HAPS Western Regional Meeting
September 23, 2017

Central New Mexico Community College
August 21, 2017

Dear HAPS Western Regional Meeting Attendees:

On behalf of Central New Mexico Community College (CNM), welcome to Albuquerque and CNM!

We are extremely proud to be hosting the Human Anatomy & Physiology Society’s Western Regional Meeting. The HAPS’s noble mission “to promote excellence in the teaching of anatomy and physiology” is perfectly aligned with CNM’s daily efforts to achieve community college excellence in teaching and student success.

CNM salutes each of you for your passionate support of HAPS’s mission and for your very important contributions in the cause to engage more students in the fields of science.

We hope you have a great time visiting Albuquerque and CNM, and we look forward to hosting more HAPS events in the future.

Wishing you a terrific Western Regional Meeting!

Sincerely,

Kathie W. Winograd
Dr. Katharine Winograd
CNM President
Dear HAPS Western Regional Meeting Attendees:

Central New Mexico Community College and the School of Math, Science & Engineering (MSE) welcome you to Albuquerque, NM, also known as the Duke City. Now 311 years strong, Albuquerque was founded the same year, 1706, as Émilie du Châtelet and Benjamin Franklin were born!

The thriving anatomy and physiology offerings at CNM reflect the strong interests of students seeking careers in scientific, allied health, and medical fields. We appreciate you coming to Albuquerque and CNM to showcase the field of human anatomy and physiology as a great choice for study, and as an intrinsic component to the evermore important careers that are focused on the human body.

We hope you have a terrific experience at the HAPS Western Regional Conference and look forward to having you back in the future!

Sincerely,

[Signature]

Dr. John B. Cornish
Dean, School of Math, Science & Engineering
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<td>8:45 AM – 9:00 AM</td>
<td>Welcome: Conference Coordinator: J. Mark Danley</td>
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<td>9:00 AM – 10:00 AM</td>
<td><strong>Update Speaker I: Joe Alcock</strong>&lt;br&gt; <em>Lessons from Evolutionary Medicine for Sepsis – Why Immunomodulatory Treatments Always Fail</em></td>
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<td><strong>Update Speaker II: Osbjorn Pearson</strong>&lt;br&gt; <em>From Physical Activity to Skeletal Adaptation: What We Know, What We Don’t, and Why it Matters</em></td>
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HAPS Conference attendees can gain access to WiFi at CNM by using the Guest Network. No password is necessary.
HAPS Western Regional Meeting 2017
Exhibitors

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

Exhibitors
ADInstruments
McGraw Hill Education
SynDaver Labs

Don’t forget to register for HAPS 2018!

The HAPS 2018 Annual Conference will take place in Columbus, Ohio on May 26th through May 30th.

Early bird registration rates end on February 16, 2018, so register online today!
Abstract: Sepsis remains a leading cause of death, causing approximately 60,000 deaths yearly. Lethal sepsis has long been thought to be a result of a faulty immune system, not the inciting pathogen. Based on this mechanistic viewpoint, The National Institute of Health has funded hundreds of clinical trials and billions of dollars in experimental therapies aimed at restraining the immune system in sepsis. Only one FDA approved drug – Xigris – resulted from this research and it was subsequently removed from the market. Despite this and similar failures, researchers continue to search for therapies aimed at blocking inflammation and other physiologic changes in sepsis. These approaches have failed to improve mortality in human sepsis in part because they overlook functional adaptations and evolved tradeoffs in sepsis physiology. We have followed a series of 160 patients with severe sepsis admitted to the intensive care unit at the University of New Mexico, with the aim of predicting mortality based on initial measures of lactate, glucose, and kidney function in sepsis. Many of these parameters, e.g. blood glucose, are distributed similarly in survivors as compared to non-survivors. Recent randomized controlled trials aimed at normalizing these parameters have generally failed to improve survival. These lines of evidence indicate that many sepsis “abnormalities” are in fact adaptive, not dysfunctional. This presentation will give examples of how evolutionary and evidence-based medicine can work in concert to produce better outcomes in sepsis and critical care.

Bio: Dr. Alcock has an MD from UCLA School of Medicine and a Master of Science in Clinical Research from the UNM Center for Translational and Clinical Science. The recipient of UNM’s Excellence in Teaching award, Dr. Alcock is one of the leaders in the emerging field of Evolutionary Medicine. Since 2008, Dr. Alcock has taught a series of courses on Evolutionary Medicine popular with biology, anthropology, and medical students, including wilderness medicine in the field. Dr. Alcock publishes in peer reviewed journals, on topics such as dietary fats and western diseases. He is also a founding committee member for the academic organization International Society for Evolution, Medicine and Public Health. Dr. Alcock’s current research uses evolutionary principles to understand how sleep and stress affect the gut microbiota and our health.
Abstract: Physical activity and mechanical loading affects bone – macroscopically, microscopically, and biochemically. Many of the macroscopic changes have long been recognized by anatomists and anthropologists. Three main classes of macroscopic features are often argued to be the result of physical activity: the ruggedness of muscle origins and insertions ("musculo-skeletal stress markers" or "entheses"), the shape and strength of diaphyseal cross-sections, and evidence of wear and tear such as osteoarthritis. There is reason to think the three classes of traits record different information and are poorly correlated. Both rugged entheses and osteoarthritis probably reflect injuries rather than normal – and even vigorous – use of muscles. The cross-sectional geometry of long bones also responds to nutrition, physiology, and undergoes changes with senescence, complicating its relationship with activity. Furthermore, the relative importance of frequency or intensity of loading remains poorly understood, but there are tantalizing hints that either can be important. These relationships matter because bone health – including developing and maintaining enough bone mass to successfully resist osteoporosis – is a challenge. We can observe that many prehistoric people obtained and maintained better bone health than modern Americans. Understanding how prehistoric people did this is an important step in obtaining the same benefits.

Bio: Osbjorn ("Ozzie") Pearson received his Ph.D. in Anthropology from Stony Brook University in 1997. After a two-year postdoctoral position with Dr. Daniel Lieberman at Rutgers and George Washington Universities, he moved to the University of New Mexico in Albuquerque, where he is currently Associate Professor and Regents' Lecturer of Anthropology. His research focuses on the origin and morphological diversification of modern humans as well as the effects of physical activity on the skeleton.
Variation in the Antero-Posterior Position of the Mandibular Foramen in Skulls of Different Races and Genders
Mary Tracy-Bee, University of Detroit Mercy, tracyma@udmercy.edu, Marco Ciavaglia, University of Detroit Mercy, Ibrahim Aljerdi, University of Detroit Mercy, Adam Eilturk, University of Detroit Mercy
The mandibular foramen is an opening on the medial surface of the mandible, through which the inferior alveolar nerve passes. This nerve is targeted when anesthetizing the lower jaw, as required in many dental procedures. Our research investigated variability in the position of the mandibular foramen in male and female populations, as well as in Caucasian and African-American populations. One hundred skulls from the Haman-Todd collection at the Cleveland Museum of Natural History were digitally photographed and analyzed. Preliminary results do not identify a significant difference in the position of the foramen between males and females (p>0.10). However, a significant difference in the antero-posterior position of the foramen in Caucasian and African-American populations was identified (p<0.05). This has great clinical relevance as it may result in variable treatment and positioning of anesthesia needles in patients of different races.

Cross-Campus, Multi-Year, Quantitative Analysis of Duodenum Morphology
Mary Tracy-Bee, University of Detroit Mercy, tracyma@udmercy.edu, Reem Bazzi, University of Detroit Mercy, Ami Patel, University of Detroit Mercy, Alaa Abu-Mahfouz, University of Detroit Mercy, Rama Zouabi, University of Detroit Mercy
Surgical exploration of the duodenum requires injection into the major duodenal papilla or observation of nearby anatomical structures. As a result, a solid understanding of the distances of the major duodenal papilla to both the pyloris and the minor duodenal papilla is essential when examining in this region. In five-year study of thirty-eight cadavers, distances between these landmarks were quantified. The expected 8 cm distance from the pyloris to the major duodenal papilla was in agreement of our multi-year observations. However, the 2 cm distance from the major to the minor duodenal papilla was significantly shorter than what has been previously recorded in most textbooks and journals (p<0.05). This study provides insight into the accurate distances of the duodenal structures.
Workshop Session 1
11:00 AM – 12:00 PM

Room L-101: **Accessibility in the Online Science Course**
Sandra Robinson, Midland College, srobinson@midland.edu
My goal in this workshop is to present what I’ve learned so far about meeting accessibility requirements in an online science course. Starting with the whys of the accessibility standards, I will share information, considerations, tools and helpful hints I have found while trying to meet these standards in the various content presentations formats such as word documents, Power Points, videos, and lab activities. This is an ongoing project. The workshop will include a sharing time at the end for questions and suggestions.

Room L-102: **How Understanding of Physiological Function as the Result of the Forces of Natural Selection Can Ease and Deepen Student Knowledge**
Melissa Franklin, Central New Mexico Community College, mfranklin9@cnm.edu, Joe Alcock, University of New Mexico, University of New Mexico Hospital, Veteran’s Administrative Hospital, joalcock@gmail.com
This workshop will explore the application of the Theory of Evolution and Natural Selection to Anatomy and Physiology in order to deepen understanding and increase memory retention. We will get a chance to employ a few of the methods as 'students'. Guidance drawing from Bloom's taxonomy & the scientific method supports evolution-based explanations of function in the classroom, along with a list of free online resources. Painting the 'big picture' for students is critical for building a scaffolding on which they will hang the details. Evolution-informed learning eases remembering across courses and contexts and aligns with cognition & memory research.
Workshop Session 2
3:00 PM – 4:00 PM

Room L-101: What are your Big Ideas, and what do you do with them?
Eleanore Hempsey, Northland Pioneer College, eleanore.hempsey@npc.edu
Abstract: This brainstorming workshop hopes to collect big course goals from attendees. I wish to gather reoccurring essential themes and ideas from more experienced instructors that you absolutely want your student to know forever. Examples are: Being a skeptic, Things go from high to low, Basic structural anatomy (where the liver is), The function of something is determined by its structure (not the other way around), Opposites attract. In addition to collecting ideas, I hope to collect how attendees weave them into their course from syllabus to exams.

Room L-102: Changing the way students learn through adaptive technology
Rebecca Sommers, McGraw Hill Higher Education, rebecca.sommers@mheducation.com,
Meghan George, McGraw Hill Higher Education, meghan.george@mheducation.com
*Sponsored by McGraw Hill Education*
McGraw-Hill is excited to engage faculty with a demonstration of Connect including Anatomy and Physiology Revealed and LearnSmart. Anatomy & Physiology Revealed is the ultimate online interactive cadaver dissection experience. This state-of-the-art program uses cadaver photos combined with a layering technique that allows the student to peel away layers of the human body to reveal structures beneath the surface. This program covers important topics from chemistry to organ systems, with animations, audio pronunciations, and comprehensive quizzing along the way. This firsthand exposure to learning science technology is perfect for educators interested in investigating new tools to improve student performance.
A special thanks to the following CNM faculty, staff and administration for the hard work they have done to bring this Conference to life:

**CNM Biology & Biotechnology Faculty**
Greg Broussard  
Richard Calabro  
Janet Fildes  
Melissa Franklin  
Anna Gilletly  
Susan Johnson  
Terri Koontz  
Philip Lister  
Karen Riley  
Shawn Wright  
And the entire Faculty of CNM Department of Biology and Biotechnology

CNM Food Truck Institute  
CNM Information Technology Services  
CNM Instructional Media Resources

**CNM School of Math, Science and Engineering**
Lillian Cordova  
John Cornish

**CNM Administration**
Philip Bustos  
Sydney Gunthorpe  
Katherine Winograd

Also, thank you to the following **HAPS** personnel for their assistance in organizing this Conference:

Peter English  
Tom Lehman  
Caitlin Hyatt  
Brittney Roberts