Welcome to Tyler Junior College! On behalf of the College, and particularly the Anatomy & Physiology faculty and staff in the Life Sciences Department, I'd like to welcome HAPS members to the 2017 Spring Southern Regional Conference. We have a full day of activities planned, capped by a tour of the simulation lab in our new Rogers Nursing and Health Sciences Building.

TJC is celebrating its 90th anniversary, and we're pleased you could join us this weekend. We've grown from 93 students in 1926 to over 11,000 last year, when we were also named one of the nation's top 150 community colleges by the Aspen Institute College Excellence Program. We are also the only community college in Texas approved to offer a Bachelor of Science degree, in Dental Hygiene.

As you walk across our campus today, be sure to stop and enjoy our tree-shaded lawns. If you have time, stop by our community garden. If your family is with you, I hope you have time to visit the Center for Earth and Space Science Education, in the building right next door to the conference. You'll agree with us that TJC is a great place to be.

Sincerely,

[Signature]

Dr. Kenneth R. Murphy
Dean, Engineering, Mathematics, and Science
TJC is one of the largest community colleges in Texas, with almost 600 faculty members, approximately 11,500 students enrolled per semester, and 1,011 May graduates.
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>7:30 AM – 8:30 AM</td>
<td>Registration</td>
<td>Pirtle Technology Building, 3rd floor mezzanine (by the elevator)</td>
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<tr>
<td>7:15 AM – 8:30 AM</td>
<td>Exhibitor Setup</td>
<td>Pirtle Technology Building, 353</td>
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<tr>
<td>7:30 AM – 8:45 AM</td>
<td>Breakfast <em>Sponsored by Hayden-McNeil</em></td>
<td>Pirtle Technology Building, 353</td>
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<tr>
<td>7:30 AM – 8:45 AM</td>
<td>Tour of newly renovated A&amp;P Lab</td>
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<td>8:45 AM – 9:00 AM</td>
<td>Welcome: Conference Coordinator: Dr. Betsy Ott</td>
<td>Genecov 204</td>
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<tr>
<td>9:00 AM – 10:15 AM</td>
<td>Update Speaker I: Michael J. Beckstead</td>
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<td><em>Structural and Functional Decline of Dopamine Neurons in a Mouse Model of Parkinson’s Disease</em></td>
<td>Genecov 204</td>
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<tr>
<td>10:15 AM – 10:45 AM</td>
<td>Break with Exhibitors</td>
<td>Pirtle Technology Building, 353</td>
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<td>Tour of newly renovated A&amp;P Lab</td>
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<tr>
<td>10:45 AM – 12:00 PM</td>
<td>Workshop Session 1</td>
<td>Pirtle Technology, 3rd floor</td>
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<tr>
<td>12:00 PM – 1:00 PM</td>
<td>Lunch <em>Sponsored by Tyler Junior College</em></td>
<td>Pirtle Technology, 3rd floor mezzanine</td>
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<tr>
<td>1:00 PM – 2:15 PM</td>
<td>Update Speaker II: Lane J. Brunner</td>
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<td><em>Engaging Student Teams in the Classroom</em></td>
<td>Genecov 204</td>
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<tr>
<td>2:15 PM – 2:45 PM</td>
<td>Break with Exhibitors</td>
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<tr>
<td>2:15 PM – 2:45 PM</td>
<td>Poster Session</td>
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<tr>
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<td>Tour of newly renovated A&amp;P Lab</td>
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<tr>
<td>2:45 PM – 4:00 PM</td>
<td>Workshop Session 2</td>
<td>Pirtle Technology Building, 3rd floor</td>
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<tr>
<td>4:00 PM – 4:15 PM</td>
<td>Closing &amp; Door Prizes</td>
<td>Genecov 204</td>
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<tr>
<td>4:15 PM – 5:00 PM</td>
<td>Tours of the Rogers Nursing &amp; Health Science Building</td>
<td>Meet in Genecov 204</td>
</tr>
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</table>

HAPS Conference attendees can gain access to WiFi at Tyler Junior College by connecting to the network: TJC-XirGuest. There is no password required to use this network.
HAPS would like to recognize and thank all of our conference exhibitors and sponsors. Their generous support makes this conference possible.

**Exhibitors**
- ADInstruments
- eScience Labs
- McGraw Hill Education

**Sponsors**
- Hayden-McNeil – Breakfast Sponsor
- Tyler Junior College – Lunch and Conference Sponsor

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Don’t forget to register for HAPS 2017!

The HAPS 2017 Annual Conference will take place in Salt Lake City, Utah on May 24 through May 28th.

Regular registration rates end on April 21, 2017, so register online today!
Update Speaker I
Michael J. Beckstead
University of Texas

“Structural and Functional Decline of Dopamine Neurons in a Mouse Model of Parkinson’s Disease”
9:00 AM – 10:15 AM
Genecov 204

Abstract: Parkinson’s disease (PD) is the second most diagnosed neurodegenerative disorder and is associated with wholesale loss of dopamine neurons in a brain region called the substantia nigra. PD can go undiagnosed for years until the appearance of overt motor symptoms, but very little is understood about compensatory mechanisms and cellular adaptations that take place in single neurons during the early stages of the disease. We have been studying the structural and functional decline of dopamine neurons in a genetic mouse model of Parkinson’s disease termed MitoPark, whose dopamine neurons specifically lack the gene that codes for mitochondrial transcription factor A (Tfam). MitoPark mice exhibit a late onset and progressive behavioral phenotype similar to PD in humans but on the timescale of a mouse’s life, and also faithfully recapitulate other key characteristics of PD including a response to L-DOPA treatment that worsens with time. We have found that, at an age the precedes dopamine neuron death and behavioral symptomatology, single dopamine neurons from MitoPark mice exhibit myriad declining physiological parameters: decreased cell size, decreased dopamine receptor signaling. We are currently expanding this work to explore alterations in gene expression, locomotor behavior, and cell morphology to develop a model of neurodegeneration that can be used to identify potential targets for therapeutics during the early stages of the disease.

Bio: Michael J. Beckstead, currently Associate Professor, UTHSCSA Department of Cellular and Integrative Physiology, received the UTHSCSA Distinguished Junior Research Scholar Presidential Award in 2014 and a Society for Neuroscience NIDA Mini0Symposium Early Investigator Travel Award in 2010. He is author or co-author on over 25 refereed publications. Additionally, he is deeply involved in teaching and service, at his home institution and beyond. His previous positions include Assistant Professor, Oregon Health & Science University Department of Behavioral Neuroscience (2007-2008). Dr. Beckstead held a postdoctoral research fellowship in Neurophysiology at the Vollum Institute, Portland, OR (2002-2007). He received his Ph.D. in Pharmacology at Wake Forest University in 2002 and his B.S. in Pharmacy from Ohio Northern University in 1997.
Abstract: A chief concern of college graduates entering the workplace is the ability to seamlessly meld into an organization’s culture. While many graduates leave college with the requisite technical skills and the ability to remember facts associated with their education, far fewer are to communicate clearly, solve new problems, or work as a member of a team. Weak interpersonal and problem solving skills may not be an inherent inability, but rather from the lack of student engagement in the learning setting. Passive lectures, while efficient at presenting content in the classroom, are not the best for in situ learning. In other words, although as educators we are delivering content, our students may not be learning much of what they need to be successful in the workplace. We implemented a student-centered pedagogy that placed students in teams where time in the classroom focused on team members communicating to solve new and challenging problems. This method, know as team-based learning, significantly changes the role of student and instructor. Students are no longer passive recipients of content, but instead they begin class with a foundational knowledge derived from the learning objectives crafted by the instructor. Following an assessment of readiness to engage in the classroom, the student teams focus their attention on solving meaningful, real-world problems for the balance of the class time. Students communicate with fellow team members and apply critical thinking skills while instructors facilitate team discussions as needed. Students as individuals and team members are held accountable for learning. At present, our Doctor of Pharmacy program is one of just a few programs that use team-based learning throughout its curriculum. As more and more students who experience active learning in the classroom enter the workplace, it’s likely that they will be an increasing internal and external pressure to move from traditional, passive lectures to active engagement of students.

Bio: Dr. Brunner is the Founding Dean of the Ben and Maytee Fisch College of Pharmacy at The University of Texas at Tyler. Along with his faculty, he is developing an entire professional curriculum using TBL as the method of teaching in an integrated pharmacy curriculum. Dr. Brunner’s passion for TBL began as he founded the school of pharmacy at Regis University and experienced how positively students responded to this approach to active learning. The school was innovative in its approach to education and was the pioneer in using TBL to deliver an integrated curriculum. Dr. Brunner left Regis University to return to the classroom at California Northstate University, another pharmacy program using TBL as the primary teaching methodology. Through his experiences leading the Regis University program and advancing TBL at California Northstate, he has become an evangelist for the use of TBL in academic pharmacy, providing training across the country for faculty wishing to move from passive content delivery to active, engaged student-centered learning. Since joining The University of Texas at Tyler, Dr. Brunner has also introduced TBL to faculty members at other healthcare programs as well as instructional design professionals at institutions of higher education.
Poster Presentation

Visit Pirtle Technology 353 during the afternoon break to view the poster presentation.

**Course-Based Undergraduate Research Integrating Functional Cardio-, Respiratory-, Nervous- and Endocrine Systems Physiology, Authentic Research and Professional Development**

*Fidelma O’Leary, St. Edward’s University, Hugo Pedrozo, St. Edward’s University*

Students participating in Course-Based Undergraduate Research Experiences (CURE) are more likely than other peers to graduate in a STEM field. This applies equally to underrepresented minorities in STEM and medical fields. With large numbers of majors, it is not possible to individually mentor every student in a research experience and most miss out on this opportunity. The Course Based approach to experiential learning provides a research experience for all students enrolled in the course.

We describe here the Development of a CURE in a sophomore level Physiology Lab. The project was approved by the Institutional Review Board and all student researchers were certified to conduct biomedical research on human subjects. The course content provided foundational knowledge of the concepts being tested. Having learned the methods and instrumentation in use, proscribed lab exercises were replaced with authentic research practices, mid-semester. Students conducted pilot experiments before beginning the project in earnest. Their peers were recruited as subjects.

Students’ engagement and interest is very high. They are conducting experiments with care, collecting and analyzing the data. They know consistently reliable data may lead to a scientific publication. Each group of three students presents their own findings. Multiple lab sections are being taught per semester, and each lab instructor analyses collective data for their lab, and will ultimately analyze the data across all sections.

This CURE reinforces functional knowledge of four different organ systems, engages STEM students in authentic scientific exploration in biomedical sciences, strengthens analytical and quantitative abilities and develops collaborative team-work skills.
Session 1.1, Pirtle Tech 312: The Biology of Skin Color: An Understanding of the Variation in Skin Color and its Role in Human Health (Free Anatomy and Physiology Resources from HHMI’s BioInteractive)
Rebecca Orr, Howard Hughes Medical Institute, rorr@collin.edu
*Sponsored by Howard Hughes Medical Institute*
“Why is there variation in human skin color?” Capitalize on student curiosity to teach core anatomy and physiology concepts. This hands-on workshop pairs a team-based learning approach and HHMI BioInteractive resources to actively engage students in learning skin anatomy, physiology of melanin production, and evaluating evidence for skin color variation as a result of the effects of UV radiation on DNA, folate degradation, and vitamin D synthesis.

Session 1.2, Pirtle Tech 313: Arterial Blood Gas Interpretation as a Tool for Concept Application and Student Engagement
Suzanne Pundt, University of Texas at Tyler, spundt@uttyler.edu
Workshop will include a brief review of acid-base homeostasis and relevant factors affecting pulmonary gas exchange. Arterial blood gas (ABG) interpretation will then be taught to illustrate these concepts. I have been teaching ABG interpretation in A&P 2 for several years, and my students really seem to enjoy the puzzle-like nature of the process. This is also a useful skill for anyone entering health care.

Session 1.3, Pirtle Tech 309: Going Wacky - Learning Hormones
Neena S Keelin, Tyler Junior College, nkee@tjc.edu
This workshop will make the lab on the endocrine system interactive. Students will make models of the endocrine glands and discuss the secretions. Working as a team they will take notes about the target cells and discuss their effects during normal secretions and under hyper/hypo secretions. After all the information is compiled they will learn to work individually to complete the activity and complete the worksheet.

Session 1.4, Pirtle Tech 307: Making A&P Teaching More "Graphic"
Mark F. Taylor, Baylor University, mark_taylor@baylor.edu
The presentation will show how to illustrate relationships between variables on a simple graph and how to integrate relationships for multiple variables on a series of "stacked" graphs. The presentation will also show how to use graphs to make a distinction between two commonly confused concepts: negative correlation and negative feedback.

Session 1.5, Pirtle Tech 359: Using Real Time Magnetic Resonance Images at 55 FPS to Demonstrate and Teach the Anatomy and Physiology of Phonetic Features in Fluent Discourse
John W. Oller, Jr., University of Louisiana at Lafayette, joller@louisiana.edu
Real time magnetic resonance images at 55 fps are used to demonstrate the anatomy and crucial aspects of the physiology of specific articulatory movements in fluent speech production. The dramatic effects of visible articulations, even ones that conflict with a deliberately manipulated sound track (as in the McGurk effects), are experimentally demonstrated. Workshop participants will be able to see, hear, and experience anatomical and physiological details right down to the level of phonetic features in fluent discourse production. The demonstrations shows why visible articulatory demonstrations can help to adjust articulation in speech therapy, dialect coaching, language acquisition by children, and second language/dialect development in adults. The applications in teaching A&P are also discussed.
Session 2.1, Pirtle Tech 312: Maximize Student Learning In and Out of the Classroom with MasteringA&P
Terry Austin, Temple College, mad.scientist@templejc.edu
*Sponsored by Pearson*
In this workshop, Professor Austin will share strategies and best practices fusing MasteringA&P to foster student learning both outside the classroom (pre/post lecture) as well as in the classroom. Recent updates to MasteringA&P make it even easier to find great learning tools!

Session 2.2, Pirtle Tech 313: Using Connect and LearnSmart in Your A&P Class
Eileen Preston, Tarrant County College, eileen.preston@tccd.edu, Molly McDaniel, McGraw Hill, molly.mcdaniel@mheducation.com
*Sponsored by McGraw Hill Education*
This workshop will demonstrate the tools available on Connect to help students master the learning objectives of Anatomy and Physiology. How the tools have been used in an actual class and the results seen will be discussed.

Session 2.3, Pirtle Tech 309: Tackling All the Terminology: Helping A&P Lab Students Absorb Large Amounts of Information
Ashley Dalby, University of Texas at Tyler, adalby@uttyler.edu
One of the most overwhelming aspects of Anatomy & Physiology for any student is the amount of new terminology, particularly in the skeletal and muscular systems. Lab students are often expected to learn bone names, locations, and prominent skeletal markings with only a few hours of face-to-face instruction. How can we present all of this information in such a short time and expect our students to stay focused and engaged? We will explore how I approach this challenge by practicing a hands-on learning technique designed to promote critical thinking, long-term information retention, and extended independent or group study sessions.

Session 2.4, Pirtle Tech 307: Clearance Made Clear
Jan Machart, University of Texas, janmachart@utexas.edu
Clearance Made Clear is a hands-on activity that simplifies renal clearance. Participants move beads (solute) and boxes (volume) on a board depicting the nephron in order to simulate filtration, reabsorption, secretion, and excretion. The activity is enhanced by a worksheet with instructions and corresponding calculations. If your students are confused by renal clearance, this activity is guaranteed to clarify!

Session 2.5, Pirtle Tech 359: Flipping Your Classroom
Ginger Christiansen, Tyler Junior College
In the flipped classroom, lectures are recorded or materials are given to students prior to class; classroom time is spent in activities that allow for the application and analysis of the class content. This session will include information on the benefits as well as the pitfalls of flipping your classroom. Discussion on preparing for class will be included as well as strategies to overcome common issues that arise. Active learning exercises specific to applications of anatomy and physiology in the context of nursing classes will be discussed and demonstrated.
The tours of the new Rogers Nursing and Health Sciences Building will begin at 4:30. You will want to relocate your vehicle to Lot F-14 and follow signs to the first floor Sim Lab.

Thanks for joining us for the HAPS Southern Spring 2017 Regional Conference. We hope you are taking something of immeasurable value home with you – safe travels!

The Regional Conference Committee would like to acknowledge the help and support of faculty, administrators, and staff of Tyler Junior College, particularly Ms. Mary Tanner, Office/Records Coordinator, Life Sciences, for administrative support, and Dr. Cliff Boucher, Department Chair, Life Sciences, for financial and professional assistance.

We would also like to acknowledge the support of HAPS staff members: Dr. Peter English, Executive Director, Caitlin Hyatt, Business Manager, and Brittney Roberts, Membership & Event Coordinator.

Planning Committee Members:

Betsy Ott, Ph.D., Chair
Suzanne Pundt, M.S.
Olga Minich, M.S.
Kevin Rutherford, Ph.D.

Professor, Life Sciences, Tyler Junior College
Senior Lecturer, Biology; A&P Coordinator, University of Texas at Tyler
Lecturer, Biology, Stephen F. Austin State University
Professor, Biology, Panola College

Local Committee Members:

Cheryl Dodson, Lab Specialist, TJC
Pam Gregory, Professor, TJC
Neena Keelin, CAP Coordinator, TJC
Terri Van Schuyver, Lab Specialist, TJC
Natalie Wade, Lab Specialist, TJC
Karen Wynne, Lab Specialist, TJC