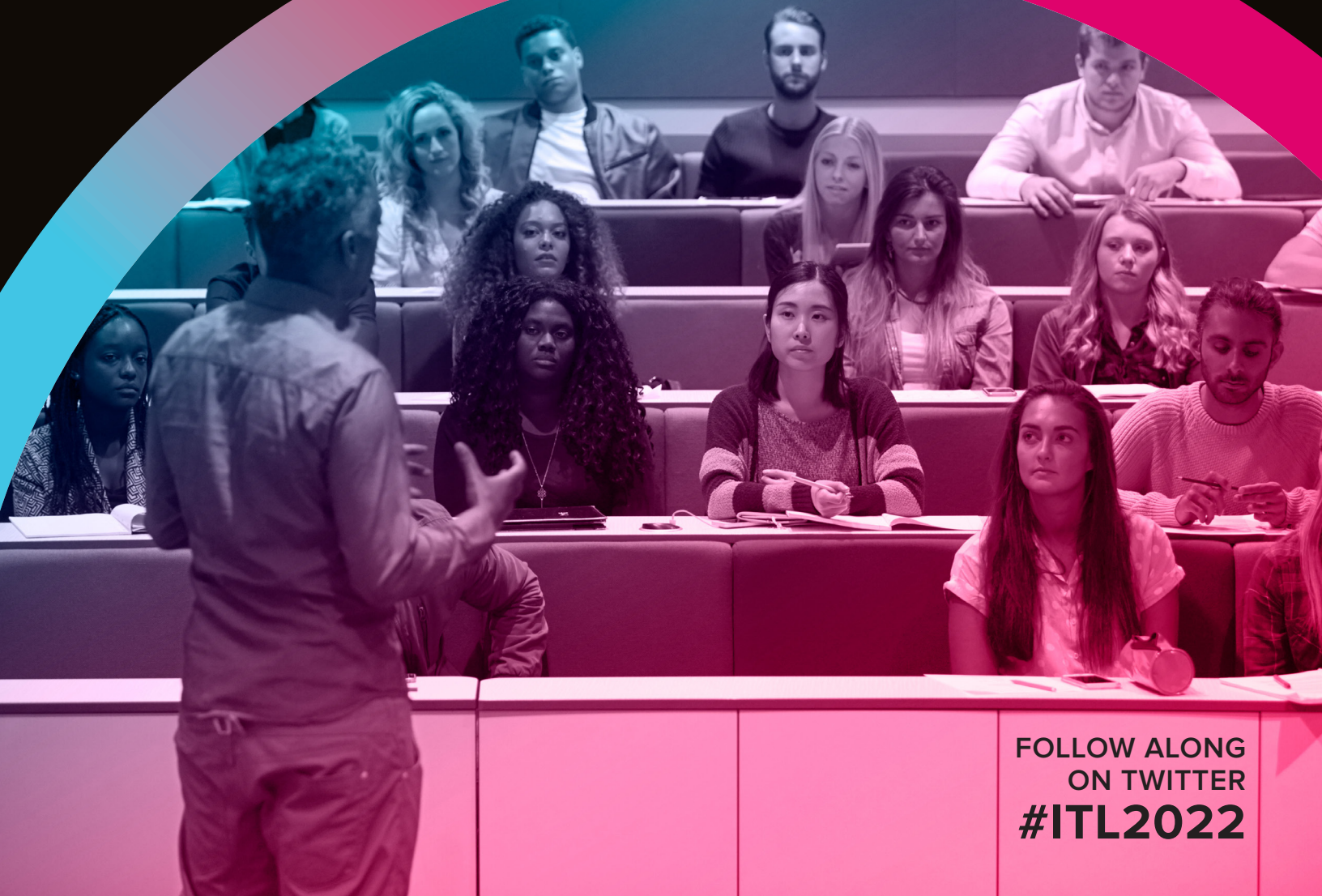


AMERICAN PHYSIOLOGICAL SOCIETY

# INSTITUTE ON TEACHING AND LEARNING

JUNE 21–24, 2022  
MADISON, WISCONSIN



FOLLOW ALONG  
ON TWITTER  
**#ITL2022**

# Finally, a Meeting for Physiologists

It's official. The American Physiology Summit is less than a year away. Passionate members of your physiology community are hard at work designing a world-class, first-of-its-kind meeting for those working, teaching and learning in the biomedical sciences.

Stay tuned and see why you can't miss the first-ever #APS2023.



DAVID JULIUS, PHD  
NOBEL LAUREATE  
KEYNOTE SPEAKER

Sign up for announcements at  
[physiology.org/APS2023](https://physiology.org/APS2023)

**american  
physiology  
summit**

APRIL 20-23, 2023  
LONG BEACH



## APS Center for Physiology Education

Coming Summer 2022! Join our mission to promote excellence in the teaching and learning of physiology.

Learn more at [physiology.org/CPE](https://physiology.org/CPE).

### What is the Center for Physiology Education?

Developed by APS members, CPE is a destination where physiology educators and researchers can access exceptional curricular, pedagogical and career development resources and support.



### Major Themes

- Evidence-based Teaching Practices
- Inclusive Teaching
- Teaching and Learning Integrative Physiology
- Physiology Education Research
- Curriculum Development

### Call for Papers

*Advances in Physiology Education*

Physiology Core Concepts

Abstract deadline: June 30, 2022



center for  
physiology  
education  
AN APS INITIATIVE



# Acknowledgments

AMERICAN PHYSIOLOGICAL SOCIETY

# INSTITUTE ON TEACHING AND LEARNING

JUNE 21–24, 2022  
MADISON, WISCONSIN

## Conference Organizing Committee:

**Beth Beason-Abmyr, PhD**  
*Chair*

**Ryan Downey, PhD**  
*Co-chair*

Josef Brandauer, PhD

Barbara Goodman, PhD, FAPS

Christopher Trimby, PhD

Jane Chapman, PhD

Adrienne King, PhD

Alice Villalobos, PhD

Zhiyong “Drew” Cheng, PhD

Jennifer Stokes, PhD

## Acknowledgements:

The conference organizers and the American Physiological Society (APS) gratefully recognize the generous support from the following organizations:

## Sponsors:



# Contents

General Information .....	4
Schedule at a Glance .....	6
Daily Schedule .....	8
Floor Plan .....	14



# General Information



## Location

The 2022 APS Institute on Teaching and Learning (ITL) workshop is held at the Madison Concourse Hotel, 1 W. Dayton Street, Madison, Wisconsin 53703. Telephone: 1.608.257.6000.



## Conference Management Office Hours

Tuesday, June 21 .....12–8 p.m.

Wednesday, June 22 ..... 7 a.m.–5:30 p.m.

Thursday, June 23 ..... 7 a.m.–8 p.m.

Friday, June 24 .....7 a.m.–12 p.m.



## Health and Safety

APS takes the health and safety of attendees and their guests seriously. All conference attendees and guests will be required to be fully vaccinated against COVID-19, as defined by the Centers for Disease Control and Prevention and the World Health Organization, prior to arrival at the Madison Concourse Hotel. Attendees and their guests must complete their second vaccination no later than June 6, 2022, to be considered fully vaccinated.

Per local guidelines, APS highly recommends attendees to wear a mask covering their nose and mouth while attending indoor events and sessions unless actively eating or drinking. See CDC guidelines on masks and mask-wearing at <https://bit.ly/3xpxiPZ>.



## Vaccination Verification

All attendees and guests will be required to show proof of their verified vaccination status received via Health Shield/42Chat before receiving their name badge.



## Student Registration

Any student member or regularly matriculated student working toward a degree in one of the biomedical sciences is eligible to register at the student fee. Nonmember postdoctoral fellows, hospital residents and interns, and laboratory technicians do not qualify as students. APS student members should present their current APS membership card indicating their student category status. Log in to the My APS dashboard to print your membership card at [physiology.org/MyAPS](https://physiology.org/MyAPS).



## Postdoctoral Registration

Any person who has received a PhD degree in physiology or related field within five years of the conference start date, as attested to by the department head, is eligible to register at the postdoctoral fee. A statement signed by the department head must accompany the registration form and remittance when registering.

# General Information



## Included in Your Registration

Your registration to this conference includes entry into all oral and poster scientific sessions, all meals during the workshop, online access to the submitted abstracts and a program book. Registration is nontransferable. You must pay the entire fee regardless of the number of sessions/events you attend. Guests of attendees are not permitted in the scientific sessions, opening reception or conference breaks and social events.



## Press Registration

Press badges will be issued at the conference registration desk to members of the working press and freelance writers bearing a letter of assignment from an editor. Representatives of allied fields (e.g., public relations, public affairs, etc.) must register as nonmembers.



## Photograph or Video Recording

Photo or video capture of any scientific presentation in whole or part is expressly prohibited. Recording or taking photography of another person without their explicit permission is prohibited. Individuals observed photographing or videotaping any presentation, in whole or in part, will be asked to leave the conference immediately, and will forfeit their registration fee.



## Code of Conduct

APS is committed to providing a safe, productive, and welcoming environment for all conference participants and staff. All participants including, but not limited to, attendees, speakers, volunteers, guests, APS staff, hotel staff, service providers and others are expected to abide by the APS Conference Code of Conduct, which maintains that all individuals should be treated with respect and consideration, value a diversity of views and opinions; be considerate, respectful and collaborative; communicate openly and with respect, critiquing ideas rather than individuals; avoid personal attacks; be mindful of your surroundings and fellow participants; and be respectful of the rules APS and the conference venue.

**Contact the APS staff at the conference registration desk if you notice a dangerous situation, someone in distress or violations of this Code of Conduct.**



## Program Objective

The ITL workshop will engage educators (community and four-year college through professional school) in interactive sessions on best practices in teaching, learning and assessment.

Whether you are an experienced educator or new to teaching, the workshop will challenge you to gain skills in designing and implementing educational research in your classroom and in learning how to share your findings with colleagues.

The workshop will include plenary talks, concurrent workshops, poster sessions and time to network with your colleagues.

# Schedule at a Glance

	Tuesday, June 21	Wednesday, June 22	Thursday, June 23	Friday, June 24
7 a.m.– 5:30 p.m.		Registration Opens	Registration Opens	
7– 10:00 a.m.				Registration Opens
7:30 a.m.– 8:30 a.m.		Breakfast	Breakfast	Breakfast
8:45–9 a.m.		Daily Orientation & Announcements	Daily Orientation & Announcements	Daily Orientation & Announcements
9–10 a.m.		<b>Plenary 1:</b> Where do we go from here? Key considerations for equity focused teaching in dynamic times	<b>Plenary 3:</b> Anti-racist and inclusive pedagogies	<b>Plenary 5:</b> Talk matters: Investigating the nature of non-content classroom language instructor talk that may mediate student inclusion, engagement and learning
10– 10:30 a.m.		Networking Break	Networking Break	Networking Break
10 a.m.– 12 p.m.		<b>Concurrent Workshops:</b> <i>Workshop 1:</i> Navigating difficult dialogues on race and justice: building capacity for when emotions run high <i>Workshop 2:</i> Effective and inclusive assessment strategies in physiology <i>Workshop 3:</i> A framework for reasoning about complex physiological system	<b>Concurrent Workshops:</b> <i>Workshop 7:</i> Using anti-racist and inclusive techniques in the classroom <i>Workshop 8:</i> Inclusive and productive advising <i>Workshop 9:</i> How do I move up or over? Making transitions to teaching and education	<b>Featured Workshop:</b> Engaging students and identifying barriers to inclusion in physiology classrooms
12–1 p.m.		Registration Opens	Lunch & ADInstruments Technology in Physiology Education Workshop	<b>Large-group Discussion:</b> What's next for the 2024 ITL?
1–2 p.m.	Gathering/Networking	<b>Plenary 2:</b> Toward more inclusive biology learning environments: identifying inequities and possible underlying mechanisms	<b>Plenary 4:</b> Failing (in order) to succeed: exploring how challenge and failure in course-based undergraduate research experiences can become a learning opportunity	Departure of Attendees & Box Lunches To Go



# Schedule at a Glance

	Tuesday, June 21	Wednesday, June 22	Thursday, June 23	Friday, June 24
2–2:30 p.m.	Opening Announcements	Networking Break	Networking Break	
2:30–4 p.m.	<b>Featured Workshop:</b> Scientific communication through improv: talking about tough ideas	<b>Concurrent Workshops:</b> <b>Workshop 4:</b> Building inclusive and fair classrooms: spotting sources of bias in biology classrooms <b>Workshop 5:</b> The joys and challenges of mentoring students and colleagues in teaching settings <b>Workshop 6:</b> Teaching strategies/tools: learning how to use dramatization to teach difficult concepts in physiology	<b>Concurrent Workshops:</b> <b>Workshop 10:</b> Failing (in order) to succeed: helping STEM students to approach challenges, cope with failures, and develop scientific resilience <b>Workshop 11:</b> Putting our points where our mouths are: pre-specifying exam structure to improve cognitive richness and fairness <b>Workshop 12:</b> Teaching/strategies/tools: tools for teaching cell signaling, bioenergetics and the oxyhemoglobin dissociation curve	
4–5:30 p.m.	<b>Workshop</b> Podcasting in the classroom	<b>Poster Session 1</b> & Group Discussions	<b>Poster Session 2</b> & Group Discussions	
5:30–7 p.m.	<b>Group Dinner &amp; Keynote:</b> Adapting to change: reflections on the evolution of teaching and learning	Dinner: OPEN (On Your Own)	Group Dinner	
8–9 p.m.	Collaboration & Networking		Collaboration & Networking	
	Martin Frank Diversity Travel Awardees and PECOP ECMP session		Martin Frank Diversity Travel Awardees and PECOP ECMP session	

# Daily Schedule

## TUESDAY, JUNE 21, 2022

1–2 p.m.		Gathering and Networking
2–2:30 p.m.		Opening Announcements • <i>Madison Ballroom</i>
2:30–4:30 p.m.		Featured Workshop • <i>Madison Ballroom</i> Scientific communication through improv: talking about tough ideas <i>Monkey Business Institute, Madison, Wisconsin</i>
4– 5:30 p.m.		Workshop • <i>Madison Ballroom</i> Podcasting in the classroom <i>Ben Rush, Deeper than Data Media</i>
5:30–7:30 p.m.	1.0	Keynote Lecture and Group Dinner • <i>Madison Ballroom</i>
	1.1	Adapting to change: reflections on the evolution of teaching and learning <i>Dee Silverthorn, PhD, FAPS, FAAA, University of Texas at Austin, Dell Medical School</i>
8–9 p.m.		Collaboration, Networking, plus Martin Frank Diversity Travel Awardees and PECOP ECMP Session

## WEDNESDAY, JUNE 22, 2022

7:30–8:30 a.m.		Breakfast • <i>Madison Ballroom</i>
8:45–9 a.m.		Daily Orientation and Announcements • <i>Madison Ballroom</i>
9–10 a.m.	2.0	Plenary Lecture 1 • <i>Madison Ballroom</i>
	2.1	Where do we go from here? Race and equity focused teaching in trying times <i>Kayon Murray-Johnson, PhD, University of Rhode Island</i>
10–10:30 a.m.		Networking Break
10:30 a.m.–12 p.m.	3.0	Concurrent Workshop 1 • <i>Madison Ballroom</i> Where do we go from here? Key considerations for equity focused teaching in dynamic times <i>Kayon Murray-Johnson, PhD, University of Rhode Island</i>
	4.0	Concurrent Workshop 2 • <i>University Room</i>
10:30 a.m.–12 p.m.	4.1	Effective and inclusive assessment strategies in physiology <i>Josef Brandauer, PhD, Gettysburg College</i>
	5.0	Concurrent Workshop 3 • <i>Senate Room</i>
10:30 a.m.–12 p.m.	5.1	A framework for reasoning about complex physiological systems <i>Tara Slominski, PhD, North Dakota State University</i>
12–1 p.m.		Lunch • <i>Madison Ballroom</i>

# Daily Schedule

## WEDNESDAY, JUNE 22, 2022

1–2 p.m.	6.0	Plenary Lecture 2 • <i>Madison Ballroom</i>
	6.1	The opportunities and challenges of active learning for student anxiety/depression, LGBTQ+ students and students with disabilities <i>Katelyn Cooper, PhD, Arizona State University</i>
2–2:30 p.m.		Networking Break
2:30–4 p.m.	7.0	Concurrent Workshop 4 • <i>Madison Ballroom</i>
	7.1	Building inclusive and fair classrooms: spotting sources of bias in biology classrooms <i>Katelyn Cooper, PhD, Arizona State University</i>
2:30–4 p.m.	8.0	Concurrent Workshop 5 • <i>University Room</i>
	8.1	The joys and challenges of mentoring students and colleagues in teaching settings <i>Dee Silverthorn, PhD FAPS, FAAA, University of Texas at Austin</i> <i>Robert Carroll, PhD, FASPS, Brody School of Medicine at East Carolina University</i>
2:30–4 p.m.	9.0	Concurrent Workshop 6 • <i>Senate Room</i>
	9.1	Teaching strategies/tools: learning how to use dramatization to teach difficult concepts in physiology <i>Helena Carvalho, PhD, Virginia Tech Carilion School of Medicine</i> <i>Patricia Halpin, PhD, University of New Hampshire</i> <i>Elke Scholz-Morris, PhD, Methodist College Unity Point Health</i>
4–5:30 p.m.	10.0	Poster Session 1 and Group Discussions • <i>Wisconsin Ballroom</i>
Board #		
1	10.1	Team-building education curriculum for M1 students in transition to medical school orientation course <i>Rebecca Sullivan, PhD, Lewis Katz School of Medicine at Temple University</i>
2	10.2	Does attending lecture synchronously matter? Synchronous lecture attendance significantly improved exam scores for females and students of color <i>Dalay Olson, PhD, University of Minnesota</i>
3	10.3	Using the “flipped classroom” to promote equity in undergraduate biology courses <i>Marisol Lopez, Donika Rakacoli, Edgewood College</i>
4	10.4	Using ungrading as a method of assessing student learning of physiological processes in an upper-level exercise physiology course <i>Melissa Fleegal-DeMotta, PhD, Clarke University</i>
5	10.5	Integration of metacognition and effective learning strategies into student-developed, learning objective-based study guides <i>Maryam Syed, PhD, University of Mississippi Medical Center</i>

# Daily Schedule

## WEDNESDAY, JUNE 22, 2022

### Board #

6	10.6	Initiation of a multi-campus mentoring program for medical students underrepresented in medicine <i>Alice Villalobos, PhD, Texas Tech University Health Sciences Center</i>
7	10.7	Inclusive language for undergraduate anatomy and physiology <i>Stacey Dunham, MS, PhD, Andrew Nichols, Indiana University</i>
8	10.8	Journaling and student response systems are effective tools to promote metacognition and monitor well-being in a medical pharmacology course <i>Ricardo Pena Silva, MD, PhD, Universidad de los Andes</i>
9	10.9	The role of independent study using animal model research in preparing undergraduates in biology <i>Shari Litch Gray, PhD, Regis College</i>
10	10.10	Supporting undergraduate student success through place-based research opportunities in Alaska <i>Rachael Hannah, PhD, University of Alaska Anchorage</i>
11	10.11	Ready to adopt open resources, including multi-disciplinary case studies and interactive activities, for use in human anatomy and physiology courses <i>Elita Partosoedarso, PhD, OntarioTech University</i>
12	10.12	Prerequisite knowledge and success in anatomy and physiology: investigating the influence of prior biology and chemistry courses and knowledge on student success in a human anatomy and physiology I course <i>Elizabeth Flotte, EdD, East Central College</i>
13	10.13	What professional competencies are essential for clinical exercise physiologists? Insights from a comparative assessment of professional standards and codes of conduct <i>Meaghan MacNutt, PhD, University of British Columbia Okanagan</i>
14	10.14	Transforming an animal physiology course that is fundamentally focused on homeostasis and increasing learning equity <i>Rachael Hannah, PhD, University of Alaska Anchorage</i>
15	10.15	Analysis of academic performance of students taking physiology reveals an achievement gap relative to student GPA <i>Steven Wu, PhD, University of Minnesota</i>
16	10.16	Using primary research as a neurophysiology teaching tool <i>Sarah Knight Marvar, PhD, Georgetown University</i>
5:30 p.m.		Dinner On Your Own



# Daily Schedule

## THURSDAY, JUNE 23, 2022

7:30–8:30 a.m.		Breakfast • <i>Madison Ballroom</i>
8:45–9 a.m.		Daily Orientation and Announcements • <i>Madison Ballroom</i>
9–10 a.m.	11.0	Plenary Lecture 3 • <i>Madison Ballroom</i>
	11.1	Anti-racist and inclusive pedagogies <i>Amanda Jungels, PhD, Rice University</i>
10–10:30 a.m.		Networking Break
10:30 a.m.–12 p.m.	12.0	Concurrent Workshop 7 • <i>Madison Ballroom</i> Using anti-racist and inclusive techniques in the classroom <i>Amanda Jungels, PhD, Rice University</i>
	13.0	Concurrent Workshop 8 • <i>University Room</i>
10:30 a.m.–12 p.m.	13.1	Inclusive and productive advising <i>Katie Johnson, PhD, Trail Build, LLC</i>
	14.0	Concurrent Workshop 9 • <i>Senate Room</i>
10:30 a.m.–12 p.m.	14.1	How do I move up or over? Making transitions to teaching and education <i>Sydella Blatch, PhD, National Institutes of Health/NIGMS</i> <i>Yass Kobayashi, PhD, The College of St. Scholastica</i>
12–1 p.m.		Lunch and ADInstruments Technology in Physiology Education Workshop • <i>Madison Ballroom</i>
1–2 p.m.	15.0	Plenary Lecture 4 • <i>Madison Ballroom</i>
	15.1	Failing (in order) to succeed: exploring how challenge and failure in course-based undergraduate research experiences can become a learning opportunity <i>Lisa Corwin, PhD, University of Colorado, Boulder</i>
2–2:30 p.m.		Networking Break
2:30–4 p.m.	16.0	Concurrent Workshop 10 • <i>Madison Ballroom</i> Failing (in order) to succeed: helping STEM students to approach challenges, cope with failures, and develop scientific resilience <i>Lisa Corwin, PhD, University of Colorado, Boulder</i>
	17.0	Concurrent Workshop 11 • <i>University Room</i>
2:30–4 p.m.	17.1	Putting our points where our mouths are: pre-specifying exam structure to improve cognitive richness and fairness <i>Gregory Crowther, PhD, Everett Community College</i> <i>Benjamin Wiggins, PhD, University of Washington</i>

# Daily Schedule

## THURSDAY, JUNE 23, 2022

2:30–4 p.m.	18.0	Concurrent Workshop 12 • <i>Senate Room</i>
	18.1	Teaching strategies/tools: tools for teaching cell signaling, bioenergetics and the oxyhemoglobin dissociation curve Alice Villalobos, PhD, Texas Tech University Health Sciences Center
4–5:30 p.m.	19.0	Session 9 • <i>Wisconsin Ballroom</i> Poster Session 2 and Group Discussions
<b>Board #</b>		
1	19.1	Introducing “evidence based practice” early in undergraduate exercise physiology curriculum Dan Lark, Colorado State University
2	19.2	Ready to launch into nursing education (RLNE): integration of human anatomy and physiology infused with medical terminology Immaculata Igbo, PhD, Prairie View A&M University
3	19.3	Does technology really bring us closer to effortless learning instantly? Harry Witchel, PhD, Brighton and Sussex Medical School
4	19.4	Clinical and translational physiology: student perception of processed based learning to create an authentic learning experience Joseph Rathner, PhD, University of Melbourne
5	19.5	Transformation of the muddiest point assessment to increase student engagement and understanding in a large-enrollment pathophysiology class Amy Mackos, PhD, Ohio State University
6	19.6	Assessing the development of critical thinking in an undergraduate anatomy and physiology course Louis Kutcher, PhD, University of Cincinnati, Blue Ash College
7	19.7	Does stroop effect in medical students correlate with their physiology exam score? Raju Panta, MBBS, MD, University of the Incarnate Word School of Osteopathic Medicine
8	19.8	Learning in 3D: using 3D-design and printing to improve students' understanding of biological macromolecules Jessica Fry, PhD, Curry College
9	19.9	An educational video on YouTube: engagement with music or learning with boredom Harry Witchel, PhD, Brighton and Sussex Medical School
10	19.10	Innovative use of animal models for case-based learning in physiology, pathophysiology and pharmacology Adrienne Bratcher, PhD, Kaiser Permanente School of Medicine

# Daily Schedule

## THURSDAY, JUNE 23, 2022

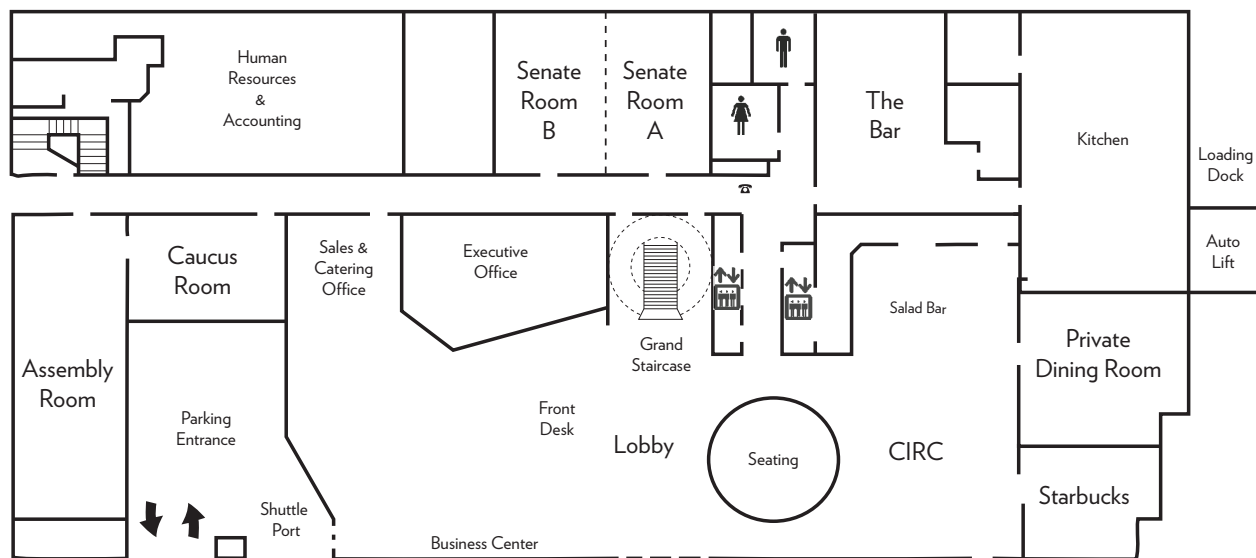
Board #		
11	19.11	Class participation correlates with academic performance in a biochemistry and metabolism course for first-year veterinary school students <i>Christopher Schonhoff, PhD, Tufts Veterinary School</i>
12	19.12	Teaching core physiological concepts with cardiovascular models <i>Terrence Sweeney, PhD, FAPS, The University of Scranton</i>
13	19.13	Can we have it all: an observational study of a hybrid, flipped classroom <i>Lisa Anderson, PhD, University of Minnesota</i>
15	19.15	A themed course-based undergraduate research experience in animal physiology <i>Sarah Keesom, PhD, Utica University</i>
16	19.16	Impact of active learning strategies on student performance of higher-level assessment questions <i>Sabyasachi Moulik, PhD, Florida International University</i>
5:30–7 p.m.		Group Dinner • <i>Madison Ballroom</i>
8–9 p.m.		Collaboration, Networking, plus Martin Frank Diversity Travel Awardees and PECOP ECMP Session

## FRIDAY, JUNE 24, 2022

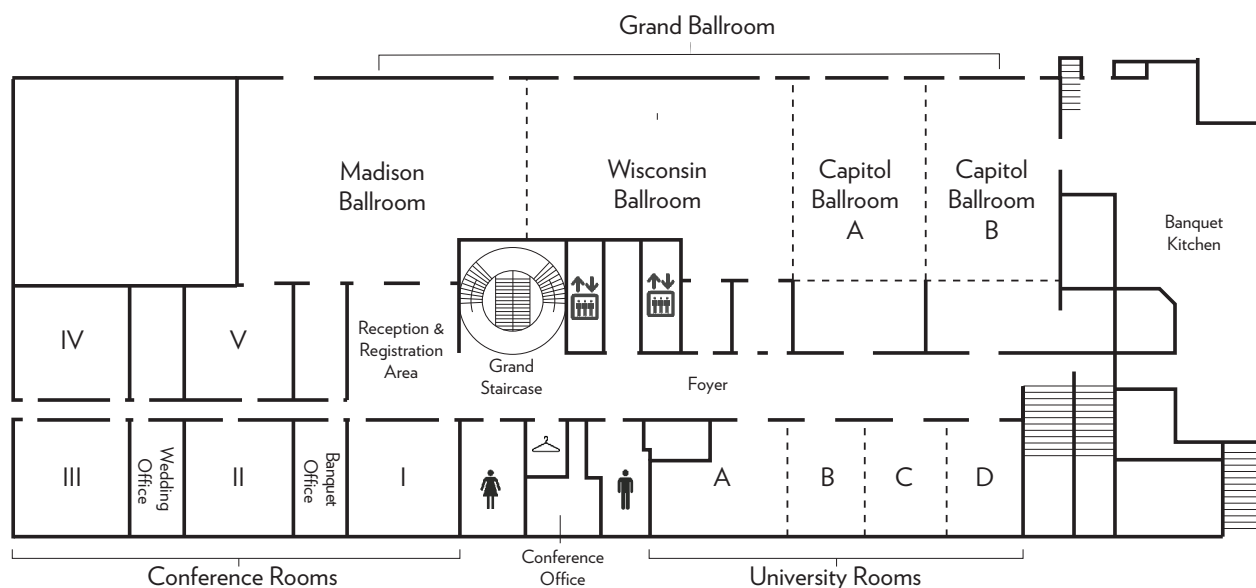
7:30–8:30 a.m.		Breakfast • <i>Madison Ballroom</i>
8:45–9 a.m.		Daily Orientation and Announcements • <i>Madison Ballroom</i>
9–10 a.m.	20.0	Plenary Lecture 5 • <i>Madison Ballroom</i>
		Talk matters: investigating the nature of non-content classroom language instructor talk that may mediate student inclusion, engagement, and learning <i>Jeff Schinske, Foothill College</i>
10–10:30 a.m.		Networking Break
10:30 a.m.–12 p.m.	21.0	Featured Workshop <i>Madison Ballroom</i>
	21.1	Engaging students and identifying barriers to inclusion in physiology classrooms <i>Jeff Schinske, Foothill College</i>
12–1 p.m.		Large-Group Discussion: What's next for the 2024 ITL? • <i>Madison Ballroom</i> <i>Ryan Downey, PhD, American University of the Caribbean</i>
1–2 p.m.		Departure and Box Lunches To Go

# Floor Plan

## 1st Floor



## 2nd Floor



THE  
MADISON CONCOURSE  
HOTEL



11/11/2016

11/11/2016

[illegible]

100

# Notes

[illegible]

# APS Career Gateway

## Succeed at Every Step of Your Physiology Career

Enhance your professional skill set with the APS Career Gateway. Find streamlined access to critical leadership and career advancement content designed to round out your scientific expertise. Resources include tips on:

- leading and managing a team,
- mentoring today's students,
- creating a diverse classroom, and
- designing your career intentionally.

APS provides professional development for every step of your career journey. Access the Gateway and start moving forward.

Access these critical resources at  
[physiology.org/careergateway](https://physiology.org/careergateway)



# Publish, Present & Participate

with the American Physiological Society



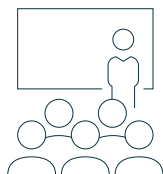
## Publish

Increase your citations, impact and global visibility by publishing your manuscript in the APS family of peer-reviewed original research journals.



## Present

Get your work noticed by leaders in the field by presenting your research at APS meetings and conferences.



## Participate

Grow your CV and secure your role in the future of the discipline of physiology by participating through membership and volunteer leadership roles.



Explore the benefits of membership and join today.

**[physiology.org/join](http://physiology.org/join)**

