



BELLARMINE UNIVERSITY
Louisville, Kentucky

SOUTHERN REGIONAL MEETING

3-30-2019





OFFICE OF THE PRESIDENT

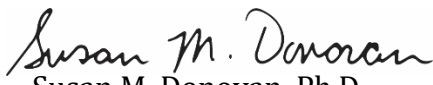
Dear Conference Attendees,

On behalf of the Bellarmine University Community, I welcome you to our campus for the AACAHAPS Joint Southern Regional Meeting. We are honored to be the first site where two great scientific organizations come together to share the latest in educational, anatomical, and physiological research.

I hope you find the facilities in McGowan Hall, our newest building, to be the perfect place for collaboration and innovation. Should you choose to participate in the Gross Anatomy workshops, you will find a state-of-the-art dissection laboratory that is especially rare among predominantly undergraduate institutions. We are very proud of our facilities and even more proud of the great people we have working, studying, and playing here.

Thank you for taking time away from your Institution and your family to come to Louisville and interact with your scientific peers. I hope your short time here will be fruitful. We are proud to serve as the host institution and hope you will enjoy the hospitality our University and City are known for.

Sincerely,


Susan M. Donovan, Ph.D.
President

AACA-HAPS Regional Conference
Schedule of Events
Saturday, March 30, 2019

CNMH = Centro McGowan Hall, CNTH = Treece, CNHH = Horrigan

Time	Event	Location
7:00 AM - 7:30 AM	Exhibitor & Poster Setup	CNMH Atrium
7:30 AM – 8:30 AM	Registration	CNMH Lobby (junction of Centro, Horrigan and Treece buildings)
7:30 AM - 8:30 AM	Breakfast	CNMH Atrium
8:30 AM – 8:45 AM	Welcome: Conference Co-Chairs, Rachel Hopp & David Porta	Hilary's Room, CNTH 125
8:45 AM – 9:45 AM	Update Speaker 1: Jeffrey C. Petruska <i>A Closer Look: New Technologies Reveal New Anatomy, but the Oldies are Still Goodies</i>	Hilary's Room, CNTH 125
9:45 AM - 10:30 AM	Break with Exhibitors and Poster Session	CNMH Atrium
10:30 AM - 11:30 AM	Update Speaker 2: David J. Porta <i>How did this Fracture occur? Forensic Anatomy & Bone Trauma Research</i>	Hilary's Room, CNTH 125
11:45 AM – 1:00 PM	Lunch	CNMH Atrium & Food Court outside of Hilary's
12:30 PM – 4:30 PM	Shuttle runs between Oak Tree Roundabout (exit CNMH Atrium) and Allen Hall for Gross Anatomy Lab Workshops	Stops: Oak Tree Roundabout & Front of Allen Hall
1:00 PM – 3:45 PM	Workshops: Exhibit area to Gross Anatomy Lab is a 12 min walk or 5 min shuttle.	Allen Hall & Centro McGowan Hall (CNMH)
1:00 PM – 1:45 PM	Workshop Session 1	See Program
1:45 PM – 2:00 PM	Break with Exhibitors	CNMH Atrium
2:00 PM – 2:45 PM	Workshop Session 2	See Program
2:45 PM – 3:00 PM	Break with Exhibitors Snack sponsored by McGraw Hill Education	CNMH Atrium
3:00 PM – 3:45 PM	Workshop Session 3	See Program
4:00 PM – 4:15 PM	Closing & Door Prizes	CNMH Atrium

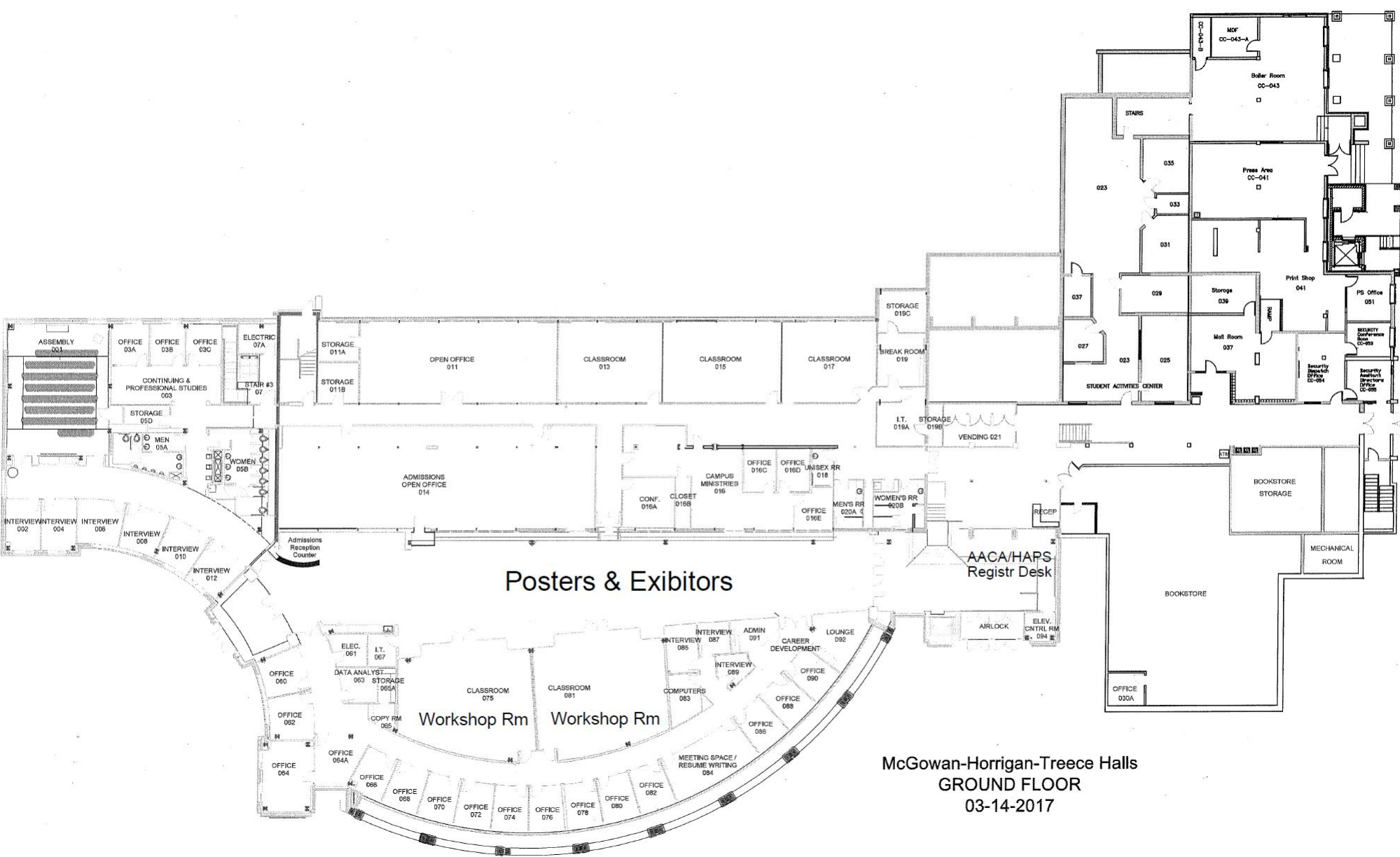
Attendees can use the guest WiFi **BU OPEN**. There is no password required.

BELLARMINE UNIVERSITY



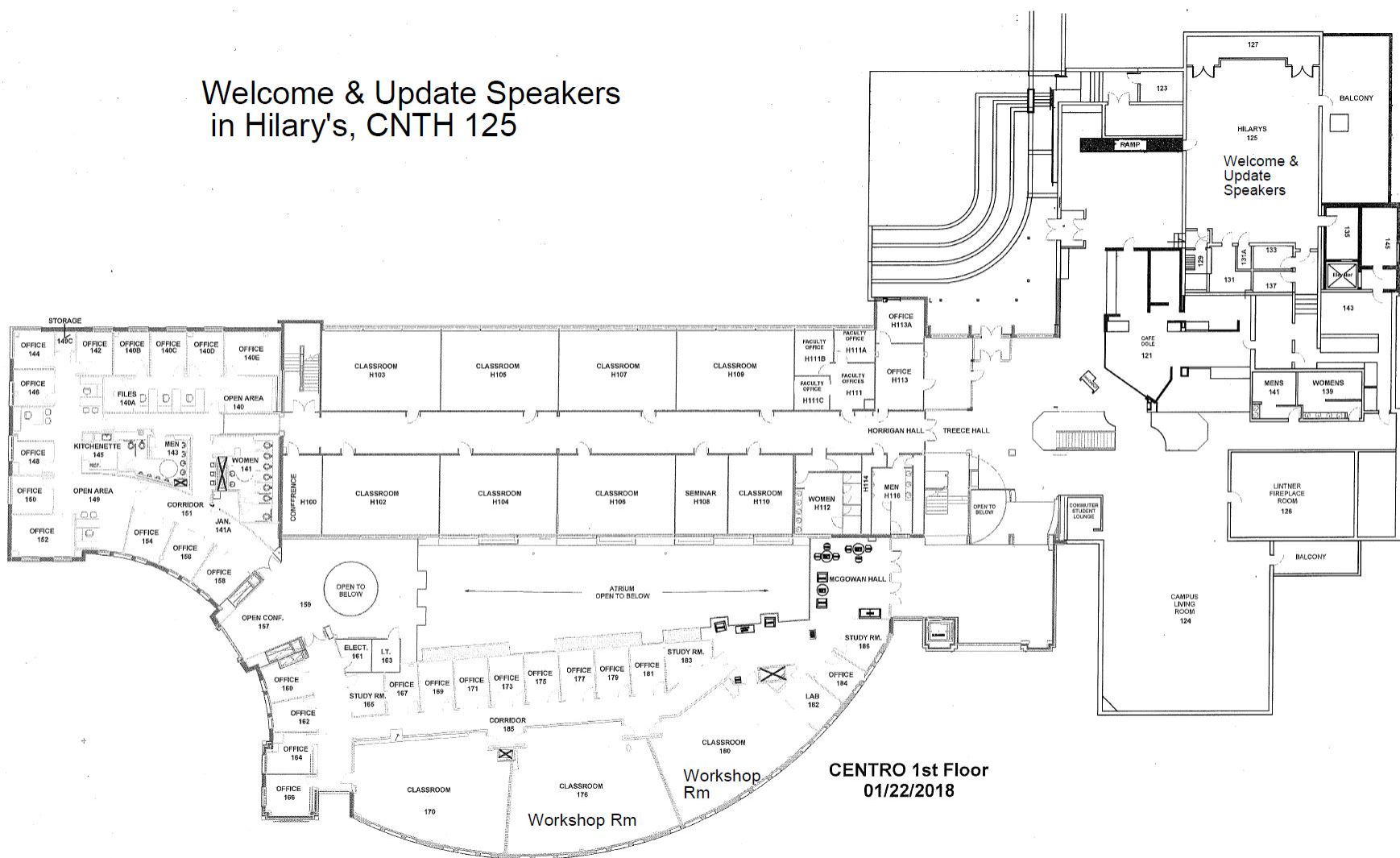
1. Centro
 - a. Horrigan Hall
 - b. Treece Hall
 - c. University and Enrollment Welcome Center
2. Pasteur Hall
3. Norton Health Science Center
4. Wyatt Center for the Arts
 - a. McGrath Art Gallery
 - b. Wyatt Black Box Theater
 - c. Cralle Theater
5. George G. Brown Center
 - a. Joseph P. Clayton Hall
 - b. Amelia Brown Frazier Convocation Hall
 - c. University Dining Hall (UDH)
6. Norton Fine Arts Complex
 - a. Alumni Hall (Humanities)
 - b. Art
 - c. Music
7. W.L. Lyons Brown Library
8. Miles Hall
9. Petrik Residence Hall
10. Newman Residence Hall
11. Kennedy Residence Hall
12. Anniversary Residence Hall
13. Our Lady of the Woods Chapel
14. Piazza Clayton
15. Fontana di Verità
16. Siena Primo Residence Hall
17. Siena Secondo Residence Hall
18. Siena Terzo Residence Hall
19. Siena Quarto Residence Hall
20. O.B. Frazier Stadium/Clayton Field
21. Knights Hall
22. Sports, Recreation and Fitness Center (SuRF)
23. Eddie Weber Tennis Center
24. Custodial Services
25. Facilities Management Office
26. Athletic Concessions
27. Nolen C. Allen Hall
28. Athletic Throws Venue
29. Bellarmine Farm
30. Flynn Building (1961 Bishop Lane)
31. St. Robert's Gate

Maria Robinsky



McGowan-Horrigan-Treece Halls
GROUND FLOOR
03-14-2017

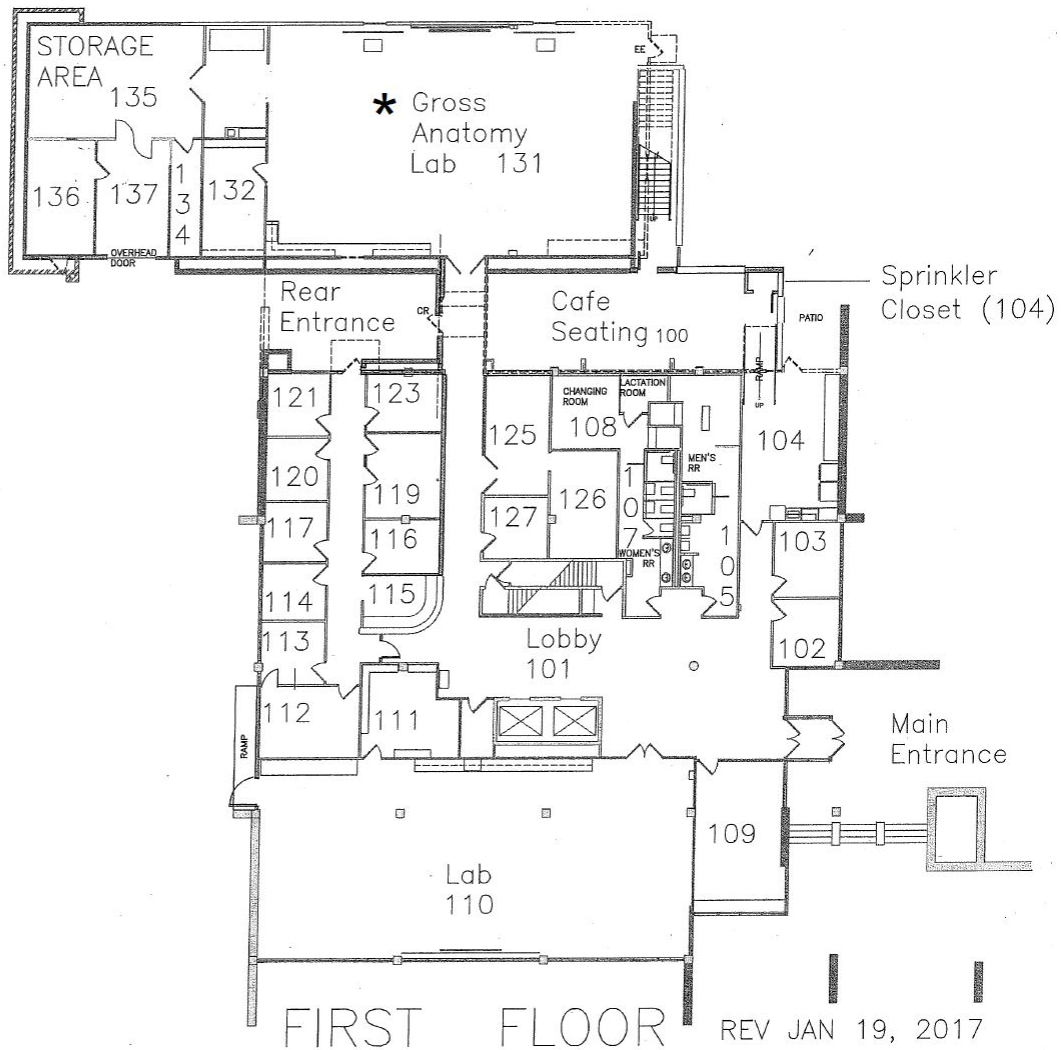
Welcome & Update Speakers in Hilary's, CNTH 125



CENTRO 1st Floor
01/22/2018

Nolen C. Allen Hall

"Allen Hall"



AACA & HAPS Regional Meeting Exhibitors & Sponsor

AACA & HAPS would like to recognize and thank our conference exhibitors and sponsors. Their generous support makes this conference possible.

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HAPS 2019

The HAPS 2019 Annual Conference will take place in Portland, Oregon on May 22-26.



AACA 2019

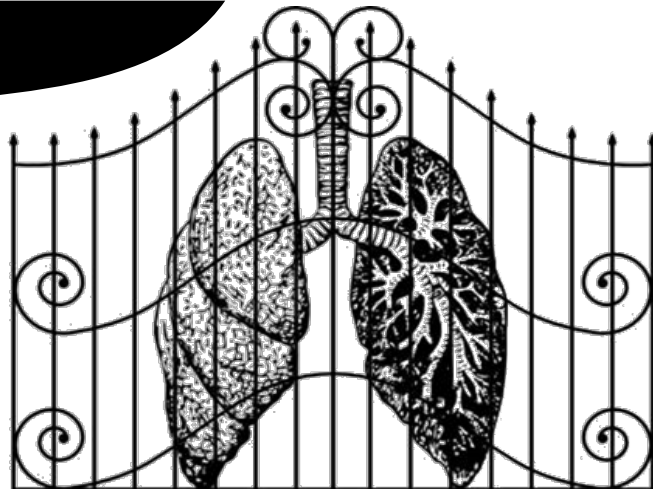
The AACA 2019 Annual Meeting will take place in Tulsa, Oklahoma on June 11-15.

WHAT IS IT?

A 3-day professional development workshop with complete cadaveric dissection.

WHO SHOULD ATTEND?

- High school anatomy teachers
- College anatomy/A&P teachers



GATE

Gross Anatomy for Teacher Education

Dissection of the Back and Upper Limb

WHAT IS THE COST?

\$450

WHERE IS IT HELD?

UAB, Birmingham, AL

WHEN IS IT?

July 17-19, 2019

HOW DO I REGISTER?



UAB THE UNIVERSITY OF
ALABAMA AT BIRMINGHAM

uab.edu/GATE

Update Speaker I



Jeffrey D. Petruska, Ph.D.

University of Louisville

j.petruska@louisville.edu

“A Closer Look: New Technologies Reveal New Anatomy, but the Oldies are Still Goodies”

8:45 – 9:45 AM

Hilary’s Room, CNTH 125

Abstract: Every major advance in our understanding of nature is preceded by new tools that enable us to observe at levels beyond our natural senses. Radio telescopes enabled discovery of new stars at unprecedented distances. X-ray diffraction enabled discovery of the structure of molecules. Most knowledge of gross anatomy was acquired with personal natural sense observation. Over time this was enhanced with assistance of magnified light in combination with other techniques. One of the final frontiers in mammalian anatomy is the identification of distinct cell types and detailed mapping of neural connectivity. This presentation will discuss how “old-school” neurophysiology and new molecular tools that take advantage of both gross anatomy and the natural genetic distinction in cell types reveal some new neural connections that could re-write parts of the anatomy texts and enhance our understanding of nervous system function.

Bio: Jeff was educated in Psychology at Boston College and Neuroscience at the University of Florida, concentrating on neuroanatomy and neurophysiology. He trained with Lorne Mendell at Stony Brook University where he was an Associate of the Christopher and Dana Reeve Foundation’s International Consortium on Spinal Cord Injury Research. His research has focused on the mechanisms and consequences of sensory neuron anatomical, physiological, and molecular plasticity, and how those forms of plasticity are involved with recovery of function after spinal cord injury and with pain. Recent endeavors include development of novel drug and device therapies, and training in technology commercialization.

Update Speaker II



David J. Porta, PhD

Bellarmino University
dporta@bellarmine.edu

**“How Did This Fracture Occur? Forensic
Anatomy & Bone Trauma Research”**

10:30 – 11:30 AM
Hilary’s Room, CNTH 125

Abstract: Medical treatment plans may be affected by knowing if a bone fracture is open or closed, complete or incomplete, and if the fragments are displaced or not. Do you teach your students to also be able to identify fracture patterns? Why? What is the point of learning the different patterns? This talk will provide some answers that question. Anatomical and biomechanical research on human bones is performed in an effort to determine tolerance to impact. Such data can assist design engineers with the enhancement of safety features in motor vehicles, sporting equipment, etc. In addition to collecting valuable force data, details learned about patterns of fracture can benefit investigators who reconstruct mechanisms of injury in forensic cases. When fracture tension lines travel the entire diameter of the bone, a fragment or fragments are formed and one can note a pattern- e.g. oblique, transverse, wedge, spiral, etc. The pattern can be used to distinguish torsional versus bending types of injuries as well as direction of impact. After a brief description of research techniques in biomechanics, the forensic application of this data will be shared using two legal cases involving a fatal hit-and-run pedestrian impact, and a fracture that was claimed to be the result of chiropractic manipulation.

Bio: Dr. David J. Porta is a Professor of Anatomy at Bellarmine University, a small liberal arts school in Louisville, KY. He served 19 years as an Adjunct Anatomist at the University Of Louisville School Of Medicine where he earned his Ph.D. in 1996. He has taught Human A&P and Gross Anatomy while also doing research in the area of Trauma Biomechanics and Injury Reconstruction for over 27 years. In that time, he has published 30 articles, 5 textbook chapters, and 53 abstracts, as well as given 83 formal presentations at research conferences and over 250 invited lectures. His students have made 58 presentations at undergraduate research conferences. He has received 3 Teaching Awards at Bellarmine University and 3 at the University of Louisville in addition to a Metroversity Award for Instructional Development. In 2010 he became a nationally certified Emergency Medical Technician. He has served as a Forensic Consultant in over 800 legal cases- mostly dealing with injuries from motor vehicle accidents, abuse, or medical malpractice. He is happily married to Nancy, his childhood sweetheart, and together they have 2 amazing daughters- Layne (27) and Emily (21), both of whom are seeking to become college professors. He loves his life!

Poster Presentations

Poster Session: 9:45 AM – 10:30 AM

Poster 1: Evaluation of Phantoms using Cadaver Thyroid to Train Undergraduate Medical Students in Ultrasound Guided Fine Needle Aspiration

Monica Ethirajan, Eastern Virginia Medical School, goodmucw@evms.edu, Alexon Munson-Catt, Eastern Virginia Medical School, goodmucw@evms.edu, Craig W. Goodmurphy, Eastern Virginia Medical School, goodmucw@evms.edu

This study created phantoms that are cost-effective, realistic and provide a clinical application for medical students learning ultrasound. Hemisected tracheas with thyroid glands were dissected from cadavers and cystic structures were inserted for visualization and targeting. 146 medical students performed an ultrasound-guided fine needle aspiration. Students completed a survey and their images were evaluated by a peer and instructor. Students rated the phantoms as effective and anatomically accurate. They indicated an interest in performing similar ultrasound-guided procedures. Most of the grader critique recommended improvements with depth. A new version of the trainer has been created.

Poster 2: Systematic Review of the Efficacy of Ultrasonography to Learn Anatomy in Undergraduate Medical Education

Benton Hurt, Lincoln Memorial University, benton.hurt@lmunet.edu, Adam Kolatorowicz, Lincoln Memorial University, adam.kolatorowicz@lmunet.edu

An increasing number of medical schools are incorporating ultrasonography in the curriculum to supplement student understanding of anatomy, with undefined success. This study aimed to evaluate current literature and assess whether ultrasound-assisted learning helps students gain anatomical knowledge. A systematic review following PRISMA guidelines returned 12 titles which were analyzed using the AQUA Tool. Students typically have a positive perception towards using ultrasound in learning anatomy, but there is limited evidence to show that ultrasound provides undergraduate medical students with a greater knowledge of anatomy. Further, well-designed educational research is needed to discern if teaching anatomy with ultrasound is advisable.

Poster 3: Creating an Ultrasoundable Specimen Library Using Cadaver Materials Encapsulated in a Low Sound-Attenuating Medium

Alexon Munson-Catt, Eastern Virginia Medical School, goodmucw@evms.edu, Monica Ethirajan, goodmucw@evms.edu, Jonathan Krimsier, Eastern Virginia Medical School, Craig W. Goodmurphy, Eastern Virginia Medical School, goodmucw@evms.edu

Commercial ultrasound phantoms are available but, are expensive and often of low fidelity. In addition, the number of phantoms needed to train a typical medical class of 150 can be inhibitory from both curricular time and financial investment. This study demonstrates how low cost, high fidelity phantoms can be constructed using readily available cadaver specimens embedded in an ultrasoundable medium. Harvested normal and pathological tissues were encapsulated in a chemically cured Zirdine with low-viscosity and low sound-attenuating properties. Readily available tissues associated with every anatomy lab can effectively provide a scalable specimen library of clinically relevant sonographic training phantoms.

Poster 4: The Ultrasound Digital Badging Curriculum of Eastern Virginia Medical School: A Competency Based, Self-Directed Roadmap to RDMS With Intra and Extra-Curricular Components

Ciara Jenkins, Eastern Virginia Medical School, goodmucw@evms.edu, Craig Goodmurphy, Eastern Virginia Medical School, goodmucw@evms.edu, Katherine Schaffer, Eastern Virginia Medical School

EVMS developed an ultrasound curriculum with intra and extra-curricular components for students to build a digital badge portfolio. The curriculum divides requirements into three progressive blocks of 30 badges per block. Bronze contains ultrasound sessions within the first two years of medical education. Silver and Gold requires self-directed learning (SDL) by the students. Quantitative and qualitative metrics including attitudes, responses, and student satisfaction with the curriculum were collected and evaluated with an average performance of 94% for three intra-curricular badges. This program is motivational, progressive, and meets the LCME mandate for including SDL, narrative feedback and competency-based skills.

Poster 5: Zits get Students Thinking like a Research Scientist**Regenia Phillips-Campbell, Emory & Henry College, rcampbell@ehc.edu**

Using readily available resources, students apply their knowledge of the integumentary system to a problem relevant to them- zits. Given background about skin pH as a barrier to infection with Propionium acnes, students answer questions regarding how pH of a facial cleanser might impact its effectiveness. They are then given access to a variety of facial cleansers, pH strips, and buffers and asked to generate a hypothesis that logically follows from the background information and a protocol for testing it. Students complete their experiment and report their findings using author guidelines for article submission to a fictitious journal. Students have been pleased do research that is interesting to them. I have been pleased that, using low cost supplies, students learn hypothesis writing, experimental design, data reporting, and use of primary literature.

Poster 6: Design and Construction of Customized C-PAP Masks Using 3D Scanning and Printing Technologies: The Road to Personalized Medical Devices**Aaron Snow, Eastern Virginia Medical School, goodmucw@evms.edu, Craig W. Goodmurphy**

C-PAP masks that come in standard sizes are not always effective in delivering treatment to patients with facial malformations; however, the use of optical scanners and 3-dimensional printing makes personalized devices a possibility. Digital polygonal mesh files of commercially available C-PAP masks and an anonymized patient's face were obtained via traditional CT and optical scanner. Files were manipulated to match the C-PAP to the patient's facial contours. Models were printed using the 2500 Projet 3DS printer. The effectiveness and fit are assessed using a C-PAP machine.

Poster 7: The Effects of Time-Restricted Feeding on Weight, Blood Pressure, and Waist Circumference in Adult Humans: A Pilot Study**Ann D. Gathers, The University of Tennessee at Martin, agathers@utm.edu, Aleya Brent, The University of Tennessee at Martin, alembren@ut.utm.edu, Elizabeth Longwell, The University of Tennessee at Martin, elijlong@ut.utm.edu**

This study examined effects of six-weeks of time-restricted feeding (TRF), daily fasting from 8:00 p.m. to 8:00 a.m., on weight, blood pressure, and waist circumference. Investigators proposed decreases in each of these measures for the TRF compared to the control group. Eight adults (5 TRF, 1 male) 18-60 years of age participated. Results indicate no significant difference between Week 1 and Week 6 within or between groups. However, the TRF group displayed a decreasing trend in pulse pressure. For future studies, pre- and post-study saliva samples will be assessed for cortisol, insulin, and C-reactive protein levels.

Poster 8: Cadaveric Study of the Occurrence of the Middle Ethmoidal Artery**Rebekah Bongato-Merren, Texas Tech University Health Science Center, rebekah.bongato@ttuhsc.edu**

Unintentional vascular injury during otolaryngology procedures may impair surgical site visualization, prolonging surgery time and increasing surgical complications. Improved understanding of the ethmoidal artery system is useful to guide surgical approaches in sinus and skull-based surgeries. This study aimed to determine the occurrence of the middle ethmoidal artery via dissection of 20 cadavers. The ophthalmic artery was injected with dye and traced to identify the ethmoidal arteries. This study yielded a 15% occurrence of middle ethmoidal artery. These findings support the existing literature, providing surgeons and interventional radiologist with a predictable anatomical variation of the ethmoidal arteries.

Poster 9: Multiple Roles for Keratin Intermediate Filaments in the Regulation of Epithelial Barrier Function and Apico-Basal Polarity**Anastasia Mashukova, Nova Southeastern University, amashukova@nova.edu**

As multicellular organisms evolved a family of cytoskeletal proteins, the keratins expressed in epithelial cells diversified in more than 20 genes in vertebrates. There is no question that keratin filaments confer mechanical stiffness to cells. However, such a number of genes can hardly be explained by evolutionary advantages in mechanical features. Our data highlight the importance of scaffolding function of keratins in maintaining functional levels of atypical PKC (aPKC), which is considered to be an essential regulator of tight junction integrity. We conclude that in the intestinal epithelium keratins display a non-mechanical function, compartmentalizing the rescue of aPKC from degradation.

Poster 10: Pudendal Nerve Block: Not In Current Clinical Practice

Stany Lobo, Sam Houston State University, sxl088@shsu.edu

Pudendal nerve is a somatic branch of the sacral plexus, derives fibers from the second, third, and fourth sacral segments of the spinal cord. Pudendal nerve block is a clinical procedure used to numb the perineum and the lower birth canal in females. Epidural block is now the most popular choice during parturition, and has replaced the PNB in providing effective pain relief. PNB is no longer a primary option in providing safe and adequate anesthesia for parturition due to multiple contributing factors.

Poster 11: The Anatomy of Muscular Dystrophy – A Cadaveric Study

Chantal Prewitt, Bellarmine University, cprewitt@bellarmine.edu, Mason Sullivan, Bellarmine University, msullivan2@bellarmine.edu

Muscular Dystrophy (MD) elicits progressive muscle degeneration with adipose tissue infiltration. The study examines and assesses, by cadaveric dissection, anatomical changes in the musculature of an adult male specimen with MD when compared to another specimen not affected with MD but of similar age and size. Results revealed important anatomical differences in the extremities, thorax, back, and gluteal regions where infiltration of adipose and connective tissue replaced the expected presence of muscle mass. MD did not affect intrinsic musculature of the hands and feet. This study offers healthcare providers additional evidence in understanding required treatments essential for adults with MD.

Poster 12: Developing a Cost Effective Pericardiocentesis Trainer Combining Cadaver Hearts and 3D Printed Models

Yahn Colten, Eastern Virginia Medical School, goodmucw@evms.edu, Alexon Munson-Catt, Eastern Virginia Medical School, goodmucw@evms.edu, Monica Ethirajan, Craig W. Goodmurphy

Ultrasound has many applications for medical training but the cost of commercial trainers is a barrier. Phantom trainers are cost-effective but have compromised durability, limited reusability, and lack anatomical specificity. In response to these challenges, we created a reusable and reproducible pericardiocentesis model, using cadaver heart tissue encased in polymer Zirdine and overlaid with a 3D printed sternum and ribs. This phantom allows for manipulation of the pericardial space to mimic pathophysiology during ultrasound training. The model will be integrated into the ultrasound curriculum for evaluating its durability and instructional value among medical students and emergency residents.

Poster 13: The Art of Creating a Neuroanatomy Companion

Cheryl Purvis, Nova Southeastern University, cpurvis@nova.edu

Many students enrolled in Health Professions programs learned about the nervous system in Anatomy and Physiology. Knowledge of basic neuroanatomical terms is crucial to their understanding of clinical cases. To be successful as future healthcare professionals, students must appreciate the beauty and complexity of the external, as well as the internal morphology of the brain, brainstem and spinal cord. To promote active learning, we are developing a workbook designed to help students review key concepts. By creating drawings with a memorable, aesthetic quality, our innovative Neuroanatomy Companion reinforces student's understanding and retention of essential material while making learning more enjoyable.

Poster 14: The Comparative Study on the Effects of Virtual Reality in the Application of Case-Based Learning Approach While Studying Mitral Valve Stenosis and Regurgitation

Banu Rukiye Bilen, Eastern Kentucky University, banu_bilen@mymail.eku.edu, Tonya Stephens, Midway University, trstephens@midway.edu

There has been limited research on how to teach clinical anatomy by using cases while using Virtual Reality (VR). This quantitative research study investigated the effects of VR in the application of case-based learning approach on learners' performance. Two delivery modes (VR and paper-based) were compared to analyze the learning gains of the participants. No significant difference in the mean scores of both groups found while studying the anatomical structure of the mitral valve and two clinical cases. Moreover, the results indicated implementing a case study of either VR or paper-based mode was associated with significant gains in achievement.

Poster 15: Neurophobia: Gender-Specific Differences in Anxiety and Self-Efficacy Related to Learning Neuroanatomy in a Medical Student Population

Jennifer Brueckner-Collins, University of Louisville, jkbrue02@louisville.edu, Jessica Bergden, University of Louisville, jsberg04@louisville.edu

Neurophobia is a fear of neuroscience hindering one's ability to learn and apply neuroanatomy in medical school and is a growing trend. Preliminary investigation of medical student neurophobia levels, neuroanatomy perceptions, neuroanatomy self-efficacy levels, and factors contributing towards neurophobia at UL was completed (Fall 2018). Instrumentation development and administration showed 44.5% of medical students (n=155) exhibited neurophobia. Women exhibited higher neurophobia levels than men ($t(139)=-3.78, p=.00023$). Students demonstrated moderate neuroanatomy self-efficacy, men exhibited more self-efficacy ($t(139)=4.01, p=.00009$), and a negative correlation ($R^2=.243, p<.01$) between neurophobia and self-efficacy was found. These data will inform the creation of interventions that specifically address neurophobia in medical education.

Poster 16: Does Self-Reflection in Cadaver Dissection Foster Growth of Humanistic Ideals in Medical Students?

Jonathan Krimsier, Eastern Virginia Medical School, krimsijm@evms.edu, Russ Clark, Eastern Virginia Medical School, goodmucw@evms.edu, Craig Goodmurphy, Eastern Virginia Medical School

The study used first and last day reflection to assess the changes in perception and focus of 678 first term medical students. For 6 years, (2012-2017) students completed a first day and a last day reflection for formative points. Both reflections were identical and left space for creative expression in drawing and narrative format. Students' responses were categorized based on: tone, internally or externally focused, and positive or negative affect. We found an attitudinal shift towards others and a change to positive affect indicating that reflection on the dissection experience may foster benevolent growth.

Poster 17: Reflecting on Death and Dying: Using Music and Sound as a Medical Education Tool in Clinical Anatomy

Jennifer Brueckner-Collins, University of Louisville, jkbrue02@louisville.edu, Mohammed Nuru, University of Louisville, mohammed.nuru@louisville.edu

Medical humanities are gaining attention in the formal medical curriculum. By leveraging the unique value of music and reflective writing, we crafted a listening exercise for first year medical students in medical anatomy laboratory. Audio recordings of letters authored by willed body donors to medical students were paired with curated music instrumented samples and audio clips. By collecting and analyzing the reflective writing pieces from medical students before and after the listening portion of the exercise, we have identified unique themes from the written word (people, opportunity, time, learn) versus the spoken word with music (voice, life, emotions, respect).

Poster 18: Emotional Response of Undergraduates to Cadaver Dissection

Patricia Wisenden, Minnesota State University Moorhead, wisendenp@mnstate.edu

In this study, we survey undergraduate students in the semester to investigate the timing and sociodemographic predictors of anxiety over cadaver dissection. All students experienced anxiety upon first exposure to cadaver dissection, where female students experienced greater anxiety than male students upon first exposure. This effect was short lived. Students that self-identified themselves as non-white, non-Christian students experienced sustained anxiety throughout the semester. One strategy for ameliorating cadaver-related anxiety is to actively humanize the people who donated their bodies for anatomical instruction to make students more comfortable in the cadaver theatre.

Poster 19: Impact of Mindfulness Meditation on Learning and Study Strategies in First Year Dental Students

Jennifer Brueckner-Collins, University of Louisville, jkbrue02@louisville.edu, Jacob Shpilberg, University of Louisville, jacob.shpilberg@louisville.edu

As mindfulness programs become prevalent in health professional schools, their impact should be evaluated but on learning as well as stress management. The present study evaluates the effects of a 4 week mindfulness meditation program on academic proficiency in first year dental students. Two validated instruments were used to measure changes in motivation to learn and academic self-concept, including the Motivated Strategies for Learning Questionnaire and the Perceived Competency Scale. Preliminary data support the hypothesis that a routine and organized mindfulness practice has the potential to improve academic self concept and motivation to learn in first year dental students.

Poster 20: Understanding Group Dynamics: Know the Characters in the Kingdom

Camille Arca, Nova Southeastern University, ca1430@mynsu.nova.edu, Cheryl Purvis, Nova Southeastern University, cpurvis@nova.edu

To discuss personality types, we created animal character portraits representing specific qualities. Kingdomality Personality Profiles and historical portraits were examined to develop illustrations using a Surface Pro4 and digital painting software. Inspiration for characters comes from the loving bond I fostered with animals since I was young, and through 20 years' experience working with a variety of wild, exotic, and domesticated animals. Getting to know animals at a deeper level allows one to recognize, much like humans, they are all individuals with their own unique personalities. "Until one has loved an animal, a part of one's soul remains un-awakened." Anonymous.

Poster 21: The Humanities Side of Anatomy Lab: Reflecting on and Creating Works of Art

Audrey Summers, University of Louisville, audrey.summers@louisville.edu, Jennifer Brueckner-Collins, University of Louisville, jennifer.bruecknercollins@louisville.edu

Medical anatomy laboratory integrates science, dexterity, teamwork and an intimate picture of the connection between life and death. We explored first year medical students' reflections on the lab experience through a required humanities exercise. Students either chose existing art or created their own art and related it to the anatomy lab experience. A grading rubric guided students in their reflection by evaluating why the piece was selected, along with their interpretation of the piece in the context of death and dying in the context of our course. Grounded theory methodology guided analysis of the reflective writings, identifying predominant themes.

Poster 22: Identifying the Prevalent Personality Types and Individual Strengths in First Year Optometry Students: Implications for their Well-Being, Resilience and Academic Success as Future Healthcare Professionals

Sydney Byk, Nova Southeastern University, littlepinkappleseb@gmail.com, Cheryl Purvis, Nova Southeastern University, cpurvis@nova.edu, Anastasia Mashukova, Nova Southeastern University, amashukova@nova.edu

First year Optometry students (N=315) identified their personality profiles using Kingdomality test (Bowles, Silvano and Silvano, 2005), and StrengthsFinder self-assessment test by reading the definitions of 34 strengths (Rath, 2007) and choosing five most reflective of their personality. Kingdomality testing revealed the following distribution: 75% Emotional Helpers, 14% Logical Challengers, 6% Realistic Maintainers, and 5% Creative Explorers. Self-assessment showed the overall most common strength is Empathy, and the least common one is Maximizer. Each personality type was associated most frequently with the following strength: Emotional Helpers - Empathy, Logical Challengers - Analytical, Realistic Maintainers - Strategic, Creative Explorers - Adaptability.

Poster 23: Personality Types of Undergraduate Students and Pre-Health Majors: Future Healthcare Professionals Begin with Success in Anatomy & Physiology

Sydney Byk, Nova Southeastern University, littlepinkappleseb@gmail.com, Cheryl Purvis, Nova Southeastern University, cpurvis@nova.edu, Anastasia Mashukova, Nova Southeastern University, amashukova@nova.edu

Personality types of undergraduate students were identified using the Kingdomality Personal Preference Profile Test by Bowles, Silvano and Silvano (2005). More than 75% of Pre-Health Majors belonged to "Emotional Helpers", one of the four major categories developed by the Test creators. Within this category, the Shepherds and White Knights were the most successful, and only those with the highest grades in this Anatomy and Physiology course were ultimately accepted into the healthcare profession of their choice. Our data suggest that personalities of many Pre-Health Majors favor entering healthcare professions. Individual strengths associated with their success are yet to be determined.

Poster 24: Know It to Draw It: Retrieving Anatomy Knowledge Through Drawing

Jennifer Brueckner-Collins, University of Louisville, jkbrue02@louisville.edu, Asim Mohiuddin, University of Louisville, a0mohi01@louisville.edu

Actively drawing structures in medical anatomy improves performance on assessments. In this study, a closed-book anatomy drawing activity was introduced in the head and neck block to help students recognize knowledge limitations following lecture and appreciate the utility of lab in mastering anatomical relationships. Following lectures on cervical triangles and infratemporal fossa, students were tasked with drawing these regions from memory, before and after dissection. Students rated their anatomy knowledge significantly higher after the lab drawing activity. This approach to learning anatomical structures combines learning strategies like information retrieval, learning through different modalities, and predicting forgotten structures (pretesting effect).

Poster 25: Integrating Competency Based US into the Physician Assistant Curriculum: Competent but for How Long?

Katherine Schaffer, Eastern Virginia Medical School, goodmucw@evms.edu, Craig W. Goodmurphy, Eastern Virginia Medical School, goodmucw@evms.edu, Ciara Jenkins

Ultrasound education has been minimal in accelerated MPA (Masters of Physician Assistant) Programs. This study assesses US training in Eastern Virginia Medical School (EVMS) MPA program by measuring degradation curve associated with competency measures over time. 82 matriculating students completed skill sessions and SonoSim modules. A 20-minute FAST OSCE (Objectively Structured Clinical Exam) and knowledge-based post-test, required a score of 75%, were completed. First exam: 91% passing (7 below standard). Students will be retested prior to clinical rotations. More investigation on what types of training can serve as effective formats to reduce degradation and improve integration into an accelerated program.

Poster 26: Integrating Self-Directed Learning (SDL) into the M1 Undergraduate Curriculum

Katherine Schaffer, Eastern Virginia Medical School, goodmucw@evms.edu, Craig W. Goodmurphy, Eastern Virginia Medical School, goodmucw@evms.edu

SDL provides lifelong-learning skills students take into their careers. We introduced an SDL project in term 1 MD program. 154 students divided into 36 Donor teams where tasked with an SDL project combining Human Structure and Foundational Sciences modules. SDL readiness survey and a presentation on SDL was provided. The project topic was group designated and included: group contract, objectives and a poster product. Students presented a poster and faculty teams judged the posters. Groups average 91% on the project. Students were “product-oriented” rather than “process oriented”, indicating that strategies to help students embrace the process of SDL are needed.

Poster 27: Using FitBit Data to Increase Awareness of Academic Triggers and the Impact of Mindfulness Meditation in Mitigating Them

Jennifer Brueckner-Collins, University of Louisville School of Medicine, jkbrue02@louisville.edu, Paige Hart, University of Louisville, Eli Brainard, University of Louisville

Activity trackers such as Fitbits, are wearable devices that track biometric data associated with wellness. Studies show that this type of data leads to awareness which in turn leads users to potentially adapt behaviors in a positive and meaningful manner. In this study, we tracked student fitbit metrics during a month long medical pre-matriculation course. Fitbit data revealed changes in sleep patterns and stress parameters related to the anatomy lab experiences and the onset of mindfulness meditation classes. Increasing awareness of curricular triggers and strategies to mitigate them, students may experience a more seamless transition to medical training.

Poster 28: Arriving Prepared, Who Is At Risk

Kimberly K. Loscko, Mount Carmel College of Nursing, kloscko@mccn.edu

This study employs a cross-sectional design and involves a retrospective sample of students taking a two semester introductory sequence of anatomy and physiology at a private college in Columbus, Ohio. An ANOVA model including a post hoc Bonferroni study indicated that success in A&P was not significantly associated with an early prep start orientation program. In addition, a bivariate correlation study indicated a positive correlation between success in A&P and ACT scores and TEAS (Test of Essential Academic Skills) scores. A bivariate t-test indicated no significant correlation between success in A&P when taken under a progression requisite science policy.

Poster 29: Clinical Anatomy Summer Camps: One-Week Experiences for Exposing High School Students to Anatomy and Relevant Health Sciences Professions

Edgar R. Meyer, University of Mississippi Medical Center, emeyer@umc.edu

The University of Mississippi Medical Center (UMMC), Mississippi's only academic health sciences center, has obligations to provide healthcare to patients and educate future health sciences professionals. The Clinical Anatomy Division at UMMC instituted Clinical Anatomy Summer Camps to provide anatomy exposure to high school students interested in health professional fields. In July 2016 and 2017, high school students participated in one-week camps structured to develop students' understanding of human anatomy by allowing them to interact with human cadavers in the lab, attend graduate-level lectures on anatomical content, and engage in activities promoting critical thinking skills. Students rated these experiences highly.

Workshop Presentations

Session 1: 1:00 – 1:45 pm

W01A (CNMH 075) - Five Powerful Ways You Can Enhance Long-Term Learning in Your A&P Course

Kevin Patton, St. Charles Community College, NYCC School of Health Sciences & Education, kevin@lionden.com

Can we be assured that our A&P students can retrieve and the concepts they've learned in our course later in the semester? In A&P 2? In a later course? In their careers? There are some simple strategies to increase the odds that they will! Kevin share 5 ways that have worked well with his students' and might give you some ideas for your own course.

W01B (CNMH 081) - Good, Better, Best! Multiple Choice Question Quality Control.

Melissa Marie Quinn, The Ohio State University, Melissa.quinn@osumc.edu, Jennifer Marie Burgoon, The Ohio State University, Jennifer.burgoon@osumc.edu

A staple of many educational assessments are multiple choice questions (MCQs). Their widespread use requires revisiting and modification of old questions in order to better serve students. However, it seems this step is overlooked since composing and designing quality multiple choice questions can be frustrating and time consuming for educators. This workshop will discuss the tips and tricks to compose quality MCQs, as well as provide attendees the opportunity to discuss their own pitfalls and triumphs with MCQs.

W01C (CNMH 180) - Understanding Group Dynamics: The Foundation of Teamwork Know the Characters in the Kingdom

Cheryl Purvis, Nova Southeastern University, cpurvis@nova.edu, Anastasia Mashukova, Nova Southeastern University, amashukova@nova.edu, Sydney Byk, Nova Southeastern University, littlepinkappleseb@gmail.com, Camille Arca, camille.arca@gmail.com

Creating positive group dynamics is an integral component of education and can be the key to academic and ultimately career success. As part of their coursework, we expect students to work in groups. However, personality clashes often undermine the learning environment. To be effective facilitators, faculty must appreciate and evaluate different personality types. To illustrate specific traits, we created representative animal character portraits. Participants will identify their own strengths, assess their individual characteristics and discuss how to foster healthy group dynamics for productive teamwork. This workshop will help us inspire our students to become leaders in their own unique way.

W01D (ALLN 131) – Gross Anatomy Workshop for AACA-HAPS Regional Conference

Chantal Prewitt, Bellarmine University, cprewitt@bellarmine.edu, Steven Wilt, Bellarmine University, swilt@bellarmine.edu, Nicole Herring, University of Louisville, nicole.herring@louisville.edu, Jessica Bergden, University of Louisville, jsberg04@louisville.edu, Morgan Sharp, University of Louisville, Jennifer Brueckner-Collines, University of Louisville, jkbue02@louisville.edu, David Porta, Bellarmine University, dporta@bellarmine.edu

Generous, altruistic donors enable Gross Anatomy labs to provide amazing educational experiences for a variety of students by gifting their bodies. Expert anatomists from Bellarmine University and the University of Louisville Medical School will provide attendees with a fascinating array of cadaver donor dissections of the Central and Peripheral divisions of the Nervous system as well as Lower Limb Fractures and the important anatomy of some of the Surgical Interventions utilized in their treatment. There will be plenty of hands-on engagement and the opportunity to follow a dissection guide and use a worksheet to identify structures.

Session 2: 2:00 – 2:45 pm

W02A (CNMH 075) - STOP Memorizing; START Understanding! Making A&P Make Sense!

Nelson H. Kraus, University of Indianapolis, nkraus@uindy.edu

Make learning A&P fun and easy by constantly applying the most basic concept of A&P! "Anatomical structures are shaped the way they are because of what they DO!" Form Follows Function! Memorization is essential but memorization can be minimized when students appreciate how A&P are inseparably compatible. This can be accomplished by flipping the classroom toward collaborative learning focused on seven (maybe eight) keys to learning, REVVACMM, Repetition, Emotion, Vocalization, Visualization, Association, CONCEPTS, and Movement/Memorization. This makes A&P make sense!

W02B (CNMH 081) - Reflections of Teaching Anatomy & Physiology for 31 Years in Higher Education

John Lloyd, Aurora University, jlloyd@aurora.edu

Being introduced to Physiology in high school (1968) and now, 2019 a Professor of Biology at an university teaching anatomy & physiology to pre-health professional students has accumulated into 31 years of teaching experiences. In the lab, wet tissue and cadaver dissection along with anatomical models and digital A & P and in lecture with chalk/white boards, overhead projections, power points and videos with animations and simulations have assisted with student learning. But the main actor/director/producer in this production of teaching students has been the teacher. Will be sharing my pedagogy of connecting with students and engaging them with A & P over the years.

W02C (CNMH 180) - Storyboarding for Quality Instructional Videos

Priti L. Mishall, Albert Einstein College of Medicine, priti.mishall@einstein.yu.edu, Stephanie Osei-Sarpong, Marist College, soseisarpong@gmail.com

Storyboarding is an essential preparatory step to organize content for quality video. This interactive workshop will explain key elements of a storyboard and provide hands-on practice for faculty and staff in medical schools or allied health professionals. The storyboard template is based on Universal Design for Learning (UDL), a framework by which instructors provide multiple means of representation of information to tap learner interest. At the end of the workshop you will be able to: 1. Define the key elements of an engaging video. 2. Explain the purpose of creating a storyboard. 3. Organize educational content within a UDL-inspired storyboard template.

W02D (ALLN 131) – Gross Anatomy Workshop for AACAHAPS Regional Conference

Chantal Prewitt, Bellarmine University, cprewitt@bellarmine.edu, Steven Wilt, Bellarmine University, swilt@bellarmine.edu, Nicole Herring, University of Louisville, nicole.herring@louisville.edu, Jessica Bergden, University of Louisville, jsberg04@louisville.edu, Morgan Sharp, University of Louisville, Jennifer Brueckner-Collins, University of Louisville, jkbue02@louisville.edu, David Porta, Bellarmine University, dporta@bellarmine.edu

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Session 3: 3:00 – 3:45 pm

W03A (CNMH 075) - FUNdamentals of Teaching Anatomy and Physiology

Marianne Frederick, Greenville Technical College, fredemf@my.gvltec.edu

Students thrive when the classroom environment is stimulating and enjoyable. Brain research reveals that multi-sensory learning is imperative while the Learning Pyramid suggests that when students teach what they've learned, it promotes better retention of information. This interactive session will demonstrate "FUN" techniques and will utilize small group brainstorming to generate ideas for unique ways to make A&P topics more memorable and palatable. You don't have to be a comedian to use humor, laughter and playfulness in your classroom. You simply need to be open to creating an energizing learning environment and engaging your learners.

W03B (CNMH 081) - Anthropology Case Studies for Topic Enrichment in Undergraduate Anatomy

April Richardson Hatcher, University of Kentucky, arich3@uky.edu, Kristen Platt, University of Kentucky, platt.kristen@uky.edu, Briana Moore, University of Kentucky, briana.moore@uky.edu

Anthropology is an intriguing field of study to incorporate in anatomy education. The authors present their use of anthropology cases embedded in lecture to enhance the teaching of musculoskeletal anatomy. This session will demonstrate examples of exciting cases that could be used in the participants' own classrooms, such as cranial modification, corsetry, foot binding and historically interesting figures (Medici family, Tollund man, King Richard III, the Radium Girls and more!). Students discussed course content in the context of case studies provided during lecture. The authors will discuss how the case studies were implemented and received by the students.

W03C (CNMH 180) - Early Learning Modules, Do They Make a Difference In Student Outcomes

Kimberly Loscko, Mount Carmel College of Nursing, kloscko@mccn.edu

The current study will examine if students who take A&P I completing early learning modules have significantly higher levels of grades relative to students who do not complete early learning modules.

An ANOVA model including a post hoc Bonferroni study and a bivariate correlation study will be used to analyze correlations between success in A&P relative to student ACT, high school GPA and TEAS (Test of Essential Academic Skills) scores. A bivariate t-test will be used to analyze correlations between students who take A&P I completing early learning modules vs. those who do not complete the modules.

W03D (CNMH 176) - The HAPS Exam Program – What Do We Do?

Jennifer M Burgoon, The Ohio State University, jennifer.burgoon@osumc.edu

Sponsored by HAPS

Did you know that HAPS has an Exam Program? This session will discuss the HAPS Exam Program including recent improvements to the comprehensive anatomy & physiology exam and the anatomy-only exam. Also discussed, will be recent updates to the HAPS learning outcomes. Come and join us for this informative session!

W03E (ALLN 131) – Gross Anatomy Workshop for AACA-HAPS Regional Conference

Chantal Prewitt, Bellarmine University, cprewitt@bellarmine.edu, Steven Wilt, Bellarmine University, swilt@bellarmine.edu, Nicole Herring, University of Louisville, nicole.herring@louisville.edu, Jessica Bergden, University of Louisville, jsberg04@louisville.edu, Morgan Sharp, University of Louisville, Jennifer Brueckner-Collines, University of Louisville, jkbrue02@louisville.edu, David Porta, Bellarmine University, dporta@bellarmine.edu

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Thank you for coming and participating in our 2019 AACA/HAPS Southern Regional Meeting at Bellarmine University. The heart and soul of our professional societies has always been the people. Thank you for joining together to engage in our ongoing conversation about how to strengthen our students' understanding of Human Anatomy and Physiology.

A special thanks to the following Bellarmine University and University of Louisville faculty, staff and administration for the hard work they have done to bring this conference to life:

Bellarmino Administration

Susan Donovan, President
Carole Pfeffer, Provost

Bellarmino Faculty and Staff

Chantal Prewitt, Associate Professor in Physical Therapy
Steven Wilt, Chair of Biology

University of Louisville School of Medicine- Department of Anatomical Sciences & Neurobiology

Jennifer Brueckner-Collins, Professor and Vice Chair
Nicole Herring, Assistant Professor

Caterer

Mary Kennedy

We also thank our loyal exhibitors, update speakers, workshop and poster board presenters. In addition, we want to recognize the following HAPS personnel/members for their assistance:

Peter English
Caitlin Hyatt
Brittney Roberts

All the hard work on everyone's part made this day so worthwhile and enriching. We hope to see you again in the near future, possibly at this year's annual HAPS 2019 Conference in Portland, Oregon in May, the annual AACA 2019 Conference in Tulsa, OK in June or at one of three HAPS Regional Meetings scheduled this fall.

Sincerely,

The 2019 Southern Regional Meeting Co-Chairs:

David Porta, Bellarmine University (AACA)
Rachel Hopp, University of Louisville (HAPS)