HAPS Central Regional Meeting
August 10, 2019

St. Lawrence College
Hello Conference Attendee!

I am pleased to welcome you to our Kingston campus for the Human Anatomy and Physiology Society's 2019 Central Regional Meeting.

At St. Lawrence College we appreciate opportunities to welcome people to our campus, and we are honoured to host a group committed to promoting excellence in the teaching of human anatomy and physiology.

I hope you find our state-of-the-art Student Life and Innovation Centre to be the perfect place for collaboration, innovation, and learning. If you look around the facility you will see our new student pub, double gymnasium, study spaces, and fitness centre. We are very proud of our campus and even more proud of the community we have studying and working here.

I hope you enjoy your time at St. Lawrence College.

Sincerely,

Glenn Vollebregt
President & CEO
St. Lawrence College
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 – 7:30 AM</td>
<td>Exhibitor &amp; Poster Setup</td>
<td>Conference Venue – Upper Concourse</td>
</tr>
<tr>
<td>7:30 – 8:30 AM</td>
<td>Registration &amp; Breakfast</td>
<td>Conference Venue – Upper Concourse</td>
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<tr>
<td>8:30 – 9:00 AM</td>
<td>Welcome:</td>
<td>Conference Venue C</td>
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<tr>
<td></td>
<td>Conference Chair, Hisham S. Elbatarny</td>
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<td></td>
<td>President and CEO, Glenn Vollebregt</td>
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<tr>
<td>9:00 – 10:00 AM</td>
<td>Update Speaker 1:</td>
<td>Conference Venue C</td>
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<td>Michael Adams, PhD</td>
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<td>“Surgical Simulation Using Cadaveric Modelling to</td>
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<td></td>
<td>Assess Potential Impact on Female Sexual Dysfunction”</td>
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<tr>
<td>10:00 – 10:45 AM</td>
<td>Break with Exhibitors, Poster Session</td>
<td>Conference Venue – Upper Concourse</td>
</tr>
<tr>
<td>10:45 – 11:45 AM</td>
<td>Workshop Session 1</td>
<td>See Program</td>
</tr>
<tr>
<td>11:45 AM – 1:00 PM</td>
<td>Lunch</td>
<td>Conference Venue – Upper Concourse</td>
</tr>
<tr>
<td>1:00 – 2:00 PM</td>
<td>Update Speaker 2:</td>
<td>Conference Venue C</td>
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<td>Maha Othman, MD PhD</td>
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<td>“Clotting Matters: How can Science and Translational</td>
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<td>Research Reduce the Burden of Thrombosis Related</td>
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<td>2:00 – 2:30 PM</td>
<td>Break with Exhibitors</td>
<td>Conference Venue – Upper Concourse</td>
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<tr>
<td>2:30 – 3:30 PM</td>
<td>Workshop Session 2</td>
<td>See Program</td>
</tr>
<tr>
<td>3:30 – 4:00 PM</td>
<td>Closing note</td>
<td>Conference Venue C</td>
</tr>
</tbody>
</table>
Campus Map
HAPS Central Regional Meeting
Exhibitors

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

Exhibitors
ADInstruments
Autopsy Center of Chicago
Gale, A Cengage Company
Visible Body

The HAPS 34th Annual Conference will be held in Ottawa, Ontario on May 23 through May 27. The Update Seminar portion of the meeting (May 23-25) will be held at The Westin Ottawa and the Workshop portion of the meeting (May 26-27) will be held at The University of Ottawa.

Online registration will open in October 2019.
Visible Body Courseware

Interactive assignments and dissection quizzes that engage your students’ passion for anatomy and physiology

Sign up for a free Courseware instructor trial
visiblebody.com/mycourse
Abstract: Female periurethral tissue (FPT) is impacted during mid-urethral sling implantation for stress urinary incontinence just as the cervix is targeted via the Loop Electrosurgical Excision Procedure (LEEP) upon diagnosis of cervical dysplasia. At issue is the role of these target tissues in the female sexual response. Our cadaveric studies and use of surgical specimens to characterize the component structures and tissues in these regions is revealing that both anatomical areas contain multiple types of innervation and sensory structures, in addition to glandular tissues, that likely play a significant role in the physiology of normal sexual function. Given that previous studies have reported significant negative deficits in overall sexual and orgasmic satisfaction after sling implantation and after the LEEP it has become critical that better characterization of these tissue be achieved to direct advancement in these clinical interventions.

Bio: Dr. Michael Adams has had a long-term focus on developing new therapeutic strategies in the prevention and treatment of kidney disease, cardiovascular disease, sexual dysfunction and other peripheral vascular diseases. He has published more than 180 scientific papers and chapters and he has 16 separate patented inventions. For the latter he was given the award for Most Prolific Inventor, Life Sciences at Queen’s by Parteq Innovations, the institutions technology transfer and commercialization arm (2007). In addition, he has been a founder of two start-up companies and was successful in developing a drug that reached the world market. He has trained more than 50 graduate students and 10 post-doctoral fellows. As an educator and builder, Dr. Adams is the founder and Director of the fully online Bachelor of Health Sciences degree as well as the new on-campus offering of the same degree at Queen’s University.
Abstract: Haemostasis is a complex and intricate process. It involves sophisticated molecular mechanisms and cellular pathways which maintain the delicate balance to safeguard against bleeding and pathological clots. Thrombosis is the most common underlying pathology of the top three fatal diseases: ischemic heart disease, stroke, and venous thromboembolism. With 1 in 4 dying from causes related to thrombosis, this pathology is a major contributor to the global burden of disease worldwide. It is well-known that these causes are also largely preventable with effective knowledge dissemination and public awareness. Cancer and pregnancy-related complications are two pathologies which increase the risks for thrombosis and there is increasing efforts among investigators in oncology, obstetrics, and vascular biology to better elucidate disease mechanisms and improve thrombosis risk stratification. In this talk, the science and pathophysiology of thrombosis will be discussed broadly, with a focus on the role of Thromboelastography (TEG). This sensitive laboratory and point of care test is developing an increasing role in thrombosis prediction and risk assessment in a broad range of clinical and research domains. This talk will also highlight some of our novel research data specifically related to TEG assessments in cancer-associated thrombosis and complicated pregnancy.

Bio: Dr. Othman is a Physician, Research Scientist, Educator, and Mentor. She obtained her MD and MSc in Clinical Pathology in Mansoura University in Egypt. She then completed her PhD in Pathology from Southampton University, UK, with a specialization in coagulation and haemostatic disorders. After this, she pursued post-doctoral research training at Queen’s University in Kingston, Ontario, Canada. Over the last 20 years she has focussed on clinical and science-based research as well as education. Her strong passion for teaching and learning led her to supervise and mentor numerous trainees at both the postgraduate and undergraduate levels. Dr. Othman is currently a professor at St Lawrence College teaching several courses in foundational science and research methods within the Bachelor of Sciences in Nursing program. She also holds a position as adjunct associate professor at the School of Medicine, Queen’s University where she maintains an active research lab with collaborative projects within Queen’s as well as internationally. Dr. Othman has over 75 publications in peer-reviewed journals and is an internationally recognized expert in platelet-type von Willebrand’s disease. She is an Associate Editor for Seminars in Thrombosis and Haemostasis Journal, a reviewer for a number of Haemostasis journals and a member of several scientific organizing committees and advisory boards for international haemostasis conferences. She is the current chairman of the International Society on Thrombosis and Haemostasis’s Scientific Committee (SSC) for Women’s Health Issues in thrombosis and Haemostasis.
Poster Presentations

**A Comparison of Performance and Knowledge Retention in an Online Human Physiology Course Designed to Mirror a Traditional Face-to-Face Format**

Holly E. Bates, Trent University, hollybates@trentu.ca

Co-Author: Sarah L. West, Trent University, sarahwest@trentu.ca, Debbie Lietz, Trent University, dlietz@trentu.ca

We examined the performance and knowledge retention in online vs. in-person first year university human physiology courses. Course designs mirrored one another. We conducted a knowledge retention test 2-3 months post-course completion. Compared to the in-person format (N=339), students in the online format (N=285) finished with a 3% higher average final grade, due to a 23% better performance on the midterm exam. However, online students performed 4% lower on the final exam. Compared to in-person, online students also performed 7.5% lower on the retention test. Thus, compared to the in-person class format, the online course resulted in worse content retention.

**Using 3D Slicer, an Open-Source Software to Create a 3D Anatomical Model of the Hip Joint**

Zsuzsanna Keri, Laurentian University/St. Lawrence College, zsuzsannaanett.keri@student.slc.on.ca

Co-Author: Hisham Elbatarny, Queen's University/St. Lawrence College, helbatarny@sl.on.ca, Tamas Ungi, Queen's University, ungi@queensu.ca, Andras Lasso, Queen’s University, lasso@queensu.ca, Gabor Fichtinger, Queen’s University, fichting@queensu.ca

An open-source research software, 3D Slicer, has been developed for medical image processing. It provides convenient tool for modeling and visualization of anatomical and pathological structures. To illustrate how to create 3D graphical models based on patient CT images, we, here, present the segmentation workflow on the parts of the hip joint. The process is semi-automatic, easy to use, and freely accessible for everyone. The models can be exported for 3D printing and included in other model viewers to generate anatomy educational pictures and videos.

**Use of Animations as an Active Teaching Tool in Developmental Anatomy**

Sidra Shafique, Queen's University, s.shafique@queensu.ca

This study was conducted in a fourth year Mammalian Embryology course, designed in six modules, each consisting of one to two animations related to a topic. Data were collected through pre-test and post-test questionnaires. Participants supported (p=0.028) the use of animations indicating that CAA helped in better understanding the concepts with sequential steps (p=0.001), three-dimensional visualization of images (p=0.035), and improved their interest in Embryology as a subject (p=0.009). Qualitative data analysis resulted in the themes: CAA is a great visual tool useful for understanding three-dimensional concepts, traditional teaching is mostly teacher centered and needs better supplement / adjunct tools.
Workshop Presentations

Session 1: 10:45 – 11:45 AM

101 (Room 12010) - **Use the Engaging Topic of Human Sex Determination to Develop Quantitative Reasoning Skills in Students**
Laura Pickell, HHMI BioInteractive, lpickell@cegep-heritage.qc.ca
*Sponsored by HHMI BioInteractive*
In this workshop, participants will be taken through a data-driven activity designed to have students explore human anatomy and physiology as it pertains to sex verification in athletes. Through the lens of the learner, participants will use quantitative reasoning to evaluate the effectiveness of using testosterone levels to determine an individual's biological sex. A discussion of how the activity may be adapted to various class levels and sizes will follow including a reflection on how it may be incorporated into one’s own practice. This activity supports the HHMI BioInteractive module "Sex Verification of Athletes" and is an open resource available on the QUBES hub.

102 (Room 12020) - **Teaching with 3D Technology in an Easy and Affordable Way**
Krystylynn Fusaro, Visible Body, krystylynn.fusaro@visiblebody.com, Allie Hardy, Visible Body, allie.hardy@visiblebody.com
*Sponsored by Visible Body*
If you’ve thought “3D Anatomy Technology is fascinating” but also wondered about its efficacy, ease of use, and affordability, this workshop is for you! Join us to see how hands-on dissection assessments can be done online, how to set up 3D homework assignments, and manage your course with Visible Body’s homework platform: Courseware. You will also learn how to incorporate Augmented Reality in your lab and lectures, new lecturing tools, Visible Body’s new histology content, and more!

103 (Room 12030) - **Analysis by Analogy: How to Bring Concepts Closer to Your Students**
Zsuzsanna Keri, Laurentian University/St. Lawrence College, zsuzsannaanett.keri@student.slc.on.ca, Hisham Elbatarny, Queen’s University/St. Lawrence College, helbatarny@sl.on.ca
The use of analogies has been found to be quite helpful in teaching different sciences including anatomy and physiology. They are valuable in explaining new and difficult concepts. In our Anatomy and Physiology course, structural and functional analogies and metaphors are frequently used to engage the students and enhance their understanding of different topics. In this interactive workshop, new analogies will be introduced. The goal is to share our experience using these analogies in lectures, to highlight their characteristics, and to show their value in enhancing students’ understanding of anatomical structures and physiological functions.
**Session 2: 2:30 – 3:30 PM**

**201 (Room 12010) - Five Systems One Story: Integrating Several Body Systems in One Lecture**  
Carol Evans, Penn State University, cxe276@psu.edu  
The theme “homeostasis” is well taught at the beginning of the semester as a sequence of positive and negative feedback loops. These mechanisms are well exemplified throughout the semester when teaching the endocrine system, gastrointestinal physiology and reproductive physiology. However, less emphasized is how the urinary system maintains homeostasis of the entire body. This workshop provides an interactive approach that integrates several disciplines (systems) and stresses the importance of interdependent physiology. Students walk away with a greater appreciation of renal physiology and a stronger foundation for future courses in the health field.

**202 (Room 12020) - Autopsy.Online - Your Cadaver Lab Next Door**  
Ben Margolis, Autopsy Center of Chicago, info@autopsy.online  
*Sponsored by Autopsy Center of Chicago*  
During this workshop I will discuss the evolving use of cadaver lab vs. digital resources; and how the searchable video platform, autopsy.online can span these two options. The platform will be introduced for purposes of learning how "in-the-field" professionals respond to the concept and would shape its growth.

**203 (Room 12030) - Bring It To The Table: A College-Wide A&P Teaching Development Project**  
Hisham S. Elbatarny, Queen’s University and St. Lawrence College, helbatarny@sl.on.ca  
In many institutions, Anatomy and Physiology (A&P) courses are offered at various levels/depth to suit different programs. Instructors usually have a spectrum of background knowledge/experiences. Generating platforms for discussion and exchanging expertise can contribute to teaching excellence and students’ success. With this in mind, this college-wide project was designed. A&P instructors in different programs at St. Lawrence College were invited to participate. A questionnaire was distributed, followed by in-person then group meetings. Discussion included identifying resources, addressing challenges and needs, and sharing ideas for collaborations. In this workshop, I will explain the goals, methodology, and outcomes and share the action plan towards promoting A&P teaching at our institution.
On behalf of the Human Anatomy and Physiology Society (HAPS) I would like to thank you for visiting Kingston, our beautiful limestone city, and for participating in our 2019 HAPS Central Regional Conference at St. Lawrence College. Your attendance and participation are greatly appreciated. Thank you for sharing your knowledge and expertise. Scientific education and research can only grow by dedicated people like you.

Thank you to St. Lawrence College executive, faculty, staff, and committee members for the great support and hard work to make this conference possible. Special thanks go to:

- Glenn Vollebregt, President and CEO
- Amelia Campbell, Event and Banquet Sales Coordinator
- Richard Hogan, Conference Services Manager
- Linda Noble, Operations Manager, Brown’s Dining Solutions
- Zsuzsanna Keri, conference committee member

I also would like to thank our loyal exhibitors, update speakers, and workshop and poster presenters.

In addition, I would like to recognize the following HAPS leaders and administrating staff for their great support and assistance

- Peter English
- Caitlin Hyatt
- Brittney Roberts
- Thomas Lehman

This wonderful and rich day would not have been possible without you all.

We hope to see you again at another regional conference and in May 2020 at the 34th annual HAPS Conference in Ottawa, Ontario.

Sincerely,

Hisham S. Elbatarny
Host – HAPS 2019 Central Regional Conference