Human Anatomy & Physiology Society

26th Annual Conference
MAY 26 - 31, 2012

Promoting Excellence in the Teaching of Human Anatomy and Physiology
AAA’s Outreach Grant Program

AAA’s Outreach Grant Program provides funding for workshops, symposia, and meetings organized by AAA members, either as stand-alone activities or under the umbrella of other national or international societies. Supported activities may either be educational—such as anatomy workshops for high school students—or scientific.

**AAA Education Outreach Grant**—AAA offers grants for education programs designed to enhance teaching skills or interest educators and students at all academic levels in anatomy as a discipline.

**AAA/Wiley Research Meetings Outreach Grant**—Funding is available to support non-AAA workshops, symposia, or meetings organized by AAA members.

**AAA/Wiley Three-Year Research Meetings Outreach Grant**—AAA may select one meeting each year as deserving of ongoing support over a three-year period.

**Eligibility**
- Only AAA members are eligible to apply for a grant.
- No individual or project will be funded two years in a row for an Education Outreach Grant or regular Research Meetings Outreach Grant.
- Members submitting separate proposals for the same meeting will be asked to consolidate their requests.

**Criteria**
- Visibility and scientific impact
- Quality of participants
- Potential value to AAA
- Visibility of AAA support

**Application Process**
- Your two-page proposal should provide project details, goals, budget, and expected audience.

**Deadline:** August 1

For full details and to download an application, please visit www.anatomy.org or email exec@anatomy.org.
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**A Green Note**

The TU Campus has recycle bins in all buildings to collect paper, plastic bottles, and aluminum cans. TU shuttles run on CNG (compressed natural gas). All trash collected in the City of Tulsa is burned at the Trash-to Energy Plant. Built in 1986, the energy generated produces steam to power turbines. The electricity produced is sold to PSO (Public Service Company of Oklahoma) and/or a local refinery operation. All metals, ferrous and non-ferrous, are removed from the trash stream and sold; the resulting ash is deposited in a lined landfill and methane gas is collected and sold.
“The MSHAPI approach is unique – it starts with a student already educated in A&P course content and builds on that foundation, creating a highly trained instructional specialist for the undergraduate A&P lecture room and laboratory.”

Michael Mestan, D.C.
NYCC Executive Vice President of Academic Affairs

NYCC’s Master of Science in Human Anatomy and Physiology Instruction (MSHAPI) program is uniquely designed for those with a professional healthcare or advanced biology degree. The course of study builds on existing anatomy and physiology knowledge base, transforming the student into an exceptional A&P instructor for the undergraduate level of higher education.

This masters degree program is offered online, providing all the advantages of the online educational environment important to advanced learners. It has components that:

- Assure competency over the entire spectrum of undergraduate anatomy and physiology instruction
- Provide a sound foundation in instructional theory and practices
- Allow for a measure of specialization through selection of elective courses

Contact the Admissions Office at 800-234-6922 or visit us at www.nycc.edu.
May 26, 2012

Dear HAPS Conference Attendees:

On behalf of the faculty and staff of The University of Tulsa, I am pleased to welcome you to our campus for the two days of workshops for the 26th Annual Conference of the Human Anatomy & Physiology Society.

I commend the dedication of HAPS to promote excellence in the teaching of human anatomy and physiology and to encourage collaboration among those who teach this discipline. I know that this conference will benefit the instruction of students in the health and science fields in the future.

Once again, welcome to the University of Tulsa. I am confident that you will have a productive and exciting annual conference.

Sincerely,

Roger Blais, Ph. D
Provost and Vice President for Academic Affairs
May 25, 2012

Dear Conference Attendees:

It is with great pleasure that I extend an invitation to the Human Anatomy & Physiology Society (HAPS) to hold its 2012 Annual Conference in Tulsa.

Tulsa is a beautiful city, rich in history and civic pride. Over the years, our community has shown a willingness to work together to improve the quality of life and to ensure that Tulsa remains one of America's most desirable places to live. Tulsa is the kind of city where your participants will be greeted by the warm, mid-western hospitality of genuine, friendly people.

Tulsa looks forward to the opportunity of hosting the Human Anatomy & Physiology Society 2012 Annual Conference.

We appreciate your favorable consideration.

Best Regards,

Dewey F. Bartlett, Jr.
Mayor, City of Tulsa

DFB/vdp
The Human Anatomy & Physiology Society (HAPS) was founded in 1989, after three successful national conferences promoting communication among teachers of human anatomy and physiology at the college level. HAPS is an organization of Human Anatomy & Physiology instructors who strive for excellence in undergraduate instruction in Anatomy & Physiology. Increased growth of the Society necessitated securing an Executive Director and an organizational management firm to assist in the day-to-day administration of HAPS. However, HAPS remains primarily a volunteer organization.

The **Board of Directors** makes the final policy decisions that steer the organization, but most of the work of HAPS is accomplished by the committees. All of these people (including the Conference Planning Committee) are unpaid volunteers. A variety of HAPS committees will hold meetings over the lunch hour on the first day of workshops (Tuesday, May 29). A complete list of committees and their lunch-time meeting locations will be included in your registration packet. We encourage you to attend the meeting of any committee that interests you so you may discover first-hand how HAPS works and how you can get involved.

**Board of Directors**

President: Don Kelly  
Past-President: Caryl Tickner  
President-Elect: Dee Silverthorn  
Secretary: Lucia Tranel  
Treasurer: Elizabeth Becker  
Central Regional Director: Pat Bowne  
Eastern Regional Director: Amy Way  
Southern Regional Director: Jason LaPres  
Western Regional Director: Anne Geller

Business Manager: Shanan Molnar  
Membership Coordinator: Robin Hurst

A current list of Board members and their contact information can be found at:  
[http://wwwhapsweborg/displayboard.cfm](http://www.hapsweb.org/displayboard.cfm)
HAPS Presidents & Conference Coordinators

Past Presidents

Richard Steadman, 1989-1990
Virginia Rivers, 1991-1992
Gary Johnson, 1992-1993
Sandra Grabowski, 1993-1994
Wayne Carley, 1994-1995
Robert Antony, 1995-1996
Karen LaFleur-Stewart, 1996-1997
Kevin Patton, 1997-1998
Steve Trautwein, 1998-1999
Christine Martin, 1999-2000
Henry Ruschin, 2000-2001
William Perrotti, 2001-2002
Michael Glasgow, 2002-2003
Philip Tate, 2003-2004
Sandra Lewis, 2004-2005
Frederic Martini, 2005-2006
Joseph Griswold, 2006-2007
Margaret Weck, 2007-2008
Kevin Petti, 2008-2009
John Waters, 2009-2010
Caryl Tickner, 2010-2011

Current President
Don Kelly, 2011-2012

President Elect
Dee Silverthorn, 2011-2012

Previous HAPS Conferences

1987/1988 – River Grove, IL (Robert Anthony)
1989 – Reno, NV (Virginia Rivers)
1990 – Madison, WI (Gary Johnson)
1991 – Greenville, SC (Karen LaFleur-Stewart)
1992 – San Diego, CA (Shirley Mulcahy)
1993 – Beaumont, TX (Wayne Carley)
1994 – Portsmouth, NN (Pam Langley)
1995 – St. Louis, MO (Kevin Patton)
1996 – Portland, OR (John Martin)
1997 – Toronto, ON, Canada (Henry Ruschin)
1998 – Fort Worth, TX (Theresa Page)
1999 – Baltimore, MD (Robert Smoes)
2000 – Charlotte, NC (Nishi Bryska)
2001 – Maui, HI (Frederic Martini)
2002 – Phoenix, AZ (Philip Tate)
2003 – Philadelphia, PA (Lakshmi Atchison)
2004 – Calgary, AB, Canada (Izak Paul)
2005 – St. Louis, MO (Margaret Weck)
2006 – Austin, TX (Mary Lou Percy)
2007 – San Diego, CA (Kevin Petti)
2008 – New Orleans, LA (Judy Venuti)
2009 – Baltimore, MD (Ellen Lathrop-Davis)
2010 – Denver, CO (Terry Harrison)
2011 – Victoria, BC, Canada (Peggy Hunter)

This Year
2012 – Tulsa, OK (Karen McMahon)

Coming Attractions
2013 – Las Vegas, NV (Kebret Kebede)
2014 – Jacksonville, FL (Lourdes Norman & Steve Wood)
HAPS Committees
2011-2012 Committee Chairs

HAPS has a number of committees that deal with a wide variety of topics within the Society. Below are the chair and a brief description of each committee. Look for the committee chairs throughout the conference and learn more about what HAPS has to offer (First-Timers will be seeking them out as part of the Scavenger Hunt).

**Animal Use Committee**
Nick Despo

We are charged with developing, reviewing, and recommending policies and position statements on the use of animals in college-level A&P instruction.

**Annual Conference Committee**
Ellen Lathrop-Davis

We actively encourage HAPS members to host an Annual Conference. We also provide advice and assistance to members who do host an annual conference.

**Cadaver Use Committee**
Leslie Day

We engage in issues pertinent to development and maintenance of cadaver labs for undergraduate and graduate programs as well as development of questionnaires to provide information for HAPS members.

**Executive Committee**
Don Kelly

We are comprised of the top administrators of HAPS, setting policies and governance of the Society.

**Curriculum & Instruction Committee**
Ron Gerrits

We develop and/or compile resources that are useful for teaching A&P. Recent and ongoing projects include the development of learning outcomes and compilations of a list of useful software and websites. Future projects will include compiling teaching activities to help meet the outcomes.

**Foundation Oversight Committee**
Valerie O’Loughlin

We establish and manage endowed funds for the Society, oversee the activities and operations of the HAPS Foundation, and advise the HAPS Board of Directors on prudent and proper investment of Foundation money. We also publicize the Foundation and solicit funding.
HAPS Committees
2010-2011 Committee Chairs... continued

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<tr>
<th>Grants &amp; Scholarships Committee</th>
<th>HAPS-EDucator Committee</th>
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<tbody>
<tr>
<td>Michael Kopenits</td>
<td>Marsha Sousa</td>
</tr>
<tr>
<td>We administer the HAPS Grants and Scholarship Program, encouraging HAPS members and their students to apply for grants and awards offered by the Society.</td>
<td>We create the quarterly online publication, the HAPS-EDucator. Committee members solicit articles about teaching or other relevant topics, edit, proofread, and determine what new content might be of benefit to our members.</td>
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<tr>
<th>Marketing Committee</th>
<th>Nominating Committee</th>
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<tbody>
<tr>
<td>Gary Johnson</td>
<td>Dee Silverthorn</td>
</tr>
<tr>
<td>We create and sustain relationships between HAPS and scientific and publishing exhibitors.</td>
<td>We assemble a list of qualified candidates for election to the HAPS Board of Directors.</td>
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<tr>
<th>HAPS-Institute Committee</th>
<th>Membership Committee</th>
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<tbody>
<tr>
<td>John Waters</td>
<td>Elizabeth Hodgson &amp; Elizabeth Pennefather-O’Brien</td>
</tr>
<tr>
<td>We organize short graduate courses and other continuing professional education opportunities for HAPS members.</td>
<td>We work to increase HAPS general membership by maintaining ties with current members, creating awareness of HAPS’ value, and introducing HAPS to potential members.</td>
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<tr>
<th>Presidents-Emeriti Advisory Board</th>
<th>Regional Conference Committee</th>
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<tbody>
<tr>
<td>John Waters</td>
<td>Ewa Gorski</td>
</tr>
<tr>
<td>We are comprised of past presidents of HAPS, providing advice and a historical perspective to the Board of Directors upon request.</td>
<td>We promote one- and two-day conferences in localized areas. We have updated a RC Guide to be used in the design and setup of future regional conferences.</td>
</tr>
</tbody>
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HAPS Committees
2010-2011 Committee Chairs... continued

**Safety Committee**
Linda Nichols
We promote laboratory safety awareness in the A&P laboratory. We continue to revise and update the HAPS Safety Guidelines and are preparing a collection of case studies about A&P laboratory safety for publication.

**Testing Committee**
Curtis DeFriez & Eric Sun
We develop, maintain, and manage the HAPS comprehensive exam. We are working on developing an online exam and aligning the exam to the student learning outcomes established by the C&I Committee.

**Web Committee**
Tom Lancraft
We edit the HAPS web components (site and Wikis) as well as providing resources for teaching with technology.

**Steering Committee**
Tom Lehman
We provide communication among the various committees of HAPS and enhance the ability of the committees to collaborate in furthering the aims of the Society.

Many of the committees will have meetings during the annual conference, as well as presenting posters with information about their activities and projects. The annual conference is a great opportunity to learn more about this aspect of HAPS. Come see what we’re about!
HAPS would like to recognize and thank our all of our conference exhibitors, sponsors, and advertisers. Their generous support makes this conference possible. Sponsors will be identified at the conference by a placard displayed on their exhibit tables. Please stop by their tables at the conference and thank them for their support.

**OUR SPONSORS**
- ADInstruments
- American Association of Anatomists (AAA)
- American Association of Clinical Anatomists (AACA)
- American Physiological Society (APS)
- American Society for Microbiology (ASM)
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- New York Chiropractic College
- Pearson Education

**OUR EXHIBITORS**
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- Hayden-McNeil Publishing
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- Touch of Life Technologies
- Top Hat Monocle Corp.
- Vernier Software and Technology
Welcome to the Sixth SEASON of HAPS Institute!

HAPS Institute offers participants the opportunity to explore a variety of concepts at a deeper level and in a variety of flexible formats tailored to the busy schedule of working A&P professors.

HAPS-I focuses on concepts that are hard to understand, hard to learn, and hard to teach. Our short courses include both subject-specific content as well as practical teaching and learning methodology. Final course projects may be written for publication and submitted to HAPS-Educator or other journals.

Participants who successfully complete HAPS-I courses earn graduate biology credit through Alverno College in Milwaukee, Wisconsin.

Three 1 hour semester graduate credit courses are coordinated with this Annual Conference!

- **Current Topics in Anatomy and Physiology**
  This course is designed to provide college-level instructors with the opportunity to expand their understanding of a variety of current topics in the fields of anatomy and physiology, and how these relate to other scientific disciplines.

- **Human Embryology**
  This course is designed to provide college-level instructors with the opportunity to expand their understanding of human embryology.

- **Mechanisms of Disease: diabetes mellitus**
  This course is designed to provide college-level instructors with the opportunity to expand their understanding of key molecular and cellular concepts and processes as they relate to physiology and human disease.

Participants in all HAPS-I courses produce a final project (for example, a case study or review article) that is reviewed by your peers in the course and possibly published in a professional publication.

Everyone registered for a HAPS-I course receives specific information on required sessions to attend at this meeting.

Why would you want to participate in HAPS-I courses?

Because you want to . . .
- Become a more effective teacher
Why would you want to participate in HAPS-I courses?

Because you want to . . .
• Become a more effective teacher
• Brush up on a particular topic
• Get documented credit for your experience
• Gain access to expert faculty, presenters, and top-notch resources
• Strengthen your credentials in teaching A&P
• Improve chances for funding travel to a HAPS Conference
• Show students that you care about learning
• Learn new ways to teach the topics of A&P
• Enjoy the opportunity to contribute to a peer-reviewed publication

You have a lot of questions, don’t you?

Great! The HAPS-I staff is anxious to talk to you about our current offerings and future plans. This is YOUR professional development program, so please help us to make sure that we are meeting your needs!

There’s also plenty of information about HAPS Institute on the HAPS website at www.hapsweb.org

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### HAPS Institute Sponsors

**MAJOR PROGRAM SPONSOR**
Denoyer-Geppert International (DGI)

**CONTRIBUTING SPONSOR**
American Association of Anatomists (AAA)

**SCHOLARSHIP SPONSORS**
ADInstruments
Morton Publishing
New York Chiropractic College

**ACADEMIC PARTNERS 2012**
Alverno College (Milwaukee, WI)
American Association of Anatomists (AAA)
American Physiological Society (APS)
American Society of Microbiology (ASM)
The University of Tulsa (OK)
HAPS 26th Annual CONFERENCE May 26 – May 31, 2012
Schedule of Events

Friday, 25 May
Hyatt Regency, Downtown Tulsa

5:00 PM - 8:00 PM  Executive Committee Meeting: Presidential Suite

Saturday, 26 May
Hyatt Regency, Downtown Tulsa

9:00 AM – 12:00 PM  Board of Directors: Director’s Row 5
Steering Committee: Director’s Row 4
9:00 AM – 5:00 PM  Exhibitor Set-up: Promenade B, C & D

9:00 AM – 6:00 PM  Poster Session Set-up: Promenade A

9:00 AM – 4:00 PM  C3 Pre-Conference (Cyberlearning in Community Colleges)
Oklahoma Ballroom

12:00 PM – 6:00 PM  Registration: Diplomat

12:00 PM – 1:30 PM  Board of Directors and Steering Committee Luncheon:

1:30 PM – 4:00 PM  Board of Directors and Steering Committee Meeting: Director’s Row 5

4:30 PM – 5:30 PM  HAPS Institute Course Orientation: Oklahoma Ballroom

5:00 PM – 6:00 PM  HAPS Foundation Fun Run/Walk/Bike  Meet at the hotel lobby for shuttle to Riverside Park. $5 donation to benefit the HAPS Foundation

8:00 PM – 10:00 PM  Welcome Reception: Tulsa North and Central
Sponsored in part by McGraw-Hill
Registration will be open during the welcome reception

Sunday, 27 May
Hyatt Regency, Downtown Tulsa

7:00 AM – 1:00 PM  Registration: Diplomat

7:30 AM – 8:30 AM  First-timers’ Breakfast: Tulsa North
Sponsored in part by ADInstruments

7:30 AM – 8:30 AM  Continental Breakfast: Promenade B, C, and D
(for all other attendees)

(Schedule continued on next page)
7:30 AM – 5:15 PM  Exhibits – Promenade B, C, and D
Posters available – Promenade A

8:45 AM – 9:00 AM  Welcome and Opening Remarks: Tulsa South

9:00 AM – 10:15 AM  Update Seminar I: Tulsa South
Douglas R. Seals, Ph.D.
University of Colorado
You’re Only as Old as Your Arteries: The Translational Physiology of Vascular Aging
Sponsored by the American Physiology Society

10:15 AM – 10:45 AM  Refreshment Break & Exhibits: Promenade B, C, and D
Posters – Promenade A (presenters available to discuss their posters)

10:45 AM – 12:00 PM  Update Seminar II: Tulsa South
Jeffrey T. Laitman, Ph.D.
Mount Sinai School of Medicine
The New Face of Anatomy: Changing Curricula and Innovative Technologies Provide New Opportunities
Sponsored by the American Association of Anatomists

12:00 PM – 2:00 PM  Lunch on your own

2:00 PM – 3:15 PM  Update Seminar III: Tulsa South
Todd R. Olson, Ph.D.
Albert Einstein College of Medicine
Valuing the Cadaver and Its Dissection from a Patient-Centered Perspective: A New Emphasis in the 21st Century Education of Medical Students
Sponsored by the American Association of Clinical Anatomists

3:15 PM – 3:30 PM  Refreshment Break & Exhibits: Promenade B, C, and D
Posters – Promenade A (presenters available to discuss their posters)

3:30 PM – 4:45 PM  Update Seminar IV: Tulsa South
Kenneth E. Miller, Ph.D.
Oklahoma State University Center for Health Sciences
The Role of Glutamate in Peripheral Pain Mechanisms

5:00 PM – 6:00 PM  Pearson’s Professor Appreciation Cocktail Party
& Meet the HAPS Committee Chairs
1st Floor Hotel Lobby

6:00 PM – 9:00 PM  Visit and Dinner at the Gilcrease Museum
Robert B. Pickering, Ph.D.
Gilcrease Museum
A Forensic Anthropologist Examines Ceramic Figures from West Mexico to Reveal Ancient Life
Monday, 28 May  
Hyatt Regency, Downtown Tulsa

7:30 AM – 8:30 AM  Continental Breakfast: Promenade B, C and D

8:00 AM – 1:00 PM  Registration: Diplomat

7:30 AM – 5:15 PM  Exhibits: Promenade B, C and D

8:30 AM – 10:00 AM  HAPS Annual Membership Meeting: Tulsa South

10:00 AM – 10:30 AM  Refreshment Break & Exhibits: Promenade B, C and D  
Posters: Promenade A (presenters available to discuss their posters)

10:30 AM – 11:45 AM  Update Seminar V: Tulsa South  
W. Kyle Simmons, Ph. D.  
Laureate Institute for Brain Research  
Mapping the Neural Systems Underlying Conceptual Representations of Food

11:45 AM – 1:15 PM  Lunch on your own

1:15 PM – 2:30 PM  Update Seminar VI: Tulsa South  
Tyrrell Conway, Ph.D.  
University of Oklahoma  
E. coli and Friends: Dynamics of the Intestinal Microbial Community  
Sponsored by the American Society of Microbiology

2:30 PM – 2:45 PM  Refreshment Break & Exhibits: Promenade B, C and D

2:45 PM – 4:00 PM  Update Seminar VII: Tulsa South  
Craig W. Stevens, Ph. D.  
Oklahoma State University Center for Health Sciences  
The Molecular Evolution of Opioid Receptors

4:00 PM – 5:00 PM  Exhibits and door prizes: Promenade B, C and D

6:00 PM – 7:00 PM  Pre-banquet Happy Hour: Tulsa Ballroom and Foyer  
(included with your banquet ticket)  
Sponsored in part by John Wiley & Sons

7:00 PM – 11:00 PM  Banquet, Keynote Performance: Tulsa North and Central  
Mr. Andy Hogan  
Historical Guide & Will Rogers Interpreter  
Will Rogers Memorial and Museums, Claremore, OK  
Will Rogers – Who Was this Guy?  
Fabulous Mid Life Crisis Band (after speaker)
Tuesday, 29 May
The University of Tulsa

7:00 AM – 9:00 AM  Transportation to The University of Tulsa
   Breakfast is on your own

9:15 AM – 10:15 AM  Workshop #1 (choice of 60 minute sessions)

10:15 AM – 10:45 AM  Refreshment break Lower Level Lobby of Keplinger Hall
   OR Oliphant Hall Lobby (for Kendall Hall & Oliphant Hall Workshops)

10:45 AM – 12:15 PM  Workshop #2 (choice of 90 minute sessions)

12:15 PM – 1:30 PM  Lunch Meet at ACAC (Allen Chapman Activity Center)
   Sponsored by Pearson
   Committee Meetings

12:45 PM – 1:15 PM  Campus Tours
   Meet at ACAC (Allen Chapman Activity Center)

1:30 PM – 2:30 PM  Workshop #3 (choice of 60 minute sessions)

2:30 PM – 2:45 PM  Refreshment break Lower Level Lobby of Keplinger Hall
   OR Oliphant Hall Lobby (for Kendall Hall & Oliphant Hall Workshops)

2:45 PM – 3:45 PM  Workshop #4A (choice of 60 minute sessions) or

2:45 PM – 4:15 PM  Workshop #4B (choice of 90 minute sessions)

3:45 PM –  Bus transportation back to Hyatt Regency, Downtown Tulsa
   (Buses run until all sessions are finished)

Wednesday, 30 May
The University of Tulsa

7:00 AM – 8:45 AM  Bus transportation to The University of Tulsa
   Breakfast is on your own

9:00 AM – 10:00 PM  Workshop #5 (choice of 60 minute sessions)

10:15 AM – 10:30 AM  Refreshment break Lower Level Lobby of Keplinger Hall
   OR Oliphant Hall Lobby (for Kendall Hall & Oliphant Hall Workshops)

10:30 AM – 12:00 PM  Workshop #6 (choice of 90 minute sessions)

12:00 PM – 1:45 PM  Lunch  Meet at ACAC (Allen Chapman Activity Center)
   Sponsored by ADInstruments

(Schedule continued on next page)
12:30 PM – 1:30 PM  
**Special Speaker Presentation, Dr. Ricki Lewis**  
*The Forever Fix Gene Therapy and the Boy Who Saved It*  
KEP M1 (Keplinger Hall, Middle Level, Rm1)

1:45 PM – 2:45 PM  
**Workshop #7** (choice of 60 minute sessions)

2:45 PM – 3:00 PM  
**Refreshment break**  
*Lower Level Keplinger Lobby for Keplinger workshops; Oliphant Lobby for Kendall Hall and Olipohant Hall workshops*

3:00 PM – 4:00 PM  
**Workshop #8A** (choice of 60 minute sessions)

3:00 PM – 4:30 PM  
**Workshop #8B** (choice of 90 minute sessions)

4:00 PM –  
**Bus transportation back to Hyatt Regency, Downtown Tulsa**  
*buses run until all sessions are finished*

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**Thursday, 31 May**

**Optional Day Trip** – **Cherokee Heritage Center/Arrowhead Resort**  
*or Art Deco Walking Tour of Tulsa*

8:00 AM – 6:00 PM  
**Buses load for Cherokee Heritage Center/Arrowhead Resort/ Illinois River Float Trip**  
at **Hyatt Regency, Downtown Tulsa**  
**Buses leave Cherokee Heritage Center/Arrowhead Resort**  
*by 6:00 PM return to hotel*

10:00 AM – 11:30 AM  
**Art Deco Walking Tour of Tulsa** – walking tour from hotel
Second Floor
Cardiovascular diseases (CVD) remain the leading cause of morbidity and mortality in middle-aged and older adults. Approximately 80% of all CVD involve disorders of arteries. Two changes to arteries that contribute to increased CVD with aging are the development of: 1) vascular endothelial dysfunction (most commonly demonstrated by impaired vascular endothelium-dependent dilation (EDD)), and 2) large elastic artery stiffening. These changes are observed in older adults without clinical disease or major risk factors for disease, as well as in animal models resistant to the development of CVD, suggesting a direct effect of aging processes. Several biological and lifestyle factors influence the function of arteries with aging in adult humans including habitual aerobic exercise, body fatness and its distribution, circulating concentrations of low-density lipoprotein cholesterol, and dietary sodium intake. The physiological mechanisms mediating age-associated impairments in arterial function remain under investigation, but include the development of vascular oxidative stress and inflammation. The efficacy of several lifestyle, pharmacological and nutraceutical strategies for the promotion of healthy ("successful") vascular aging are under investigation. This presentation will provide an overview of "arterial aging" in adult humans, the mechanisms involved and the status of preventive and therapeutic treatments in this emerging, clinically important area of integrative physiology.

Professor Seals is a native of St. Louis, Missouri. He received undergraduate degrees in Education and Business from William Jewell College in Liberty, Missouri and his M.S. and Ph.D. degrees from the University of Wisconsin-Madison in Applied Physiology. His postdoctoral training in aging and applied human physiology was with John Holloszy at Washington University School of Medicine in St. Louis. Dr. Seals subsequently held faculty appointments at the University of Iowa and University of Arizona. Presently he is a College Professor of Distinction in Integrative Physiology and a Professor of Medicine (Divisions of Cardiology and Geriatric Medicine) at the University of Colorado.

Dr. Seals' research laboratory provides scientific training at the undergraduate, M.S., Ph.D. and postdoctoral levels. His research primarily is supported by a R37 (MERIT) award and RO1 research grants from NIH, as well as an institutional training grant (T32) funded by NIH on which he serves as co-PI. Dr. Seals was an Associate Editor for the American Physiological Society's Journal of Applied Physiology from 1999-2008. He presently is a regular member of the NIH Aging and Systems Geriatrics Study Section. Dr. Seals founded the University of Colorado at Boulder General Clinical Research Center and served as its Director from 2000-2004. He established the Responsible Conduct of Research program for the University of Colorado at Boulder campus and served as its director in 2011. Professor Seals developed and has taught a graduate course entitled Professional Skills for the Research Scientist at the University of Colorado-Boulder campus since 1999.

In 2003 Professor Seals received the Citation Award from the American College of Sports Medicine for career achievement in original research, scientific mentoring, and service related to his contributions in cardiovascular exercise physiology and aging.

In 2004 he received a MERIT Award from NIA to support his research focusing on habitual exercise and vascular dysfunction in older adults. In 2005, Professor Seals received the Herbert H. devVries Award for Distinguished Research in the Field of Aging. In 2006, Dr. Seals received the University of Colorado at Boulder Faculty Assembly Award for Research, Scholarly and Creative Work. In 2008, Dr. Seals was named Professor of Distinction in the College of Arts and Sciences at the University of Colorado.
The New Face of Anatomy: Changing Curricula and Innovative Technologies Provide New Opportunities

Sponsored by the American Association of Anatomists

Jeffrey T. Laitman, Ph.D.
Distinguished Professor
Center for Anatomy and Functional Morphology
Mount Sinai School of Medicine
New York NY

Dr. Laitman has been a leader in incorporating many state-of-the-art advances in imaging and visualization technology and fostering multidisciplinary approaches in the teaching of anatomy. He and colleagues have also pioneered new approaches to introducing “teamwork,” “team-responsibility” and “team-teaching,” that bring these essential components of physician development early into the medical school curriculum. Dr. Laitman has been the recipient of many recognitions for teaching and mentorship, including: Excellence-in-Teaching Awards, Outstanding Mentor Award, and Award for Achievement in Medical Education.

Dr. Laitman received his bachelor degree at Brooklyn College of the City University of New York and his master's and Ph.D. degrees from Yale in Anatomy and Physical Anthropology.

In 1977, Dr. Laitman joined the faculty of the Mount Sinai School of Medicine as Instructor in Anatomy. He is currently Distinguished Professor of the Mount Sinai School of Medicine, Professor and Director of Anatomy and Functional Morphology, Professor of Otolaryngology, Professor of Medical Education and Director of Gross Anatomy at Mount Sinai; and Professor in the Graduate Faculties of Biomedical Sciences at Mount Sinai and of Anthropology of the City University of New York. Dr. Laitman is also a Research Associate at the American Museum of Natural History, and a member of the faculty of the New York Consortium in Evolutionary Primatology.

Dr. Laitman's research focuses upon the comparative anatomy, development and evolution of the mammalian aerodigestive tract and contiguous areas of the cranial base. His research has been supported by the Office of Naval Research to explore how the great whales produce their unique low-frequency sounds; and on how cetacean upper respiratory systems respond to underwater disturbances. Dr. Laitman and his colleagues are also investigating changes in the breathing, swallowing and vocalizing patterns of human infants. His work on the development of the infant aerodigestive tract was honored by the American Society of Pediatric Otolaryngology in 2000.

Dr. Laitman has used fossil remains to reconstructing the vocal tract of human ancestors which has had particular implications for understanding the origins of human speech and language. His research on the evolution of the vocal tract and speech has been supported by the National Science Foundation, The Foundation for Research into the Origins of Man, and The Speech Origins Fund of the American Museum of Natural History. He was honored by the American Laryngological Association in 2004 for his pioneering work in charting the anatomy and evolution of the human aerodigestive region.

Dr. Laitman has been the recipient of a number of honors, including the Medal of the College de France, the Basmajian/Williams and Wilkins Award of the American Association of Anatomists, the Karl Storz Award of the American Society of Pediatric Otolaryngology, the Daniel C. Baker, Jr., Award of the American Laryngological Association, the Abraham Jacobi Medallion of the Mount Sinai Alumni, and the Alfonso Bovero Award of the Brazilian Society of Anatomists. He has been elected a Fellow of both the American Association of Anatomists and the American Association for the Advancement of Science.
Anatomy is the educational foundation for physicians and other healthcare professionals and specialists. Historically, the introduction of students to cadaver dissection has been a “rite of passage” and was presented as an emotional hurdle to be surmounted in order for the student to acquire objectivity, as well as the anatomical knowledge necessary to care scientifically for patients. As students begin the intimate study of the corporal remains of a human being, they often experience conflicting personal feelings which may have long-term effects and professional implications. Since the 1970s, anatomical education has emphasized the importance of clinical relevance and the application of information rather than the memorization of voluminous and detailed facts. Today, students are more likely to be challenged by their faculty to explore and reflect on their inner experience to increase their awareness and sensitivity, rather than to subjugate their feelings in order to promote detached objectivity in clinical decision-making.

The introduction of clinical professionalism and humanism in the cadaver lab has led anatomists to develop additional ways to address the core competencies that medical students are expected to develop by the time they graduate. These competencies are defined by the Accreditation Council for Graduate Medical Education (ACGME) and cover such topics as:

- compassionate and effective patient-care.
- knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences, as well as the application of this knowledge to patient care
- interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and other healthcare professionals.
- improved patient care based on increased self-evaluation
- individual integrity, respect for others, and a commitment to carrying out professional responsibilities and adhering to ethical standards

This presentation describes activities and educational goals that are being introduced into medical school anatomy courses with examples of how these new approaches have stimulated learning of normal human anatomy, appreciation of variability and pathology, development of critical reasoning through the generation of hypotheses, promotion of a team centered orientation to learning and collaborative care of a patient (the cadaver), and evaluation of each student's role as a young professional in the ethically demanding environment of the cadaver lab.

As demonstrated at many institutions, the cadaveric study of anatomy provides an early potent opportunity to actively address multiple aspects of the ACGME competencies concerning professionalism, knowledge, attitudes and self-awareness. Interacting with a cadaver within an anatomy course stimulates group and self-introspection of the interrelationship of the body, mind, personality and consciousness, and creates a limited but unique opportunity to contemplate personal emotions and beliefs when they are first palpable and exposed. Examining these emotions at an early time in the students' training should positively influence the development of future professional attitudes that will be called upon when interacting with patients and their families.

Dr. Todd Olson is a native Californian who considers himself a New Yorker since he has lived in the Big Apple since 1979. A professor in the Albert Einstein College of Medicine’s Department of Anatomy & Structural Biology since 1989; he is the immediate Past President of the American Association of Clinical Anatomists, which plays a leading international role in stimulating both clinically relevant anatomic education and research. Dr. Olson is the Director of the Clinical and
Developmental Anatomy course and has taught over 3,500+ medical students during his tenure at the College. He received B.A. and M.A. degrees in vertebrate paleontology from the University of California at Berkeley and was elected to Phi Beta Kappa in 1970. From Berkeley, he went to London where he completed his Ph.D. in human anatomy and morphology at St. Thomas’s Hospital Medical School. Prior to Einstein College, Dr. Olson taught anatomy at University College London and the School of Biomedical Education at the City College of New York. In 2006, Dr. Mehmet Oz appointed Dr. Olson to the Board of Advisors of Health Corps, his youth educational outreach organization. From 1994-2008, Dr. Olson chaired New York’s statewide Anatomical Committee of medical, dental, podiatric and chiropractic schools. He was a founder and the first Treasurer of the International Association of Medical Science Educators. He was one of the anatomists that developed the original A.D.A.M. software product. His textbook the A.D.A.M. Student Atlas of Anatomy, first published in 1996, now in its 2nd edition, has been translated into five foreign languages. He is coauthor of the second edition of the textbook: Ger’s Essentials of Clinical Anatomy. Dr. Olson is an internationally recognized authority on the usage of human remains in medical education and research, and was a featured participant on this topic on multiple National Public Radio programs, ABC’s Primetime and 20/20 shows, BBC TV’s Horizon series, and CNN’s American Morning. He has received major teaching awards from every institution at which he has taught. At Einstein College, he was elected to the Leo M. Davidoff Society in 1991 in recognition of his excellence as a teacher. He is one of only eight of Einstein College’s 2,500+ faculty to be awarded both the student’s Samuel M. Rosen Outstanding Teacher Award (1994) and the faculty’s Harry Eagle Award for Outstanding Basic Science Teaching (1999). The alumni of Einstein College honored him in 2009 by naming him an honorary graduate of the College of Medicine.
In addition to using glutamate as a neurotransmitter at central synapses, many primary sensory neurons release glutamate from peripheral terminals. Our laboratory has shown that primary sensory neurons with cell bodies in dorsal root or trigeminal ganglia (DRG, TG) produce glutaminase, the synthetic enzyme for glutamate, and transport the enzyme in mitochondria to peripheral terminals. Vesicular glutamate transporters fill neurotransmitter vesicles with glutamate and are present in peripheral terminals.

Application of excitatory amino acid receptor (EAAR) agonists produces nocifensive behavior that can be blocked by EAAR antagonists. Tissue damage and inflammation cause an increase in glutaminase production in DRG neuronal cell bodies and increased glutaminase and glutamate levels in peripheral afferent nerve terminals. Increased glutamate production is responsible, in part, for the augmented pain responses, i.e., hyperalgesia, during inflammation. Decreased production of glutamate by peripheral inhibition of glutaminase produces long lasting pain relief.

Dr. Kenneth E. Miller received a B.S. in Biology from Kansas State University in 1978 and a Ph.D. in Anatomy and Neurobiology from the University of Vermont in 1984. He pursued postdoctoral training at the University of Minnesota with Dr. Virginia S. Seybold. After postdoctoral training, Dr. Miller helped start the Miami Project to Cure Paralysis at the University of Miami. Subsequently, he worked for G.D. Searle/Monsanto in Chesterfield, MO and Skokie, IL. In 1990, Dr. Miller joined the Departments of Anatomical Sciences and Cell Biology at the University of Oklahoma Health Sciences Center in Oklahoma City. In 2002, Dr. Miller joined the Anatomy and Cell Biology Department at the Oklahoma State University Center for Health Sciences in Tulsa where he serves as Professor and Chair. His research over the past 20 years has focused on glutamate metabolism following spinal cord injury and during acute and chronic pain conditions.
**Mapping the Neural Systems Underlying Conceptual Representations of Food**

**W. Kyle Simmons, Ph. D.**  
Laureate Institute for Brain Research  
Tulsa OK

Simply perceiving a food-related stimulus results in the obligatory, automatic retrieval of that food’s salient properties, namely how it tastes, and how rewarding it would be to eat. The retrieval of this information likely plays an important role in food-related decision-making and food abstinence. In my talk, I will present recent findings from functional Magnetic Resonance Imaging (fMRI) studies examining activity within the neural systems that underlie the retrieval of food taste and food reward information. Particular attention will be paid to the insular cortex’s role in the retrieval of food taste properties, and the roles played by orbitofrontal cortex and the midbrain striatal-pallidal neurocircuit in food reward.

Dr. Simmons attended Harding University for his bachelor’s degree, and then completed both his master’s degree in Clinical Psychology and his Ph.D. in Cognitive Psychology at Emory University. His graduate research training, which occurred in the laboratory of Dr. Lawrence Barsalou, focused mainly on using functional Magnetic Resonance Imaging (fMRI) to study the neural systems supporting semantic memory, with a particular focus on knowledge of food concepts. For his postdoctoral fellowship he joined Dr. Alex Martin’s section in the Laboratory of Brain and Cognition in the Intramural Research Program of the NIMH. In collaboration with Drs. Barsalou and Martin he published the first event-related fMRI study of the neural responses to appetitive food stimuli (Simmons, Martin, and Barsalou, 2005). While at the NIH, Dr. Simmons’ research also examined the neural circuitry underlying social cognition in healthy adults, including the roles played by the anterior temporal lobes in social conceptual knowledge (Simmons et al., 2009; 2010). A particular methodological focus of this work was the development and application of resting-state functional connectivity analyses to assess large-scale neural circuits supporting social cognition, including publishing the first report of the anterior temporal lobes’ functional connectivity profiles (Simmons et al. 2010; in press).

In 2009, Dr. Simmons was recruited to join the faculty at the new Laureate Institute for Brain Research (LIBR) in Tulsa, OK. The research in his lab at LIBR falls generally within two domains. One is the neural bases of human conceptual representation, particularly as it pertains to food knowledge. Currently, his lab has active studies examining the neural systems supporting food taste and reward inferences, both in healthy adults and obese populations. Dr. Simmons’ lab is likewise studying the neural systems underlying food motivation and reward property inferences in several psychiatric populations, including patients with Major Depressive Disorder and Eating Disorders. In a second domain of research, Dr. Simmons is examining the functional organization of the insular cortex, with particular attention to the insula’s role in interoceptive awareness. This line of research, which is currently funded by both private and government agencies, seeks to detail how the insula integrates interoceptive signals about the body’s homeostatic state with emotional and hedonic information represented in brain regions to which the insula is strongly connected, such as the cingulate, amygdala, striatum, and orbitofrontal cortex. As with his studies of food conceptual representation, this line of research also seeks to bring cognitive neuroscience into the clinical domain, with ongoing studies of insula functional organization in both depressed and eating disordered populations. These two domains of research are in fact highly related, as the insula plays an important role in food motivation and gustatory representation, and interoception is an important component in satiety signaling. The common goal of these two lines of research is to elucidate how the body’s homeostatic state influences food knowledge representation and food-related decision making, both normatively and in psychiatric illness.
One in 5,000 intestinal bacteria is \textit{E. coli}. Within the intestine is a microbial community comprised of thousands of different species and a total of 5 $\times$ 10^{11} bacteria per g of contents. We calculate a global population of $10^{22}$ \textit{E. coli} cells in the human population alone. \textit{E. coli} is the best understood of any organism on the planet, but as Falkow states, “No one has yet worked out the essence of the biology of why or how \textit{E. coli} colonizes the bowel as a commensal” (Relman and Falkow, 2001). Our research is beginning to reveal the answers. “Why” \textit{E. coli} colonizes has to do with the symbiotic \textit{E. coli}–host relationship: the host provides an environment favorable for \textit{E. coli} to grow and \textit{E. coli} creates anaerobic conditions favorable for the anaerobes that are so important for intestinal health. “How” \textit{E. coli} colonizes has to do with its ability to grow on the mixture of simple sugars that derive from host mucosal secretions and dietary fiber degradation by the anaerobic microbiota.

This lecture will focus on the intestinal ecosystem, primarily from the perspective of \textit{E. coli}. We have elucidated the nutrient defined niches occupied by various \textit{E. coli} strains including both healthy ones and enteric pathogens. By understanding the physiological state of colonized commensal \textit{E. coli} strains, our research is revealing how pathogens such as \textit{E. coli} O157:H7 outcompete the healthy microbiota to colonize and cause disease. The important lesson here is that the more fully filled are the intestinal niches occupied by commensal \textit{E. coli}, the more effective the barrier to infection is against enteric pathogens. Not only does the commensal \textit{E. coli} population offer a barrier to infection, it also scavenges oxygen to create the anaerobic conditions necessary for colonization by strict anaerobes. Thus, good intestinal health is promoted by colonization with \textit{E. coli}.

Professor Conway is a native Oklahoman, and as is common for the son of an oilman, grew up in the NYC area and Europe, eventually returning home to study microbiology at Oklahoma State University. Following postdoctoral training at the University of Florida and faculty appointments at the University of Nebraska and Ohio State University, Conway returned home where his two children could grow up nearby their grandparents. Assuming a faculty position at the University of Oklahoma, he serves as Professor of Microbiology, Director of Bioinformatics and Co-director of the Advanced Center for Genome Technology. An honor he is most proud of, Conway is co-inventor of US Patent 5,000,000 for genetic engineering of biofuel producing \textit{E. coli}. Together with his students and postdocs they have published more than 100 scientific articles and book chapters, supported with continuous funding from the NSF, DOE and NIH.
Opioid receptors are proteins on brain cells that bind opioid drugs like morphine and heroin. Like all proteins, opioid receptors are made up of a string of amino acids joined end-to-end. There are three types of opioid receptor proteins, named mu, delta, and kappa. There is a fourth type, called the nociceptin receptor, but its role in analgesia is not clear. The mu opioid receptor is the most important type of opioid receptor.

Ever since we obtained the cDNA sequences of the opioid receptors expressed in amphibian brains, comparing opioid receptors from different vertebrate species has been our obsession. There are now cDNA sequences for all four types of opioid receptors that are expressed in the brain of six species from three different classes of vertebrates. Using bioinformatics, there is evidence to suggest that opioid receptors in mammals are more divergent than in non-mammalian species. This sequence divergence appears to confer greater type-selectivity in mammalian receptors, as supported by pharmacological studies. Phylogenetic analyses suggest a scenario of gene duplication such that an initial opioid unireceptor was duplicated to give rise to two proto-opioid receptor genes which duplicated to give rise to the four opioid receptors known today. In analysis of the human genome, the gene for the mu opioid receptor is one of the few that shows evidence of rapid adaptive evolution. In summary, results suggest that opioid receptors arose by gene duplication of an ancestral unireceptor, that there is an evolutionary vector of receptor type divergence, and that the mu opioid receptor shows evidence of rapid adaptive evolution.

Dr. Stevens was born and raised in Chicago and attended Augustana College in Rock Island, Illinois, as an undergraduate. He received a B.A. degree in 1978 and joined the American Peace Corps for a 27 month tour-of-duty in Nepal. Upon returning to the states, he obtained a M.S. in Biological Sciences from the University of Illinois at Chicago in 1984 and completed his Ph.D. in Pharmacology from the Mayo Clinic in Rochester, Minnesota in 1988. He completed a 2-year postdoctoral fellowship at the University of Minnesota Medical School in Minneapolis, Minnesota, in 1990 and was hired as an Assistant Professor of Pharmacology by the Oklahoma State University, College of Osteopathic Medicine. He moved through the ranks and was promoted to Professor of Pharmacology in 2000.
Gilcrease Museum Presentation: Sunday, May 27th, 6:00-9:00 PM

A Forensic Anthropologist Examines Ceramic Figures from West Mexico to Reveal Ancient Life

Robert B. Pickering, Ph.D.
Director of Academic Affairs and Publications
Senior Curator, Gilcrease Museum
Applied Professor, Museum Science and Management
University of Tulsa
Tulsa OK

The ceramic figures of ancient West Mexico show a remarkable level of detail in clothing, personal adornment, and expression. West Mexico is one of the few places in the entire world in which the prehistoric people created pottery models of the rituals, dances and games of their daily lives. These figures are like snapshots from the past that help archaeologists understand how people lived and died, 2000 years ago between Guadalajara and the Pacific Coast of Mexico.

Dr. Robert B. Pickering is the director of academic affairs and publications at the Gilcrease Museum and the founding director of the Museum Science and Management program at the University of Tulsa. In 1984, he received a PhD in Physical Anthropology from Northwestern University.

Dr. Pickering’s professional career has combined anthropological research with the broader educational goals of museums. For more than two decades, Dr. Pickering has conducted archaeological and physical anthropological research in the U.S. and Mexico and in addition, has served as a forensic anthropology consultant to numerous medical examiners and coroners around the country. In 1994, he was presented with a Service Award by the Institute of Forensic Medicine in Bangkok, Thailand.

Pickering writes for diverse audiences. Since 1990, he has written more than 40 articles for academic and general audiences. In 2003, Pickering and his co-author Ephraim Cuevas’s article, “The Ancient Ceramics of West Mexico,” was the cover article for American Scientist. Writing for a law enforcement audience, Dr. Pickering wrote The Use of Forensic Anthropology, and penned his second book Seeing the White Buffalo for a more general audience. Both books have been positively reviewed. A third book, People of Ancient North America, is part of a three-volume series on ancient North America written for juvenile readers. Dr. Pickering’s first book for children was I Can Be An Archaeologist, published by Children's Press and featured on “Reading Rainbow,” a PBS program for children. In addition, Dr. Pickering was series editor for the Our Human Family series which included four books on major cultural themes. Similarly, he edited the Latin American Series, six books on aspects of culture in Mesoamerica and Latin America.
Banquet Keynote Performance: Monday, May 28th, 7-10 PM

**Will Rogers – Who was this Guy?**

Mr. Andy Hogan  
**Historical Guide & Will Rogers Interpreter**  
**Will Rogers Memorial and Museums**  
Claremore OK

Life has changed for Andy Hogan, an Oklahoman educator for more than 30 years. Since retiring as an elementary school principal, he says his interests are long distance running, bow hunting, and anything to do with Will Rogers. He relates personally to the man he touts in his duties at the Claremore Will Rogers Museum. Since 2005, he has been the Museum’s historical guide and Will Rogers’s interpreter, especially involved with bus tours and school groups. He wears his Will Rogers hat and with rope in hand leads tours through the Museum’s nine galleries filled with art, artifacts, and memorabilia relating to the life and times of the American legend born in Oologah, Indian Territory.

Hogan has acquainted himself with the chatty ways of Will Rogers and with a long history in the classroom relates to children as well as adults. An Oklahoma native born on Tulsa’s east side, he lived on Rout 66 where “everything that went through the world went in front of our house.” He graduated from East Central High School in Tulsa and then earned his bachelor’s and master’s degrees at Northeastern State College, Tahlequah OK. Hogan’s first teaching assignment was junior high English at Sand Springs. He went from there to Barnsdall; then on to a dependent district (now Osage Academy Central) where he was a teacher, principal, bus driver and coach. He came to Claremore in 1975 as Claremont elementary principal– a post he held for 21 years. After retiring, Hogan helped open the Claremore Recreation Center in 1999 and worked there until joining the museum staff. He officiated football and basketball more than 40 years until retiring this year and was inducted in the Greater Tulsa Official Association Hall of Fame. He and his wife, Jan, have four children and eight grandchildren.
Words of Will Rogers (1879 – 1935)

My ancestors didn't come over on the Mayflower but they met'em at the boat.
We will never have true civilization until we have learned to recognize the rights of others.
Everybody is ignorant, only on different subjects.
Ain't it funny how many hundreds of thousands of soldiers we can recruit with nerve. But we just can't find one politician in a million with backbone.
Live your life so that whenever you lose, you are ahead.
A statesman is a man that can do what the politician would like to do but can't, because he is afraid of not being elected.
The high office of President of the United States has degenerated into two ordinarily fine men being goaded on by their political leeches into saying things that if they were in their right minds they wouldn't think of saying.
Well, you know how Congress is. They'll vote for anything if the thing they vote for will turn around and vote for them.
A man that don't love a horse, there is something the matter with him.
Nothing makes a man broad-minded like adversity.
There ain't nothing that breaks up homes, country and nations like somebody publishing their memoirs.
Popularity is the easiest thing in the world to gain and it is the hardest thing to hold.
A fanatic is always the fellow that is on the opposite side.
We shouldn't elect a President; we should elect a magician.
I tell'em that this country is bigger than Wall Street, and if they don't believe it, I show'em the map.
They want peace, but they want a gun to help get it with.
Wednesday Lunch Time Presentation: May 30th
12:30-1:30PM  Keplinger Hall, Middle Level, Rm 1

The Forever Fix: Gene Therapy and the Boy Who Saved It

Ricki Lewis, Ph. D.
Schenectady, NY

Ricki Lewis is a science writer with a PhD in genetics. She is the founding author of the introductory textbook Life, author of “Human Genetics: Concepts and Applications” now in its 10th edition, and co-author of the two Hole’s Human Anatomy & Physiology books, from McGraw-Hill Higher Education. She has also published a short human genetics book, an essay collection, and a novel.

Dr. Lewis has published more than a thousand articles since 1980, in places as varied as Science and Nature to Discover and even Playgirl. Most of her articles have appeared in The Scientist. She has written encyclopedia entries, news releases, reports for pharmaceutical and biotech companies, Pet Care Reports, features for women’s magazines, newspaper articles, textbook ancillaries, annual reports, screenplays, and newsletters.

Dr. Lewis complements her book writing with news reporting for Medscape Today, op-ed pieces, and blogging. When she isn’t writing, Ricki is a genetic counselor at CareNet Medical Group in Schenectady, NY, an instructor for the Union College Academy of Lifelong Learning, and an adjunct for the master’s program at the Alden March Bioethics Institute of Albany Medical College, where she teaches an online course called “Genethics.” She is a hospice volunteer and a frequent public speaker.

The Forever Fix: Gene Therapy and the Boy Who Saved It from St. Martin’s Press, is Ricki Lewis’s first narrative nonfiction book. She has followed the children pioneering gene therapy in her textbooks and magazine articles since the field started in 1990, and was waiting for a perfect case on which to base a compelling read. She found that in Corey Haas, born with hereditary blindness, who at age 8 became able to see just four days after gene therapy – in the same city, Philadelphia, where nine years previously a young man had died of gene therapy. Ricki says she is honored to tell the stories of the brave young people, dedicated parents, and amazing researchers who have brought gene therapy from science fiction to medical reality.

Notes:
HAPS Foundation wants your support for the:

2012 HAPS Foundation Fund Drive

Frequently Asked Questions

1. Why does HAPS need a Foundation, and why am I being asked to contribute?
A Foundation allows HAPS to build our coffers and provide the organization with the necessary funds to advance current and future projects. These funds may help support initiatives such as HAPS-Institute, the Learning Outcomes Project, HAPS standardized online testing, and provide ‘seeding’ funds for future HAPS endeavors.

2. When I renewed my membership this Fall or registered for the 2012 conference, I made a donation to the Foundation. Does this money count toward the 2012 fund drive?
Yes it does! Foundation donations made from Fall 2011 to June 2012 count for the 2012 fund drive. Over 92% of the HAPS Leadership has contributed to this latest fund drive, and we challenge our membership to donate as well.

3. Has the HAPS Leadership contributed?
Yes we have! In the fall over 92% of the HAPS leadership (BOD and Steering Committee members) contributed to the foundation as part of a leadership fund drive. We now challenge our membership to match our percentage.

4. How much should I contribute?
You may contribute any amount that feels comfortable to you. In the fall we will announce the total amount collected, and in HAPS-Educator we will list all donations according to the following tiers shown at the left.

5. Is my contribution tax-deductible?
Yes! You will receive a receipt for tax purposes and your donation is fully tax-deductible, as allowed by law.

6. Will this be a yearly event?
As with any nonprofit organization, we plan to have yearly fundraising drives in order to meet the $500,000 goal set by the HAPS Strategic Plan.

7. How do I contribute? Three easy ways:
a. Go to the HAPS website www.hapsweb.org and click on the ‘donate’ button to make a secure online donation.
b. Make a donation when you register for the Annual Conference – Just check the box on the registration form and include your donation with the registration fees.
c. Donate at the Tulsa Conference: come by our table in the Exhibitors’ Hall with your checkbook or credit card in hand!

For further info please contact:
Valerie O’Loughlin
Chair, Foundation Oversight Committee
E-mail: vdean@indiana.edu

Or
Larry Spraggs
Executive Director, HAPS
E-mail: lspraggs@hapsweb.org

Donation Levels:*  
Up to $100  
Up to $250  
Up to $500  
Up to $750  
Up to $1000  
Above $1000

*Individual donations will be recognized in the Fall 2012 edition of the HAPS-EDucator. Thank you!
A. Faculty, Graduate, Undergraduate Student Research Findings in Basic Sciences of Anatomy & Physiology

1. T.A Abayomi¹ and E.A.Caxton-Martins²
¹Osun State University, Department of Anatomy, Osogbo, Osun State, 230001, Nigeria
²University of Ilorin, Department of Anatomy, Ilorin, Kwara, Nigeria
abayomitai@yahoo.com
Hunger-induced stress on the prefrontal cortex of the brain of wistar rats
Hunger is one of the physiological signaling system in the body and stress is a day to day experience of every individual. Therefore, this research work is aimed at investigating the effect of hunger-induced stress on the prefrontal cortex of wistar rats with the objectives of investigating the activities of some enzymes of carbohydrate metabolism in the prefrontal cortex using histochemical techniques and demonstrating the effects of hunger-induced stress on the microanatomy of the prefrontal cortex. 8 wistar rats will be used for this research and will be divided into four groups (A, B, C and D). The rats in group A, B and C will be fed differently based on their body weights while group D will be totally abstained from food and water for 8 days. At the beginning of the 9th day, the rats will be sacrificed by cervical dislocation prefrontal cortex of the brain will be excised. Histological staining using Nissl staining and hematoxylin and eosin staining techniques will be used to demonstrate the microanatomy of the prefrontal cortex. Also activities of some enzymes of carbohydrate metabolism in the prefrontal cortex will be assessed using histochemical techniques.

2. T.A. Abayomi
Osun State University, Department of Anatomy, Osogbo, Osun State, 230001, Nigeria
abayomitai@yahoo.com
Microanatomical study of the tongue of the pangolin (Manis tricuspis)
This study was aimed to investigate the microanatomical structures in the tongue of the pangolin (Manis tricuspis) in relation to the functional anatomy of the tongue of this mammal. Five pangolins were used for this study. The structure of the tongue of the pangolin showed no papillation in the keratinized stratified epithelium of the tongue, dense intrinsic musculature, and absence of taste buds. Furthermore, characteristic of the proximal part of the pangolin tongue is the presence of a dense collagenous ring. Though some structural similarities were observed when compared with the tongue of the rat and bat, nevertheless, the variations seen in the papillary morphology, epithelial lining, intrinsic musculature, taste buds and connective tissues arrangement enable the pangolin to adapt to their insectivores pattern of feeding.

3. Damilare Hakeem Adeyemi
Department of Physiology, College of Health Sciences, Osun State University, 23 MDS Road, P.O.Box 443, Osogbo, Osun State, Nigeria
damilare_adeyemi@yahoo.com
Pain: antinociceptive effects of corn silk aqueous extract in male albino rats
The antinociceptive effects of corn silk aqueous extract at different doses were investigated using male albino rats. The rats were divided into six groups of five rats each. The antinociceptive activity was investigated through hot water tail flick latency, acetic acid and formalin test. The result showed that the extract produced significant inhibition (p<0.05) of hot water tail immersion. It also showed significant inhibition (p<0.05) of acetic acid induced writhing at all doses while a significant inhibition (p<0.05) of formalin induced paw liking at all doses except the early phase of 50mg/kg dose. Therefore the results indicate that the extract possess significant antinociceptive activity, thereby confirming its use by alternate medical practitioners.

Poster Session Promenade A
Presenters should be available to discuss their posters during the following days and times:
Sunday 10:15-10:45AM & 3:15-3:30PM
Monday 10:00-10:30AM & 2:30-2:45PM
4. O.A.Churilin and L.D. Savenko
Luhansk State Medical University, Department of Histology, Cytology and Embryology
Luhansk Ukraine 91045
auroral.histo@gmail.com

Morphological features of the anterior-medial nucleus of the spinal cord of immature rats after chronic intoxication by phenobarbitonum and benzonalum

Research was carried out on 96 white immature rats-males. Experimental animals received phenobarbitonum (70 mg/kg) and benzonalum (35 mg/kg) for 7, 15, 30 or 60 days. After administration of phenobarbitonum and benzonalum to immature animals for 7 days, neurons had a diffuse polymorphic nonspecific character. The main type of changes in neurons was increased hyperchromatic staining and the swelling of the cytoplasm. After 15 days of phenobarbitonum, histological changes of cells in the anterior-medial nucleus became more brightly expressed. There were vacuolization and ectopia of the nuclei in neurons. In the same period, benzonalum caused other changes such as wrinkling. Cells also diminished in size. After 30 days, the dystrophic changed cells increased. After 60 days, dystrophic processes had grown. Also there were reparative processes which showed up activation and proliferation of macroglial cells, increasing the density of the general and satellite macroglial cells, and accumulation of glial cells near neurons. It should be noted that the morphological changes of anterior-medial nucleus of spinal cord of immature rats after chronic intoxication by benzonalum are similar to the morphological changes after using phenobarbitonum, but to a lesser extent. The degree of morphological changes of the anterior-medial nucleus of anterior horn of the spinal cord depends on the type and dose of medicine applied and length of the experiment.

5. Everett Johnson and B. Sardarabadi
Parker University, Basic Science, Gross Anatomy, 2500 Walnut Hill Lane, Dallas TX 75229 USA
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Accessory coracobrachialis muscle and anastomosis of the musculocutaneous and median nerves in a cadaver: a case report

Several reports of an anastomosis between the musculocutaneous and median nerves are reported in the literature. This study describes the axillary dissection of an 83 year old female cadaver. As the lateral cord of the brachial plexus descended a branch emerged from its medial margin at the level of the second part of the axillary artery that combined with the medial cord and the median nerve was formed as normally occurs. The lateral cord continued on towards the medial brachium and split into two branches. A lateral branch continued along the normal pathway of the musculocutaneous nerve. The medial branch continued down the medial brachium to meet with the median nerve and make an anastomosis with it. The variation of the lateral cord was wrapped by an anomalous slip of the superior portion of the coracobrachialis muscle, just distal to the split of the cord into its musculocutaneous and variant branches. The continuation of the lateral cord of the brachial plexus may be a contribution or medial branch of the musculocutaneous nerve forming an anastomosis with the median nerve. Clinically, patients may present with symptoms resembling high median nerve palsy.

6. Everett Johnson and B. Sardarabadi
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Common carotid artery; Rare presentation of level of bifurcation

The Common Carotid Artery (CCA) is the major blood vessel of the head and neck. Both right and left CCA in the neck are housed most medial to the internal jugular vein and anterior to the vagus nerve within the carotid sheath. Each CCA bifurcates into external (EC) and internal (IC) carotid arteries at approximately the superior border of the thyroid cartilage of larynx, which is located at the level of the 3rd-4th cervical vertebrae. An embalmed 81 year old male cadaver was dissected as a normal course of study in a gross human anatomy laboratory at a chiropractic college. The neck dissection was performed bilaterally. In order to expose the carotid sheath, the sternocleidomastoid muscle was reflected toward its point of insertion and the medial one half of the clavicle was also removed. Dissection of the area included the removal of both right and left internal jugular vein to expose the common carotid arteries. Further dissections were performed to locate both right and left vertebral arteries to insure the location and anatomical order of the cervical vertebrae. The vertebral arteries enter the transverse foramina of the 6th cervical vertebrae (90%) and ascend upward to the foramen magnum. Once bilateral CCA’s were isolated, care was taken to measure the anatomical location and their relationships. The location of the cricoid cartilage of larynx was observed in relation to the bifurcation of CCA. The observation revealed that the location of CCA to approximate the level of the 5th cervical vertebrae. A review of the literature indicated the frequency of such presentation of bifurcation of CCA to be a rare phenomenon, occurring in approximately 5% of the population.
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Peroneus digiti quinti: Case report and literature review  
Peroneus digiti quinti is one of many accessory peroneal muscles that may be found during routine dissection of the ankle and foot. Action of peroneus digiti quinti is described by as being pronation. Innervation to peroneus digiti quinti has been reported as being through the superficial fibular nerve. Peroneus digiti quinti muscle was found bilaterally in a 64 year old female cadaver during dissection of the leg and foot. The muscles arose from the tendon of the peroneus brevis muscle at the lateral malleolus and extended distally towards the fifth digit, where it blended with the dorsal aponeurosis of the fifth digit. Few studies have focused on the peroneus digiti quinti alone. The peroneus digiti quinti has a prevalence in the population ranging from 15% to 36%. Many authors report the variation of peroneal musculature may be atavistic structures, as they are found in aneuploid neonates and monkeys. Clinicians should be aware of these accessory muscles for determining proper clinical diagnosis of lateral ankle and foot complaints. Further studies should be performed to determine exactly how much peroneus digit quinti influences pronation, and any clinical relevance.

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Report of anatomical variation of the azygos venous system in the posterior thoracic wall  
A great number of diversities of the azygos venous system occur due to the embryonic development of the azygos vein system from the subcardinal veins. These variations have been reported as early as 1849. Studies have shown that development of the subcardinal veins during the fetal stage of life can be grouped in to five (5) different configurations of the azygos venous system. The least common variant of the azygos venous system is the preaortic interazygos occurring at a frequency of 3.05%. The dissection of the posterior mediastinum is a routine procedure in dissection in the Gross Human Anatomy laboratory at a chiropractic college. In a 58 year old female cadaver the preaortic interazygos venous system was noted. The preaortic interazygos is located at 6th thoracic vertebrae. Both Computer Tomography (CT) and Magnetic Resonance Imaging (MRI) are important tools used frequently in diagnosis and treatment. It has been documented that, CT and MRI studies of the preaortic interazygos venous system can be easily mistaken for enlarged lymphatic node, aneurysms, and tumors. Care must be taken during surgical procedures as not to cause intraoperative bleeding by accidental damage to the azygos venous system.

9. Everett Johnson and B. Sardarabadi  
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Report of finding: Anatomical variation of the suprascapular ligament  
During a routine right shoulder dissection, an unknown ligament was found, just inferior to the suprascapular nerve at the suprascapular notch. This ligament appeared to be free of any attachment to the surrounding structures except the walls of the suprascapular notch. It has been reported that the suprascapular notch varies from 21 mm to 27.8 mm deep. X-Ray of the right scapula showed the suprascapular notch to be within the limits reported previously at 21mm deep. Measurement of the inferior ligament from distal to the proximal end was 4mm to 6 mm respectively. The ligament measured 11 mm long, and 5.5 mm inferior to the suprascapular ligament. Dissection of the left shoulder of the same cadaver revealed a smaller transverse ligament just inferior to the suprascapular nerve. This ligament appeared more membranous in nature and measured to be just 4.2 mm wide and 11 mm long. Subsequently 22 pairs of shoulders were dissected (12 male and 10 female) and none presented such a structure. This structure had not previously been found at this particular institution. A review of the literature found some references to the inferior transverse ligament of the scapula. The inferior transverse ligament can be membranous in nature in approximately 60%, and ligamentous in approximately 21% of the population. Our observation confirms that the inferior transverse ligament in our specimen to be ligamentous in nature. Further review of the literature failed to find any other references to this ligament even during corrective shoulder surgeries.
Reference values and correlation with body-composition for measurement of the total splanchnic blood flow

This study was undertaken to determine the total splanchnic blood flow (SBF) and oxygen uptake before and after a standard meal in a group of middle aged healthy subjects with arteriography proven normal intestinal arteries and to relate the findings to the anthropometric measures of the body in order to optimize the diagnostic criteria for chronic intestinal ischemia. Twenty healthy volunteers, in the age 40 - 70 years (ten women), were investigated. The SBF was measured before and after a standard meal (4000 kJ), using the Fick principle with continuous infusion of an indicator (99mTechnetium labelled mebrofenin) and catheterization of the hepatic vein and the abdominal aorta. Digital subtraction angiography was performed simultaneously. A whole body DEXA scan was performed to determine body composition. Angiography revealed no atherosclerotic lesions in the intestinal arteries. Mean baseline SBF was 1,087 mL/min (731 – 1,390); the mean meal-induced SBF increase was 700 mL/min (314 – 1,145), SBF at baseline and the postprandial increase were independent of age, sex, lean body mass and percentage of body fat. The total splanchnic oxygen uptake was 50.7 mL/min (32.1 - 84.5) increasing to 77.5 mL/ml (43.9 – 118.9) after the meal. The oxygen uptake increased significantly after the meal. Both the baseline oxygen uptake and the postprandial increase were directly related to lean body mass. Age and sex had no impact on oxygen uptake. The present study yields no correlation between SBF at baseline, the postprandial increase and body size, this is particularly important in the underweight patients suffering from chronic intestinal ischemia. This study supports that the meal induced increase in SBF should be larger than 250 mL/min in healthy middle aged individuals, otherwise chronic intestinal ischemia must be suspected.

B. Educational Research in Anatomy/Physiology Learning or Instruction

11. Damilare Hakeem Adeyemi
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Career Guidance: chosen a career in basic medical sciences have been challenging in developing countries like Nigeria
The medical field or profession has become a very important and vital field of study in the world, as indeed a center of well-being. The medical profession is categorized into two classes-the modern and the indigenous (traditional). My concentration in this poster is on its modern class. Results indicate that low information are available to people (especially the tertiary institution students) as regards the basic medical profession. One being that only doctors and nurses are involved in this profession. This is erroneous. This work is an attempt to educate and enlighten those who are misinformed at one level and at another level to afford those who are well informed on the field the opportunity to be reminded of what they already know. Readers will have access to some career opportunities in this field and continuous assessment is ongoing to determine the cause of these challenges.

12. Alease S. Bruce
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Exploring effective uses for the personalized lecture capture system
Through the use of personalized lecture captures (Echo PCAP) the instructor is able to prerecord lectures of their course content and publish their edited recordings on a server for student use. This novel tool was explored in two different pedagogical settings. One involved studying the incorporation of PCAP into an online lecture course, and the other involved using PCAP to develop Anatomy and Physiology modules for reinforcement of course content. Placement, length, and content were investigated and analyzed. For the online course, the PCAP model is being explored as a tool to address the need to make online delivery products more effective for the visual learner. The Anatomy and Physiology modules are being evaluated as part of a campus-wide retention initiative for freshman gateway courses with high attrition rates.
13. Jacqueline Carnegie\(^1\) and Yehudis Stokes\(^2\)
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An orthopedic night in emergency: engaging student interest through the application of musculoskeletal anatomy knowledge

It is a challenge to promote interactive learning, rather than rote memorization, when teaching musculoskeletal (MSK) anatomy, especially when annual enrollments in excess of 1000 students make weekly laboratory sessions impossible. This project was designed to engage student interest and facilitate the retention of key elements of MSK anatomy through the development of interactive, in-class activities that encourage students to become familiar with new terminology, to understand the relevance of what they are learning and to problem-solve. These activities were then shared with approximately 550 Health Sciences students enrolled in two different sections of an undergraduate course in human anatomy and physiology, following which their feedback was collected via anonymous survey. Common injuries were used to allow students to focus on three key areas: the carpal bones, the knee joint, and the hamstring muscles, corresponding to the skeletal, articulation, and muscular systems, respectively. For the first topic, Windows Movie Maker, a volunteer student actress and appropriate radiological imaging were used to create an interactive clinical vignette so that students could review anatomical position and explore the radius, ulna and carpel bones within the context of a wrist fracture. For the knee joint, video was used to explore the clinical situation of sport-induced ligament/meniscus damage. Students were then invited to test their understanding of the structure of the knee joint using animated labeling exercises developed using PowerPoint. Finally, Hangman for PowerPoint (PTAlchemy) allowed students conquer some of the challenging terminology associated with the musculature of the lower limb by prompting them to spell out the names of key muscles and related structures that would be affected by a hamstring strain. This project was supported by a University of Ottawa Undergraduate Research Opportunity Award to Y. Stokes.

14. Ruth Chan and Lucia Tranel
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Drawing-to-learn: the effect of an instructional drawing component as a part of anatomy instruction

The purpose of this research was to identify whether a tactile, drawing-based teaching style better improved student understanding and comprehension of anatomy concepts over an auditory, lecture-based teaching style. A pretest on the subject of the lumbar plexus was administered to anatomy students with no previous knowledge of the material. The pre-test consisted of multiple choice questions and a drawing portion in which students were asked to draw the lumbar plexus without guidance. Students were then divided by lab section and taught the material. Three lab sections were instructed using a lecture-style teaching method and served as the control group, and two lab sections were instructed in a hands-on, drawing method as the experimental group. Students were then administered a post-test, which was identical to the pre-test. The multiple choice section and drawing section of the pre and post-tests were scored separately, and the average improvement in each section was calculated for both the control and experimental group. These results were then compared to determine if a teaching style in which drawing was used as an instructional tool significantly improved student scores. On the multiple choice portion, it was found that 66% of students in the control group and 73% of students in the experimental group improved their scores between the pre and post-test by an average of 2 points. On the drawing portion, it was found that 26% of the students in the control group improved their scores while 86% of the students in the experimental group improved their scores. The average point improvement in the control and experimental group was found to be 1.8 points and 5.3 points respectively. Overall, the data suggest that the use of an instructional drawing component as part of anatomy instruction may drastically improve student understanding of anatomical structure.

15. Mary Beth Davison
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Students “rewind” their anatomy lecture

Today’s students have many options for recording a lecture. Recording lectures allows students to revisit course content at their leisure and would suggest students that utilized recorded lecture material would have improved success in the course. GPC has updated one classroom per campus to capture the lecture with audio, allowing the students the opportunity to “rewind” their lecture and view it again in its entirety or just parts. Using “rewind” during the lecture captures all images projected on the screen through any media, doc-cam, pc, tablet, iPad or

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drawing from an electronic blackboard, while recording the audio portion of the lecture. The faculty member has editing capabilities prior to releasing the lecture to the students. This research project investigates the utility of this tool and attempts to answer the following questions. Do the students use the service? Do they find the recordings useful as a study tool? Does the availability of “rewind” adversely affect attendance triggering an increase in absenteeism? Were there any technical difficulties with the recordings, with the retrieval of the recording, with compatibility of student’s various equipment forms or software updates or lack of updates? Does the use of “rewind” improve student performance? Multiple sections of anatomy students for two consecutive semesters were surveyed gaining their perspective of the tool. Is this a valuable teaching aid? How can it be expanded or improved in the future?

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Pedagogical diversity in introductory a human anatomy and physiology class in small college setting
Human Anatomy & Physiology (A&P) is a high demand introductory course required for pre-nursing/allied health students. Such students, who are frequently ill prepared, cite abstract physiological concepts and endless memorization of anatomical terms and structures as major challenges of the subject. A&P pedagogy would benefit from a variety of teaching techniques that make the subject more bearable and appeal to the different learning styles of today’s population of students. In this presentation, various teaching approaches that are designed to appeal to diverse groups of students while enhancing their understanding of the subject are discussed. These approaches represent a mix of traditional low tech and innovative high tech tools that have significance beyond a single discipline. Students’ ratings of individual teaching tools and overall impact on student performance on the subject are presented.

17. Jon Jackson
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To be (there) or not to be (there) — does attendance matter?
Look at college and university course syllabi – you’ll likely find that somewhere in the verbiage lurks a statement along the lines of what appears in the syllabus for my own undergraduate human gross anatomy laboratory course: “...your learning will be aided by your physical presence in class. Although I do not keep track of attendance for grading purposes, it is nevertheless very important.” So, many of us claim that attending class has benefits, but do we have any empirical, systematic data to back up that claim? (I do, now. Have data, that is.) And the data for my lab sections over the past several semesters backs up this claim, to a point. The characteristics of students whose grades were most highly correlated with attendance are described and analyzed across age, gender, and major field of study. Follow-up surveys with selected outliers among the high-performing students with little correlation between performance and attendance showed a significant amount of additional study time devoted to anatomy outside of the laboratory setting, using computer-based tools and assigned Atlases. The relationship between attendance and grades in lab sections where more structured “active-learning” exercises were utilized is compared to sections where laboratory teaching assistants utilized a more traditional “park and bark” approach to demonstrating structures on the cadavers, models, and radiological images. In summary, for students who lack time, inclination, or a critical mass of study partners with whom they can review anatomy outside of the laboratory setting, attendance in anatomy lab sessions is exactly what we have described it for years: critical for students’ success.

18. Kim M. Kerr
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Starting a human cadaver lab program
Starting a human cadaver program can seem daunting. Using a human cadaver instead of a cat or fetal pig in a human anatomy lab is the preferred method of teaching about the human body, but how do you get started? I found that starting a cadaver lab is really not as hard as one might think. A colleague and I did some research and visited several schools that use human cadavers. We began with one cadaver and have now added a second cadaver. We are in the third year of our cadaver program. Student response has been positive and all has gone well.
19. Alexandra Marta Koba and Laura Johnson  
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Undergraduate education through dissection: a regional approach to the head & neck  
A hemi-section of the head and neck was performed in the context of an independent studies course in Human Anatomy. Both the dissection process and the resulting specimen were found to be educationally useful. Initial planning of the dissection and manipulation of structures during the process contributed to students’ understanding of the head and neck. The dissection itself was used in class to teach the central nervous system (CNS), digestive system and respiratory system. A regional approach to teaching anatomy was also made possible by this specimen: organs were viewed in their anatomical context and students were encouraged to observe structures in relationship to one another and think critically about their functions. Overall, the hemi-section allowed for a better visualization of the structures of the head and neck and diminished the need for student memorization.

20. Augusthy Kulakkattolickal  
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State of-the-art-cadaver display theater at Harold Washington College, Chicago.  
Under my leadership, Harold Washington College, one of the seven city colleges of Chicago, has developed a state-of-the-art cadaver display theater. This cadaver theater has a raised platform to accommodate standing room for ten students to view the cadaver display activities. The top of the hand rails on the raised platform is constructed conveniently for students to keep their note books or clip boards. There is room for 8 students to stand around the cadaver at the floor level observing the instructor displaying the cadaver. The easily adjustable surgical lights from MaxLite Company and the built-in camera can be pulled over and manipulated over the cadaver with extreme ease. The cadaver display will be telecasted onto three screens mounted from the ceiling over the raised platform. This helps magnify even small structures in the cadaver (such as nerves) and project those onto the overhead screens. We propose telecasting the cadaver lab activities with extreme clarity to the classrooms at Harold Washington College and to other city colleges of Chicago (which do not have facilities to store and display cadavers) using CISCO system technology. The cadaver coffin mounted on a wheeled cadaver cart is stored in a high-tech cold storage room adjoining the cadaver theater. The cold storage is monitored by Harris Environmental Systems technology. The cadaver cart is easily movable on wheels. Another room adjoining the cadaver theater has several steel shelves to store aprons, tools, anatomy models and human body parts. Models or body parts from this room can be moved to the cadaver theater and telecasted to classrooms at Harold Washington College and other city colleges. Human Anatomy and Physiology students pursuing health care careers at the City Colleges of Chicago will be highly benefited from this cadaver theater.

21. Jenny McFarland1 and Ann Wright2  
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Conceptual frameworks and misconceptions associated with core principles of physiology, including homeostasis  
The core principles of physiology are those that physiology students should understand and be able to use. We have ‘unpacked’ three of the most important core principles (Flow Down Gradients, Homeostasis and Cell-Cell Communications) into their component ideas and thereby articulated a conceptual framework for each. Physiology faculty at 2- and 4-year colleges, universities and medical schools were surveyed and asked to identify the importance of each of the component ideas; the result of our first survey on ‘Flow’ was reported last year. Amongst the >40 responses to our survey on unpacking Homeostasis, there was strong agreement on the importance of the first level of component ideas within the conceptual framework. For example, ~80% agreed that the component idea that “Homeostatic processes require a sensor” was essential to understanding this core concept, however, less than a third responded that sub-component idea ‘Sensory receptors may be in different, distant locations in the body’ was essential. We have also identified misconceptions associated with some core principles and linked these to our unpacked conceptual frameworks. We are using the conceptual frameworks and the misconceptions to develop a conceptual assessment of physiology (CAP) instrument (i.e., a concept inventory). This poster was originally presented in April 2012 at the Experimental Biology (EB) meeting in San Diego, CA. This work is supported by NSF grant DUE-1043443.
22. M. McManus, Ph.D. and C. D’Ippolito  
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A comparison of active learning methods in an upper level physiology course: team based activities versus individually directed activities  
Many educators are utilizing team based activities to develop group synergy for teaching students new concepts instead of the traditional lecture presentation method of instruction which emphasizes individual student learning focused on repetition. The question posed in this study is whether there is a difference in content mastery between the two teaching methods? The purpose of the research is to compare two teaching techniques with regard to comprehension of specific physiology concepts. The hypothesis states that there will be no difference between team activities and individual activities in achieving comprehension of a specific topic. A class consisting of 70 pharmacy students in an advanced medical anatomy and physiology course were requested to participate in the study. The exercises were a required component of the curriculum. Students were given the choice to opt out of the study design and inclusion in the data. All students opted to participate after reviewing the informed consent. The students were divided into two groups of thirty-five, and individually given an anonymous code name. Group A began with team based activities on week one and then on week two they crossed over and participated in an individual group activity. The cross over pattern was opposite to that of group B. Both groups were taught the same topic in the different methods described, after the activities both groups were assessed by an identical instrument depending upon the topic. There were 7 scheduled topic areas. The data collected includes assessment scores, student performance on lecture based examinations, student assessment of the process and the associated active learning method. All data will be analyzed at the end of the semester.

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Against all authority, researching controversial topics in the human anatomy and physiology classroom  
Students enrolled in college-level Human Anatomy and Physiology (A&P) courses often have minimal knowledge of biological principles. Even more worrying is that students have little comprehension about the scientific process (i.e., the procedure from data collection to publishing), which is an important aspect of science education that is often overlooked in A&P courses. Indeed, A&P courses are engrained within the intellectual premise of rote memorization; a learning practice that is outdated and provides little real-world experience. In fact, our education system finds it more productive to fill in the correct bubble than to diagram a physiological process, or much less, to demonstrate an alternative hypothesis. Therefore, it is imperative that innovative, yet instructive practices, be used to ensure that college-level students gain the necessary experience to be productive and rationale scientific colleagues. Using the scientific literature (PubMed, etc.) in the classroom is a leaping first step in teaching students about the scientific processes. With this impetus, here I suggest that students think outside the box and to reach beyond the boundaries of the outdated text by diving deep into the literature. For example, I have students write mock scientific review articles about topics that contradict either the text or common knowledge. Themes include, but are not limited, to the following assignment titles: is fat bad for your health?, does lactic acid cause muscle fatigue?, static vs. active stretching, do vaccines cause autism?, are the female and male brain different?, does the environment alter DNA transcription?. Using this pedagogy, I have found that students not only learn to be scholars, but realize that the study of Human A&P is not bounded by a textbook volume, but by the scientific process.

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Hands-on anatomy activities that reinforce understanding of muscle attachments  
Helping students to visualize the origin, insertion, position and relationships of muscles is a challenge. We present a visual, interactive exercise to reinforce student understanding in this area. Students were asked to place precut two-dimensional felt models of the muscles on a life sized skeleton or disarticulated bones matching the correct bony origins and insertions. In order to assess the impact of this approach on student learning, the students were split into two groups. The first group spent 15 minutes utilizing the felt leg muscles while the second group spent 15 minutes reading their books to study the muscular attachments of the leg muscles. A pre-test and a post-test covering the material were continued on next page
administered to both groups. Students who worked with the felt muscles showed a greater improvement relative to the students who studied independently (p<0.05). The groups switched activities when studying the foot muscles and similar results were found. Student satisfaction was assessed with a survey administered after each unit. The majority of students indicated that the activity was fun and felt that the activity was an effective way to learn the material. We advocate the use of this type of activity to engage the students and to provide an opportunity for the students to reinforce their understanding of muscular attachments.

25. James M. Montante¹, M. Bee ¹², R. McAuley ¹
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Providing clarity in dissection: use of videos in anatomy lab

Human anatomy laboratory remains to be one of the most challenging courses in medical school. Students are required to perform high quality dissections, even though most of them do not have previous experience and struggle with learning by merely reading a lab manual. To make this task less daunting we produced a series of anatomy dissection videos to visually and audibly teach students the landmarks to focus on and how to dissect. Videos are approximately ten minutes in duration and illustrate dissection techniques and important anatomical relationships. Student feedback of the videos was overwhelmingly positive with 68% increased satisfaction from a group of students utilizing the dissection videos versus a control group. Student comments include “I have greater confidence and understanding of the dissections” and “I couldn’t understand what they described in the book, but the video helped it all make sense.” Furthermore, dissection quality of the students viewing the videos was significantly better than the control group (p<0.01). We discuss the process of producing the videos and advocate the use of dissection videos to help guide students in human anatomy dissection.

26. H. K. Motoike and D. Aguirre
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The integration of ePortfolios into the human anatomy and physiology curriculum

We developed new and innovative assignments to integrate Digication ePortfolios to further enhance the connection of students to the material covered in the two semester human anatomy and physiology course at La Guardia Community College. Digication ePortfolios are personalized web portals that allow students to share and document course work with their professors, classmates, family, friends and the outside world depending on the individual's personalized settings. Digication ePortfolios have many uses in college level courses such as measurements of academic growth, storage areas for course assignments and career planning. The assignments developed for our Anatomy and Physiology curriculum attempted to increase the basic learning competencies that include writing proficiency, quantitative literacy, critical thinking and oral communication. One of the major challenges and obstacles was how to incorporate such assignments into an academically high risk course that has very little flexibility due to its very rigid syllabus without making the course even more difficult for the students. The writing assignments developed for our courses ranged from simple exercises that encouraged students to reflect on the learning process to more concrete assignments such as maintaining a detailed laboratory journal. Quantitative literacy assignments were used to increase the students ability to reason mathematical problems related to human physiology. Critical thinking assignments required students to develop learning strategies that they thought would be best suited for the learning process and how to teach the course material to future students. Oral communication assignments required students to deliver short presentations to the class demonstrating their competency in understanding various anatomical structures. Many students demonstrated a strong connection to the course material based on their performance on these assignments and positive evaluations on end of the semester surveys. Our study may provide a model to implement ePortfolios to future Human Anatomy and Physiology courses.

27. J. M. Pattillo
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Creating an interactive “smart” skeleton: an open-source tool for teaching muscle actions

Understanding how the muscular and skeletal systems work together to produce specific movements can be difficult for many A&P students.
Meaningful study of these systems requires students to think in three dimensions, imagining the movements of the joints as the muscles pull on the bones. Computer simulations and animations can help students to visualize muscle actions, and can be configured to provide students with feedback as they learn. However, these tools are still essentially two-dimensional representations of three-dimensional concepts. Accurately articulated skeletons can be used as a hands-on tool to teach muscle actions, but these lack the interactive quality and feedback of computer-based visualizations. This presentation describes the development of a sensor-enabled “smart” skeleton that combines the interactivity of software with the three-dimensional qualities of a physical model. An articulated teaching skeleton was fitted with electronic inertial measurement units (IMUs), which were created using an open-hardware design. The IMUs are used to estimate the three-dimensional orientation (yaw, pitch, and roll) of the major moveable elements of limbs. This information is sent to a computer running open-source software, which prompts a student to move the skeleton so as to imitate specific muscle actions. The software then uses the orientation information from the IMUs to interactively monitor the progress of the student as he or she attempt to demonstrate the requested action. The design, construction, and use of the skeleton and accompanying software are described.

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Taming the testing/grading cycle in classes centered around open-ended assessment

“The type of questions you ask will determine the type of learning you get from students.” Multiple lines of evidence support what one of my teaching mentors eloquently summed up in the above quote. Namely, that questioning strategies centered around higher-order assessments allow students to exercise their skills in higher-order reasoning. Since most anatomy and physiology faculty wish for their students to demonstrate high-order reasoning, course assessments should ideally target that type of reasoning. Higher-order assessments frequently take the form of open-ended, short answer questions. However, the time requirements involved in grading open-ended assessments on exams often limit the use of such questions throughout an anatomy and physiology course. Here I present an index card questioning strategy designed to mitigate the grading workload associated with using open-ended assessments as a centerpiece of a class. Analysis of assessment items, student feedback forms, and reflections from other instructors piloting the strategy indicate that – beyond making the grading load more manageable – this method additionally encourages collaborative learning, provides data on class progress, assists in identifying student misconceptions, and helps to align student and instructor expectations.

29. Todd C. Shoepe, Dana K. Cavedon, Joseph M. Derian, Celine S. Levy, and Amy Morales
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Engaged technology and experiential learning: the effectiveness of iPads and digital microscopy on student performance

Mixed-methods research investigated the effectiveness of a novel class project Atlas during the first semester of a yearlong majors-only laboratory in human anatomy and physiology for pre-medical and pre-allied health students. The project required the creation of a photographic Atlas via acquisition of specimen images taken with iPads and digital microscope cameras throughout the semester. Images were transferred to laptops, digitally labeled and photo edited weekly, and then compiled into a digital book using Internet publishing freeware (bookemon.com) for final project submission. Identical anatomical questions (n=60) representing content covered by the Atlas from final exams pre- (2010) and post- (2011) implementation were compared for student performance. Questions were further subdivided into four content areas (histology, n=7; kinesiology, n=9; muscular, n=30; dissections, n=25). Questionnaires using Likert surveys (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree) and open-formatted interviews were collected from post- students (n=33). Post- students (n=60) performed significantly better (p=0.00) than pre students (n=76) on the histological subset (means ± SD) (80.7% ± 18.5% vs. 65.1% ± 14.1%) with no other significant findings in any other content subset. Performance improvement trends approached significance for overall final exam (78.3% ± 11.2% vs. 74.7% ± 11.5%; p= 0.06), overall course grade (88.2% ±13.0% vs. 85.7% ± 7.8%; p=0.11), and total Atlas related questions (81.6% ± 9.7% vs. 79.0% ± 12.0%; p=0.18). Likert items revealed significantly higher (p=0.00) student perception of learning effectiveness compared to project enjoyment (3.70 ± 0.9 vs. 2.67 ± 0.99). Qualitative analysis suggested students identified with Atlas objectives, appreciated the comprehensive value in final exam preparation, and the constructionism involved, but desired earlier delivery of a rubric and alterations in the timeline of workload. This project is ongoing and is supported by the HAPS Faculty Research Award, 2011.
30. Dr. Janice Toyoshima¹ and Dr. Abdie Tabrizi²
   ¹Evergreen Valley College Biology Department, ²Evergreen Valley College Engineering Department
   San Jose CA  95135  USA
   janice.toyoshima@evc.edu

Bone compression experiments as a tool for introducing students to biomechanics

Advances in medicine, science and technology have helped increase the average life expectancy of humans by three decades over the past century. A field of biomechanics has helped engineers and scientists to design prosthesis devices to enhance human life. Research in biomechanics has allowed us to understand limitations of the human body and has had profound impact in design of vehicles for passenger protection, sports medicine, space travel. Human bones are constantly subject to external forces while walking, running, jumping or falling. It is imperative to understand the types of forces that human bones are subjected to and to know their ultimate strength. To introduce undergraduate college students to the subject of biomechanics an experimental technique has been designed to determine compressive breaking load of the human femur. The cortical section of the femur shaft is subjected to compression load until it fails. The failure mode and strength are then determined. Students are then given information to help them design a replacement part. This poster details the entire process and some results.

31. Suzanne Vincent, Ph.D.
   Dept. of Biology & Chemistry, Oral Roberts University, Tulsa OK 74171  USA
   svinent@oru.edu

Student projects on the subject of historical persons who have contributed to physiology help students remember specific physiological principles

Students taking General and Comparative Physiology randomly draw one name from a list of historical scientists that have contributed to basic physiological ideas and do a short report and a 10 minute presentation on this one person for their classmates. Examples of persons who have been reported on early in the semester are Adolf Fick, Claude Bernard, Frederick G. Donnan, Walther Nernst, Sydney Ringer, and Walter Cannon. Students have responded favorably to this exercise during several semesters that it has been tried. Fundamental principles and laws seem to be more easily remembered if they are understood in a historical context of how they were developed and who developed them. An example of a basic principle understood this way is homeostasis developed by Claude Bernard and Walter Cannon. Difficult laws, e.g., the Donnan equilibrium or Nernst potentials for Na⁺, K⁺, or Cl⁻ across a cell membrane, are also understood better if they are discussed in a historical context. There are many names associated with basic ideas within textbooks and the scientific literature — it allows the learner to 1) understand that science develops as individuals make discoveries and build upon earlier discoveries, and 2) give credit to scientific pioneers. Later in the semester additional names could be added to the list, such as Friedrich Henle, Christian Bohr, Marcello Malpighi, Jean Poiseuille, Filippo Pacini, and Georg Meissner. Plans are to add a second historical project to enhance such learning toward the end of the semester and determine whether it has additional benefits.

C. HAPS Committee Outreach/Information Poster

32. Leslie Day¹, M. Bee³, C. Eckel¹, J. Jackson⁴, K. Kelly⁵
   ¹Northeastern University, Department of Physical Therapy, Boston MA 02115 USA ; ²University of Detroit Mercy/Oakland University, Detroit MI 48221 USA ; ³West Virginia School of Osteopathic Medicine, Lewisburg WV 24901 USA ; ⁴University of North Dakota, Grand Forks ND 58202 USA ; ⁵Milligan College, Elizabethton TN 37682 USA
   l.day@neu.edu

HAPS Cadaver Use Committee: update for 2012

The Cadaver Use Committee of the Human Anatomy and Physiology Society actively engages faculty as we work toward our mission on issues related to the development and maintenance of cadaver labs for undergraduate and graduate programs. We offer a wide range of resources on the HAPS website including: instructions of how to design a new cadaver laboratory, providing safety guidelines for pregnant students, wetting solutions, and related surveys. Virtual tours also provide views of a variety of cadaver labs. In addition to these resources, we have actively published in HAPS EDUcator on topics related to the cadaver lab as well as engaging activities that occur in the lab. Our committee welcomes new members.
33. Nick Despo  
Thiel College, Department of Biology, Greenville PA 16125 USA  
ndespo@thiel.edu  
**Animal Use Committee: revised HAPS position statement on animal use**  
HAPS adopted a position on the use of animals for teaching anatomy and physiology in 1995. The statement last underwent revision in 2001. The Animal Use Committee has undertaken the task of revising the statement in light of current research in teaching pedagogy and of sensitivities in using animals for experimentation. The poster presents the results of that effort and will serve as a site for gathering reactions and responses to the revised statement as well as a distribution point for the Animal Use Committee’s Emergency Response Plan.

34. Thomas Lehman  
Coconino Community College, 2800 S. Lone Tree Rd., Flagstaff AZ 86001 USA  
ton.lehman@coconino.edu  
**Want to join a HAPS committee?**  
Would you like to learn more about the committees within HAPS? There are nineteen (19) committees in HAPS, each focused on specific projects or directives within the Society. Many of the committees offer opportunities for you to become involved in projects that you may find very rewarding and enriching. You can help write policy statements for HAPS. You can gather data on testing. You can help write outcomes and mission statements. You can learn about practices and products to make the A&P lab safe for students and instructors. You can learn and share a lot about A&P with peers. This poster offers a few examples of committees and their works. You can also identify the Committee Chairs by their bulls-eye button. Even more, you can read about the committees in the conference program and online at http://www.hapsweb.org/displayboard.cfm?defaultdisplay=23339#23339. The HAPS Committees are a great place to learn more about the Society, develop your own skills as a professional, and help others grow as instructors. Join now.

35. Linda Nichols (Chair), Karen McMahon, Joseph O. Olubadewo, Sue Stout, Glenn Yoshida, Bob Brozanski, & RemaSuniga  
linda.nichols@sfcollege.edu, karen-mcmahon@utulsa.edu; JOlubadewo@suno.edu; sue.stout@baker.edu; r-suniga@onu.edu; YoshidGY@lasc.edu; rbroznaki@ccac.edu  
**HAPS Safety Committee Survey: Safety Training for HAPS members**  
The Mission for Safety Committee is to promote laboratory safety awareness in the A&P laboratory. The Committee continues to update and revise the HAPS Safety Guidelines as well as preparing a collection of case studies on A&P laboratory safety. Last year the Safety Committee determined it needed feedback from the HAPS membership concerning their interest in obtaining CPR/AED training at the HAPS Annual Conference. This poster describes the results of the survey. If attendance at the CPR/AED workshop this year warrants it, this type of workshop could become common at our annual conferences.
Giddy up to some happening Pearson events!

Get a keepsake photo!
Starts Sunday, May 27 | 7:30 AM; Ends Monday, May 28 | 4:00 PM
Drop by the Pearson booth with your friends to have your photo taken with “da Bones” A&P cowboy. Photos will be printed for you at the booth.

Enter to win the new iPad® and see how MasteringA&P® transforms your classroom!
Come by the Pearson booth to learn more about our unparalleled media that is assignable in one easy-to-use place! Sign up for a ten minute demo on MasteringA&P and be entered to win the new Apple iPad.

Compete to win the new iPad and show off your inner artist!
Starts Sunday, May 27 | 7:30 AM; Ends Monday, May 28 | 4:00 PM
Please stop by to enter our annual Pearson A&P art contest. Details and supplies will be provided at the booth. Your rendering of an anatomy or physiology concept could win you the newest Apple iPad. The winner will be announced on Monday, May 28, 4:00 PM during the exhibitor door prizes event.
Meet our authors at the Pearson booth

Sunday, May 27, 7:30 AM – 8:30 AM
- **Elaine Marieb**, Human A&P, 9e; A&P, 4e; Human Anatomy, 6e; Essentials of Human A&P, 10e; Human A&P Lab Manuals
- **Katja Hoehn**, Human A&P, 9e; A&P, 4e
- **Dee Silverthorn**, Human Physiology: An Integrated Approach, 6e
- **Lori Garrett**, Get Ready for A&P, 3e
- **Nora Hebert**, Practice Anatomy Lab™ 3.0
- **Lori Smith**, PhysioEx™ 9.0

Monday, May 28, 7:30 AM – 8:30 AM
- **Bob Tallitsch**, Human Anatomy, 7e
- **Mike Timmons**, Human Anatomy, 7e
- **Mike Wood**, Laboratory Manual for A&P, 5e
- **Cindy Stanfield**, Principles of Human Physiology, 4e

Gallop over to our annual Pearson cocktail party
All conference attendees are welcome
Hyatt Hotel, First Floor Lobby
Sunday, May 27 | 5:00 PM – 6:00 PM
Drop by for fun, light snacks, and refreshments!

Enjoy the Pearson lunch at the University of Tulsa workshop
Tuesday, May 29 | 12:15 PM – 1:30 PM
Lunch is sponsored in part by Pearson.
Workshops will be held in Kendall Hall (#19), Oliphant Hall (#29) and Keplinger Hall (#20).

Coffee breaks are held in Oliphant Hall Lobby for Kendall and Oliphant Hall workshops; for Keplinger Hall workshops, the coffee breaks are located in the Lower Level Lobby of Keplinger Hall.

Allen Chapman Activity Hall (ACAC #3) is the distribution center for box lunches and the meeting place for the HAPS committee meetings during Tuesday’s lunch.

NOTE:
## WORKSHOPS-AT-A-GLANCE TUESDAY (MAY 29, 2012)

<table>
<thead>
<tr>
<th>Session 1 (60min)</th>
<th>Session 2 (90min)</th>
<th>Session 3(60min)</th>
<th>Session 4(60 or 90 min)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>9:15am – 10:15am</strong></td>
<td><strong>10:45am - 12:15pm</strong></td>
<td><strong>1:30pm – 2:30pm</strong></td>
<td><strong>2:45pm – 3:45pm</strong></td>
</tr>
<tr>
<td><strong>101 (OH 105)</strong> Core learning and assessment using virtual anatomy software Repeats as 501</td>
<td><strong>201 (OH 226)</strong> LabTutor 4 suite extends the laboratory experience with LabTutor online</td>
<td><strong>301 (OH 105)</strong> Gamification of anatomy learning – using a tournament module to enhance the study of anatomy Repeats as 701</td>
<td><strong>401A (KEP M10)</strong> PhysioEx, PHILS, PowerPhys – what’s the difference? Repeats as 801A</td>
</tr>
<tr>
<td><strong>102 (OH 202)</strong> Creating lessons with the Biopac student lab system Repeats as 502</td>
<td><strong>202 (OH 202)</strong> Building the lymphatic system to achieve greater understanding Repeats as 602</td>
<td><strong>302 (OH 202)</strong> Teaching how the countercurrent multiplier works Repeats as 702</td>
<td><strong>402A (OH 202)</strong> Introducing the new BIOPAC MP45 – a budget busting physiology lab solution for community colleges Repeats as 802A</td>
</tr>
<tr>
<td><strong>103 (OH 300)</strong> Using online technology to improve lab time, preparedness, and student understanding Repeats as 503</td>
<td><strong>203 (OH 228)</strong> Building the muscles and tendons of the hand in Clay Repeats as 603</td>
<td><strong>303 (OH 228)</strong> Visual story telling: aesthetics and customization of lecture presentation Repeats as 703</td>
<td><strong>403A (OH 228)</strong> Anatomy of a multiple choice question Repeats as 803A</td>
</tr>
<tr>
<td><strong>104 (OH 228)</strong> Physiology of a multiple choice question Repeats as 504</td>
<td><strong>204 (KEP U7)</strong> Learning how to use social media effectively via an LMS/CMS integration Repeats as 604</td>
<td><strong>304 (OH 300)</strong> Understanding cranial nerves – a comparative and developmental approach Repeats as 704</td>
<td><strong>404A (OH 300)</strong> Get on the list Repeats as 804A</td>
</tr>
<tr>
<td><strong>105 (KH 110)</strong> Dry erase mats &amp; round robins: engaging them during lab reviews Repeats as 505</td>
<td><strong>205 (KH 110)</strong> Use and integration of iWorx physiology systems in your A&amp;P labs Repeats as 605</td>
<td><strong>305 (KH 110)</strong> Warning - an interactive class! - you may learn more and have fun, too. Repeats as 705</td>
<td><strong>405A (OH 141)</strong> Undergrads as a cheap, renewable source of energy: using peer-led teams in a large physiology class Repeats as 805A</td>
</tr>
<tr>
<td><strong>106 (OH 112)</strong> Using learning outcome data from A&amp;P courses to improve teaching and learning: a focus on global learning outcomes and strategies to improve critical thinking Repeats as 506</td>
<td><strong>206 (KH 112)</strong> Assessing student misconceptions about homeostasis Repeats as 606</td>
<td><strong>306 (KH 112)</strong> Presenting clinical topics so that students understand them Repeats as 706</td>
<td><strong>406B (KH 110)</strong> Expand your labs with iWorx data recording systems</td>
</tr>
<tr>
<td><strong>107 (KEP U7)</strong> Enhancing writing and critical thinking skills in the A&amp;P classroom</td>
<td><strong>207 (OH 300)</strong> Anatomia Italiana: the history of anatomy along the Italian peninsula Repeats as 607</td>
<td><strong>307 (KEP M2)</strong> Presenting the anatomy of the cardiovascular and respiratory systems can also introduce the students to the regional anatomy of the thorax. Repeats as 707</td>
<td><strong>407B (OH 226)</strong> Using electromyography to demonstrate skeletal muscle physiology</td>
</tr>
<tr>
<td><strong>108 (KEP M3)</strong> Teaching rigorous cadaver-based gross anatomy to undergraduates</td>
<td><strong>208 (KEP M3)</strong> Using Anatomy &amp; Physiology Revealed 3.0 + Cat Version Repeats as 608</td>
<td><strong>308 (KEP M9)</strong> What’s new in physiology and anatomy?</td>
<td><strong>408B (KH 112)</strong> Entice and excite our students – it can be done Repeats as 601A</td>
</tr>
<tr>
<td><strong>109 (KEP M9)</strong> pH is pHi! helping students get acid-base balance</td>
<td><strong>209 (KEP M5)</strong> Engaged technology and experiential learning: iPads, digital microscopy, and Internet freeware in the creation of lab atlas projects Repeats as 609</td>
<td><strong>309 (KEP M10)</strong> Assessing and remediating A&amp;P students before they enroll in A&amp;P</td>
<td><strong>409B (KEP M4)</strong> I’m not a medical doctor, but I play one in A&amp;P!</td>
</tr>
<tr>
<td><strong>110 (KEP M10)</strong> Lighten Up! adding humor to your A&amp;P course</td>
<td><strong>210 (KEP M10)</strong> Easily expand the boundaries of your LMS and broaden your students’ learning experience* Repeats as 610</td>
<td><strong>310 (KEP M1)</strong> Histopathology: for undergraduates?</td>
<td><strong>410B (KEP M216)</strong> Human physiology with Vernier</td>
</tr>
<tr>
<td><strong>111 (OH 226)</strong> Teaching observation of anatomy and histology through illustration</td>
<td><strong>211 (KEP M216)</strong> Planned Assessment: Exam blueprinting and rubric scoring Repeats as 611</td>
<td><strong>311 (KEP U8)</strong> Virtual anatomy: maximizing student learning and assessment using online interactive tools</td>
<td><strong>411B (KEP M9)</strong> Assessment – that was easy!</td>
</tr>
<tr>
<td></td>
<td><strong>212 (OH 105)</strong> The HAPS POGIL project: developing and using teaching modules that promote conceptual understanding through group learning and inquiry Repeats as 413B</td>
<td><strong>312 (KEP M216)</strong> Using forensic digital microscopy for teaching critical thinking and clinical reasoning in anatomy &amp; physiology</td>
<td><strong>412B (KEP U8)</strong> Get your students involved with concept mapping in the classroom</td>
</tr>
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<td></td>
<td><strong>213 (OH 231)</strong> Overcoming student and faculty hurdles in the world of team based learning</td>
<td></td>
<td><strong>413B (OH 105)</strong> The HAPS POGIL project: developing and using teaching modules that promote conceptual understanding through group learning and inquiry Repeats as 212</td>
</tr>
</tbody>
</table>

*OH = Oliphant Hall  
KH = Kendall Hall  
KEP = Keplinger Hall  
L = Lower Level in KEP  
M = Middle Level in KEP  
U = Upper Level in KEP

**Session Times:**  
**Session 1 (60min)**: 9:15am – 10:15am  
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**Session 3(60min)**: 1:30pm – 2:30pm  
**Session 4(60 or 90 min)**: A 2:45pm – 3:45pm  
**B 2:45pm – 4:15pm**
<table>
<thead>
<tr>
<th>Session 5 (60 min)</th>
<th>Session 6 (90 min)</th>
<th>Session 7 (60 min)</th>
<th>Session 8 (60 min)</th>
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<tbody>
<tr>
<td>9:00am – 10:00am</td>
<td>10:30am – 12:00pm</td>
<td>1:45pm – 2:45pm</td>
<td>8A – 3pm – 4:00pm</td>
</tr>
</tbody>
</table>

**501 (OH 105)***
Core learning and assessment using virtual anatomy software
Repeat of 101

**601 (OH 226)**
Enterise and excite our students – it can be done
Repeat of 408B

**701 (OH 105)**
Gamification of anatomy learning – using a tournament module to enhance the study of anatomy
Repeat of 301

**801A (OH 105)**
PhysioEx, PhILS, PowerPhys - what’s the difference? Repeat of 401A

**502 (OH 202)**
Creating lessons with the Biopac student lab system
Repeat of 102

**602 (OH 202)**
Building the lymphatic system to achieve greater understanding
Repeat of 202

**702 (OH 202)**
Teaching how the countercurrent multiplier works
Repeat of 302

**802 A (OH 202)**
Introducing the new BIOPAC MP45 – a budget busting physiology lab solution for community colleges. Repeat of 402A

**503 (OH 300)**
Using online technology to improve lab time, preparedness, and student understanding. Repeat of 103

**603 (OH 228)**
Building the muscles and tendons of the hand in clay
Repeat of 203

**703 (OH 228)**
Visual story telling: aesthetics and customization of lecture presentation
Repeat of 303

**803 A (OH 228)**
Anatomy of a multiple choice question
Repeat of 403A

**504 (OH 228)**
Physiology of a multiple choice question
Repeat of 104

**604 (KEP U7)**
Learning how to use social media effectively via an LMS/CMS
Repeat of 204

**704 (OH 300)**
Understanding cranial nerves – a comparative and developmental approach. Repeat of 304

**804A (OH 300)**Get on the list
Repeat of 404A

**505 (KH 110)**
Dry erase mats & round robins: engaging them during lab reviews
Repeat of 105

**605 (KH 110)**
Bloom’s taxonomy - a useful tool to determine cognitive level of course materials when used correctly
Repeat of 205

**705 (KH 110)**
Warning - an interactive class! - you may learn more and have fun, too. Repeat of 305

**805A (OH 141)**
Undergrads as a cheap, renewable source of energy: using peer-led teams in a large physiology class
Repeat of 405A

**506 (KH 112)**
Using learning outcome data from A&P courses to improve teaching and learning: a focus on global learning outcomes and strategies to improve critical thinking
Repeat of 106

**606 (KH 112)**
Assessing student misconceptions about homeostasis
Repeat of 206

**706 (KH 112)**
Presenting clinical topics so that students understand them
Repeat of 306

**806A (KH 111)**
The fine art of transforming your students into “anatomy & physiology nerds”

**507 (KEP L1 N&S)**
A renewable method of teaching muscles: students use website to build muscles with clay strings and inexpensive plastic skeletons

**607 (OH 300)**
Anatomia Italiana: the history of anatomy along the Italian peninsula
Repeat of 207

**707 (KEP M3)**
Presenting the anatomy of the cardiovascular and respiratory systems can also introduce the students to the regional anatomy of the thorax
Repeat of 307

**807B (OH 226)**
Investigative exercises for the human anatomy & physiology laboratory

**508 (KEP M3)**
Apes in the classroom: a comparative perspective on body composition and obesity

**608 (KEP M3)**
Using Anatomy & Physiology Revealed 3.0 + Cat Version
Repeat of 208

**708 (KEP M9)**
Bring your own device to class”: an effective modern alternative to clickers

**808B (KH 112)**
CPR: Revive writing in your classroom

**509 (OH 226)**
Developing an electromyography experiment into a more inquiry-based activity

**609 (KEP M9)**
Engaged technology and experiential learning: iPads, digital microscopy, and Internet freeware in the creation of lab atlas projects
Repeat of 209

**709 (KEP U8)**
Interactive, effective techniques for building mastery inside and outside the classroom

**510 (KEP M9)**
Improving learning skills in anatomy

**610 (KEP M10)**
Easily expand the boundaries of your LMS and broaden your students’ learning experience
Repeat of 210

**710 (KEP L1 N&S)**
Banking on the students: using google forms to establish a student-driven test bank

**511 (KEP U7)**
Assessing anatomy and physiology courses

**611 (KEP M216)**
Planned Assessment: Exam blueprinting and rubric scoring
Repeat of 211

**612 (KEP L1 N&S)**
Fast and easy ways to incorporate technology into your classrooms
Repeat of 413B

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Tuesday Workshops
Session 1 (60 min) 9:15am – 10:15am

101 Core learning and assessment using virtual anatomy software
OH 105
John Arle
Lane Community College, Science Division, 1960 Margaret St., Eugene OR 97401 USA
arlej@lanecc.edu
This workshop examines one method of integrating core anatomy learning into the curriculum from instruction through self-assessment and formal assessment with an emphasis on individual and interactive student engagement. Emerging technologies have facilitated high quality interactive student experiences that rival or even exceed traditional lab instruction particularly for institutions that cannot afford hands-on cadaver labs. Student outcomes through these methods equal or exceed other more familiar instructional methods. One software package will be modeled but others may be of equal effectiveness depending on their interactive utility.
Repeats as 501

102 Creating lessons with the Biopac student lab system
OH 202
Tim Cook and William McMullen
BIOPAC Systems, Inc., 42 Aero Camino, Goleta CA 93117
timc@biopac.com; William@biopac.com
Learn how to use the power and flexibility of the Biopac Student Lab to customize existing lessons, create your own lessons, or design independent projects. Open to current BSL users and all instructors who want to see the full extent of the Biopac Student Lab’s capabilities. No programming required, just simple pull-down menu selections and easy to set presets and preferences. The BSL PRO software allows you to perform exciting lessons on human and animal subjects. A wide range of BSL PRO lessons is downloadable from our web site—BSL PRO Lessons provide the lesson template file and lesson instructions.
Repeats as 502

103 Using online technology to improve lab time, preparedness, and student understanding
OH 300
Karen Dougherty, M.D.
Biology Department, Hopkinsville Community College, 1400 Gary Lane, Hopkinsville KY 42240 USA
kdougherty0003@kctcs.edu
This workshop will provide an opportunity for attendees to explore the new and exciting elements of Practice Anatomy Lab 3.0 and PhysioEx 9.0 within the coaching and tutorial system of MasteringA&P. This new version of PAL has major revisions to the cadaver and histology modules, as well as a new layering tool. PhysioEx contains major revisions to the user interface and the pedagogy that many instructors will find desirable and useful in their A&P courses. This workshop will include presentation of the products, how to assign them within Mastering A&P, as well as strategies for improving lab time and student preparedness.
Repeats as 503

104 Physiology of a multiple choice question
OH 228
Brian Hill
Via College of Osteopathic Medicine, 2265 Kraft Dr, Blacksburg VA 24060 USA
bhill@vcom.vt.edu
Even though they require significant time to construct, multiple choice questions are graded very easily either electronically or with an automated machine such as ScanTron. Today, even the most basic of electronic or automated grading machine produces a pile of statistics to analyze each question. This session will teach participants how to analyze these statistics to confirm the validity of each test item and how to use these statistics to tweak a question to improve its performance on future exams.
Repeats as 504
105 Dry erase mats & round robins: engaging them during lab reviews
KH 110
Tom Lehman
Coconino Community College, 889 Celilo St, Flagstaff AZ 86001 USA
tom.lehman@coconino.edu
How do you get students to review material during lab sessions and know that they’re getting it or just nodding along? I have several sessions throughout the semester where the students get a semi-structured setting of group review and practice writing out terms and listing/drawing structures. Come experience how we demonstrate retention, build confidence, and practice spelling.

Repeats as 505

106 Using learning outcome data from A&P courses to improve teaching and learning: a focus on global learning outcomes and strategies to improve critical thinking
KH 112
Lourdes Norman-McKay, Ph.D.¹ and William Hanna, Ph.D.²
¹Florida State College, 1556 Summerdown Way, Jacksonville FL 32259 USA; ²Massasoit Community College, Biology Department, 1 Massasoit Boulevard, Brockton, MA 02302-3996
Lnorman@FSCJ.edu; massasoit.bio@mac.com
If you haven’t yet felt pressure to track learning outcomes in your course, you will! Policymakers, funding entities, and accrediting bodies are requiring colleges and universities to track learning outcomes and use their data to improve teaching and learning at general education and discipline levels. Global outcomes like critical thinking are particularly under scrutiny. During last year’s presentation we focused on how we used Pearson’s Mastering A&P platform to track course learning outcomes; this year we will focus on global outcome data and strategies to strengthen student learning in fundamental areas, such as critical thinking and A&P laboratory applications.

Repeats as 506

107 Enhancing writing and critical thinking skills in the A&P classroom
KEP U7
Sarah Straud
St. Augustine’s College, Department of Biological and Physical Sciences, 1315 Oakwood Ave, Raleigh NC 27615 USA
sbstraud@st-aug.edu
Communication and critical thinking are 21st century skills necessary for undergraduate success. To foster these skills, I incorporated a series of writing assignments, combining modeling instruction and prompting, and a research paper to encourage critical thinking, synthesis of information, and proper writing skills. In the lab, a final presentation was incorporated to encourage critical data analysis and improvement of oral communication skills. In this workshop, I will discuss the pros and cons of these approaches and suggest methods for further improvement. Overall, grouping students based on individual strengths, encouraging collaboration, and setting high standards led to the greatest academic successes.

108 Teaching rigorous cadaver-based gross anatomy to undergraduates
KEP M3
David J. Able
Northern Arizona University, Department of Biology, 617 S. Beaver St, Flagstaff AZ 86011 USA
david.able@nau.edu
This workshop is meant to show how you can teach a gross anatomy class to academically accomplished upper division undergraduates, in which the students themselves perform the cadaver dissection. The course is intended for students interested in rigorous graduate and professional programs such as MD, DDS, PT, and PA. The central challenge is to design an intensive course that gives an adequate survey of gross anatomical structure, function, and clinical correlations, and that can be taught in a single semester. I cover course design, equipment, and logistics, and some pedagogy that has been successful at Northern Arizona University.

continued on next page
109 *pH is pHine!: helping students get acid-base balance*

KEP M9

Chris Boudrie
Lourdes University, 6832 Convent Blvd, Sylvania OH 43560 USA

[cboudrie@lourdes.edu](mailto:cboudrie@lourdes.edu)

Acid-Base Regulation holds prime place on the roster of challenging topics in A&P. Do your students launch into the alarm phase when you broach the topic? Do they actually understand acid-base as they move into the health sciences? Here is a simple, friendly, low budget approach to teaching acid-base fundamentals. This approach establishes the connection to intermediary metabolism, nails pH metrics, and employs brain-based learning. We’ll go through it together and then critique it.

110 *Lighten Up! (adding humor to your A&P course)*

KEP M10

Gary Heisermann

Biology Department, Salem State University, 352 Lafayette St, Salem MA 01970 USA

[giHAPS@verizon.net](mailto:giHAPS@verizon.net)

Tired of trying to “cover all the material” in your A&P lectures? Your students are likely tired of it too, so... distract them! Add a little (or a little more) humor to your classroom presentations and see how your students perk up! I will present a number of methods I have developed for “enlivening” classroom presentations. My experience has been that students are more interested and engaged when they laugh more in the classroom. We’ll have plenty of time for group discussions, so bring your own “tried and true” methods to share. Let’s keep students wondering WHAT we’ll do next!

111 *Teaching observation of anatomy and histology through illustration*

OH 226

J. Bradley Barger

Indiana University Medical Sciences Program, 1001 E 3rd St, Jordan Hall 104, Bloomington IN 47405 USA

[Jbbarger@indiana.edu](mailto:Jbbarger@indiana.edu)

Do your students have trouble identifying the important features of anatomical structures? If so, then some basic drawing instruction may be the trick to help them internalize their observations. The visual nature of anatomy requires the development of observation skills, but many students struggle with this facet of the course. I have presented basic drawing and observation skills to several semesters of introductory anatomy classes, and have seen a lot of positive feedback. This workshop will teach you the basic drawing skills you can use to introduce this study aid to your students.

Session 2 (90 min) 10:45am – 12:15 pm

201 *LabTutor 4 suite extends the laboratory experience with LabTutor online*

OH 226

Wes Colgan III1 and Ben Bouman2

ADInstruments Inc., 2205 Executive Circle, Colorado Springs, CO 80906 USA

[w.colgan@adinstruments.com; b.bouman@adinstruments.com](mailto:w.colgan@adinstruments.com; b.bouman@adinstruments.com)

LabTutor 4 suite has more functionality than ever. Come see the latest edition of ADInstruments’ innovative software that enhances teaching and learning. Centralized administration of experiments for any number of courses and sections, managing student data has never been easier. Now with the LabTutor Online Starter Pack, you can get free access for your course for a year. This allows access to pre-lab materials and post lab data analysis via the Internet. Come see how LabTutor 4 learning modules allow you and your students to get the most out of your laboratory course.
202 Building the lymphatic system to achieve greater understanding

OH 202
Teri Fleming
University of Texas Medical School, 5827 Cartagena, Houston TX 77035 USA
terifleming@comcast.net

By creating the nodes and vessels of the lymphatic system and placing them on a model, the otherwise invisible system becomes visible. For this hands-on session, you will build parts of the lymphatic system in clay and see how this method can help your students get a better understanding of the anatomy and physiology of this system. Building body systems in clay allows students to attain a true three-dimensional appreciation and understanding of the human body.

Repeats as 602

203 Building the muscles and tendons of the hand in clay

OH 228
Jon Zahourek
Zoologik® Foundation, 2198 W. 15th Street, Loveland CO 80538 USA
jz@jonzahourek.com

Develop a true three-dimensional understanding of the anatomy of the hand by building the anatomical structures in clay. In this kinesthetic, multi-media learning experience, each person shapes clay fascia, ligaments, tendons, and muscle bellies on a specially-designed model of the hand. Based on exciting insights into anatomical orientation, nomenclature and comparative anatomical pattern, you will discover the simple logic of anatomy. Relevant research on clay sculpting and other kinesthetic approaches will also be discussed. Join us for this exciting hands-on “hand” workshop.

Repeats as 603

204 Learning how to use social media effectively via an LMS/CMS integration

KEP U7
William L. Hoover II, MD and Dennis Burke
Bunker Hill Community College, 250 New Rutherford Ave, Boston, MA 02129
wlhoover@bhcc.mass.edu; dburke3070@aol.com

Social media can be a double-edged sword. However, if proper precautions are taken, and it is used effectively, learning can become interactive, student-centered, and collaborative. We will demonstrate several, creative ways in which sites like Facebook, Twitter, Tuatara and Youtube can be integrated with your LMS/CMS to improve learning outcomes and attrition rates. Simultaneously, social media will help your students network and build learning communities with their peers that may serve them for a lifetime.

Repeats as 604

205 Use and integration of iWorx physiology systems in your A&P labs

KH110
Judi D’Aleo
iWorx Systems, Inc., 62 Littleworth Rd, Dover NH 03820 USA
judid@iworx.com

Learn how easy it is to integrate Student Recording and Experiment Design using iWorx. iWorx makes it simple to record and analyze physiological data. Features make the selection of pertinent data effortless; allow simultaneous measurement from multiple channels; and make measuring ECGs, EMGs or lung volumes very easy. Included instructions, illustrations, and websites assist students in performing an experiment — all with the click of a button. While recording, change display times, pause the data to take measurements, or work in an on-screen notebook. The focus on Arm Wrestling and EMG activity will make for a fun and exciting workshop.

continued on next page
206 Assessing student misconceptions about homeostasis

Jenny McFarland1 and Ann Wright2
1Edmonds Community College, 20000 68th Avenue West, Lynnwood WA 98036-5999 USA
2Canisius College, 2001 Main Street, Buffalo NY 14208
jmcfarla@email.edcc.edu; wrighta@canisius.edu

Homeostasis is a core principle in physiology. Students often struggle to understand, apply and generalize this concept. We will (1) share a conceptual framework for homeostasis to improve student learning, (2) explore common student misconceptions that interfere with students' understanding of homeostasis and (3) demonstrate how misconceptions can be used to assess students' understanding of homeostasis. We are developing a concept inventory to diagnose areas of conceptual difficulty prior to instruction, and to evaluate changes in conceptual understanding related to change in instructional strategy. We will share our results to date and our future plans. Supported by NSF grant DUE-1043443.

Repeats as 606

207 Anatomia Italiana: the history of anatomy along the Italian peninsula

Kevin Petti, Ph.D.
San Diego Miramar College, 6222 Lake Atlin Ave, San Diego, CA 92126-2999 USA
kpetti@sdccd.edu

Human anatomy as a discipline studied by university students began along the Italian peninsula almost 800 years ago. Physicians along with painters and sculptors from across Europe traveled to these institutions for direct observation of the human form via dissection. Eventually, there was a desire to supplant the ephemeral corpse with a nonperishable substitute. An anatomically detailed and artistically stunning collection of waxwork models was the result. This lecture is a virtual tour of these centuries-old dissection theaters and waxwork collections that exist today, and tells a scientific and cultural story that is confined to the Italian peninsula.

Repeats as 607

208 Using Anatomy & Physiology Revealed 3.0 + Cat Version

Greg Reeder
Broward College, 11066 NW 8th Ct, Coral Springs FL 33071 USA
greeder@broward.edu

Most of us are limited in our teaching of ‘human’ anatomy to the use of plastic models or animals (requiring students to make the connections). In this workshop, you will be able to access the best-selling virtual cadaver dissection product (now customizable), and go hands-on. Come see how easy it is to use. This workshop will let exciting new information “out of the bag” regarding the Anatomy & Physiology Revealed Cat Version that will be available this summer.

Repeats as 608

209 Engaged technology and experiential learning: iPads, digital microscopy, and Internet freeware in the creation of lab atlas projects

Todd C. Shoepe
Loyola Marymount University, Department of Health and Human Sciences, 1 LMU Dr, MS 8160, Los Angeles CA 90045 USA
tshoepe@lmu.edu

Self-paced project-based learning is an effective method of instruction that engages students in personal, constructed, experiences. We will see how students can learn how to create a personalized photographic atlas by the acquisition of specimen images taken with iPads and digital microscope cameras, transfer these to laptops, complete an editing and labeling activity, journal them in Blackboard blog spaces for instructor feedback, and then compile them into a digital book using Internet publishing freeware (bookemon.com). The initiation of this project was supported through the HAPS Faculty Research Award, 2011. Current efficacy studies are still underway.

Repeats as 609
210 Easily expand the boundaries of your LMS and broaden your students’ learning experience
KEP M10
Steve Sullivan
Bucks County Community College, 275 Swamp Road, Newtown PA 18940 USA
sullivan@bucks.edu
Are you limited by what your LMS allows you to do and how it organizes your content? Are you nervous that you’ll have to start from scratch if your school changes learning management systems? Do you think your students would relate more to content if they could obtain access to it in a way that’s more familiar to them? I got sick of rebuilding my sites even though I was told “everything would import easily”. I’ll show you what I did to break the chains of my school’s LMS while still using it enough to placate my administration.

Repeats as 610

211 Planned Assessment: Exam blueprinting and rubric scoring
KEP M216
Margaret A. Weck
St. Louis College of Pharmacy, 4588 Parkview Pl, St. Louis MO 63110 USA
Margaret.Weck@stlcop.edu
Students know that what is important is what they get tested over. In this workshop we will provide brief overviews of some tools making assessments of student learning more systematic, including exam blueprinting and rubric scoring. As we shall see a side benefit is that these tools also help in clearly communicating to students what we think is essential for every passing student to know and be able to do with the content and concepts that we teach. Time will be provided for participants to develop their own rubrics or blueprints tailored to their specific student populations.

Repeats as 611

212 The HAPS POGIL project: developing and using teaching modules that promote conceptual understanding through group learning and inquiry
OH 105
Dr. Murray Jensen¹, Dr. Ron Gerrits², and Dr. Jon Jackson³
¹University of Minnesota, 206 Burton Hall, 178 Pillsbury Dr, SE Minneapolis MN 55455 USA
²Milwaukee School of Engineering, 1025 North Broadway, Milwaukee WI 53202 USA
³University of North Dakota School of Medicine, Dept of Anatomy & Cell Biology, University of North Dakota, Grand Forks ND 58202-9037 USA
msjensen@umn.edu; gerrits@msoe.edu; jackson@medicine.nodak.edu
Process Oriented Guided Inquiry Learning (POGIL) is a teaching and learning strategy that combines cooperative group activities with constructivist learning theory. That may sound complicated, but the process provides easy-to-use teaching materials that promote active learning. Recent NSF grant funding has allowed a group of HAPS members to develop POGIL curriculum modules for each body system. This session will focus on how to use the POGIL strategy with your students and also discuss details of the NSF POGIL grant which will be completed by June, 2013. A few draft POGIL activities will be distributed during this workshop.

Repeats as 413B

213 Overcoming student and faculty hurdles in the world of team based learning
OH 231
M. McManus and C. D’Ippolito
Nesbitt College of Pharmacy & Nursing, Wilkes University, 84 W. South St, Wilkes-Barre PA 18766 USA
mary.mcmanus@wilkes.edu; christina.dippolito@wilkes.edu
Students and faculty must embrace the rapidly changing bodies of knowledge and technology. The learning environment has adopted competency based outcomes for demonstration of student learning. Team based learning in the interprofessional training of health care practitioners is being widely advocated. Approaches to integrating these techniques within and outside of the classroom will be presented from a faculty and student perspective. This includes the benefits and pitfalls of implementing this within a curriculum which is content dense. Examples, resources and discussions focused on mastering physiology will be highlighted.

continued on next page
301 Gamification of anatomy learning – using a tournament module to enhance the study of anatomy

Daniel Belliveau
Western University, School of Health Studies, London ON, N6A 5B9 Canada
dbellive@uwo.ca

The use of game-like settings to practice learned principals in a course such as anatomy has offered a stimulating and entertaining learning environment as popular game show templates such as Jeopardy or Trivial Pursuit has provided edutainment value. In this workshop we will explore an online tournament module that offers participants an opportunity to compete head-to-head in a race to anatomy supremacy! During the workshop, participants will be able to work with the tournament module and learn how to organize practice sessions and tournament game play. Bring your laptop, smartphone or tablet to take full advantage of the experience.

Repeats as 701

302 Teaching how the countercurrent multiplier works

John Cornell
Saint Cloud State University, Department of Biological Sciences, 720 Fourth Ave. South, Saint Cloud MN 56301 USA
jccornell@stcloudstate.edu

Although the basic mechanism of the countercurrent multiplier has been understood for many years, it still remains a challenge to present this to a beginning student. The author has addressed this problem by developing an exercise to accompany a simple computer program. The program demonstrates how the gradient is formed and why long Loops of Henle allow desert mammals, such as the Kangaroo rat, to produce urine that is five times as concentrated as our own. You may wish to bring a calculator.

Repeats as 702

303 Visual story telling: aesthetics and customization of lecture presentation

Kaushik (KASH) Dutta
University of New England, Dept. of Biology, 11 Hills Beach Rd, Biddeford, ME 04005 USA
kdutta@une.edu

One of the exciting, yet difficult decisions in teaching a visually intensive course like Anatomy and Physiology is choosing and customizing publisher-provided ancillary resources, as well as developing one’s own materials. Quality visual presentations play a major role in generating meaningful classroom experiences for students. This workshop will focus on incorporating design elements, static and dynamic figures, and simple animations for creating visually engaging lecture presentations that leverage student curiosity to improve learning. The presenter will make extensive use of Apple’s Keynote software to deliver this workshop. However, the principle ideas are applicable to any platform with multimedia capability.

Repeats as 703

304 Understanding cranial nerves – a comparative and developmental approach

Mark Nielsen
University of Utah, Department of Biology, 257 South 1400 East, Salt Lake City UT 84112 USA
marknielsen@bioscience.utah.edu

When teaching and learning cranial nerves we often encounter fancy mnemonic devices accompanied by tables of information regarding the twelve cranial nerves. While these mnemonic devices can help summarize the tables of information, there is still a lot of detailed memorization that has to accompany the learning process. This presentation illustrates structural patterns, which arise during the evolution of the nervous system that can clarify the structure of cranial nerves. You will learn that the cranial nerves are more primitive than the more derived spinal nerves, and the structural patterns will clarify the distribution and functional components of cranial nerves.

Repeats as 704
305 Warning - an interactive class! - you may learn more and have fun, too.
KH 110
Santa Makstenieks
Concordia University, Natural Science Department, 12800 North Lake Shore Dr, Mequon, WI 53097-2402 USA
santa.makstenieks@cuw.edu
Students say about classroom response pads (clickers) that “…clickers allow for entertaining way of reviewing the in-class material, …help to stay in focus, …give regular feedback”. Perceptions of this tool and learning outcomes, along with student learning behaviors outside class, have been studied now for 2 consecutive years in my A&P classes. I will share the findings of this study and will demonstrate some pedagogical approaches that have worked well and not so well in class. And yes, we will be clicking! If you are a user of this tool, please come with your ideas.

Repeats as 705

306 Presenting clinical topics so that students understand them
KH 112
Cindy Stanfield
University of South Alabama, Department of Biomedical Sciences, 5721 USA Drive North, Rm 4004, Mobile AL 36688 USA
cthursto@usouthal.edu
A challenge to all college instructors is to generate student interest and keep them attentive during class. Most anatomy and physiology instructors use clinical topics as one way to do this. However, presenting diseases to students to generate interest can often turn complex very quickly. One approach is to move gradually into the topic and increase the depth of knowledge, either in a single lecture or throughout the course. Both approaches will be addressed.

Repeats as 706

307 Presenting the anatomy of the cardiovascular and respiratory systems can also introduce the students to the regional anatomy of the thorax.
KEP M3
Anthony J. Weinhaus
University of Minnesota, Department of Integrative Biology & Physiology, 6-125 Jackson Hall, 321 Church St SE, Minneapolis MN 55455-0328 USA
weinh001@umn.edu
Most Anatomy and A & P courses are taught by systems. Some courses are taught by regions - which incorporate surface anatomy and spatial relationships of the contents. In my systems-based course, students’ evaluations rate highly a presentation of the cardiovascular and respiratory systems through an interactive session on the regional anatomy of the thorax. This helps the students consider the positions and spatial relationships of all the organs in the thorax. The use of surface anatomy is also used to identify the divisions of the mediastinum, and location of the organs and structures within the thorax.

Repeats as 707

308 What’s new in physiology and anatomy?
KEP M9
Katja Hoehn
Mount Royal University, 4825 Mount Royal Gate SW, Calgary, AB, Canada T3E6K6
khoehn@mroyal.ca
The last 3-4 years have seen many exciting developments in the areas of A&P. In this fly-through overview, I will present my list of the most interesting new developments in this vast field. Some of the items on my list will be updates applicable to the classroom, but for a select few I will delve into more detail. While my focus will be on basic science, I will also present the clinical relevance of some of these new developments.
309 Assessing and remediating a&p students before they enroll in A&P
KEP M10
Lori K. Garrett
Parkland College, Natural Sciences Department, 2400 West Bradley Ave, Champaign IL 61821 USA
LGarrett@parkland.edu
We are frustrated by students who, often through no fault of their own, are woefully underprepared for the rigor of A&P. Rarely can we require prerequisites to improve student success. In an academic atmosphere that increasingly emphasizes completion and retention, we realize many students will fail and repeat the course, or we’ll lose them forever. Come discover a powerful solution to this nationwide problem. MyReadinessTest for A&P is a comprehensive system with four goals: Assess pre-A&P students’ proficiency in foundational science and study skills; Remediate in core areas with practice and review; Improve confidence; Improve student (thus our own) success.

310 Histopathology: for undergraduates?
KEP M1
Nina Zanetti
Siena College, Department of Biology, 515 Loudon Rd, Loudonville NY 12211 USA
zanetti@siena.edu
Can histopathology be used to help undergraduates learn basic subjects, such as anatomy, histology, biodiversity, and embryology? We will explore this question with a series of slide presentations and sample workshop activities. Participants will have the opportunity to practice interpreting photomicrographs of pathological specimens and relating these specimens to fundamental undergraduate topics, such as mitosis, tissue identification, organelles, taxonomy, and embryology. We’ll consider how a histopathological approach aids in visual learning of the material, as well as how these applications reinforce the students’ mastery of basic histology.

311 Virtual anatomy: maximizing student learning and assessment using online interactive tools
KEP U8
Nora Hebert
Red Rocks Community College, 5420 Miller St, Arvada CO 80002 USA
nora.hebert@rrcc.edu
Practice Anatomy Lab can be used in the classroom as a supplement to available materials; outside the classroom as a way for students to prepare and study for lab; or as a way to present a virtual lab in an online course. Come explore the many ways you can easily build an interactive learning environment and create on-line assessments for your students using PAL 3.0 and Mastering A&P.

312 Using forensic digital microscopy for teaching critical thinking and clinical reasoning in anatomy & physiology
KEP M216
Dr. Brian R. Shmaefsky¹ and Cyndi-Syverson Mercer²
¹Lone Star College - Kingwood College, 20000 Kingwood Drive, Kingwood TX 77339-3801 USA
²Director of Marketing and Catalog Sales, Swift Optical Instruments, Inc., 11113 Landmark 35 Dr, San Antonio TX
Brian.r.shmaefsky@lonestar.edu; Cynthia@swiftoptical.com
Digital microscopy is a powerful tool for teaching critical thinking and reinforcing clinical reasoning skills. Inquiry-based instruction related to clinical reasoning can be achieved with simple instructional activities using inexpensive forensic microscopy techniques. This interactive presentation will demonstrate field-tested classroom case studies, demonstrations, and laboratory activities that reinforce student content knowledge of histology, pathology, and general A&P principles. Demonstrated in this presentation are the Swift Optical M3-F forensic microscope, Swiftcam 2, and Motic software as inquiry-based learning tools. Learn how easy it is to use microscope and software and make it work with your existing technology and interactive whiteboards.
Session 4 (60 min or 90 min): A 2:45pm – 3:45pm or B 2:45pm – 4:15pm

401A PhysioEx, PhILS, PowerPhys - what's the difference?
KEP M10
Betsy C. Brantley
Valencia College, 4630 S. Kirkman Rd, #241, Orlando FL 32811 USA
bbrantley3@valenciacollege.edu
Are all virtual physiology lab products the same? This workshop gives an overview and review of three products: PhysioEx (Pearson), PhILS (McGraw-Hill), and PowerPhys (Wiley). Participants will have an opportunity for hands-on experience with each product.
Repeats as 801A

402A Introducing the new BIOPAC MP45 – a budget busting physiology lab solution for community colleges
OH 202
Tim Cook and William McMullen
BIOPAC Systems, Inc., 42 Aero Camino, Goleta CA 93117
timc@biopac.com; William@biopac.com
The new handheld MP45 is the latest addition to the Biopac Student Lab family. The powerful two-channel system works with BIOPAC’s extensive curriculum library and broad range of transducers. The MP45 connects to the computer via USB to receive power and transmit data. Like all BSL products, the system is intuitive and extremely robust. There are no knobs, dials, or switches to confuse students, just a USB cord and two ports to connect transducers and electrodes. Connect the USB, launch a BSL Lesson, and start recording data. Attend the workshop and be amazed by the power, flexibility and budget-beating price.
Repeats as 802A

403A Anatomy of a multiple choice question
OH 228
Brian Hill
Via College of Osteopathic Medicine, 2265 Kraft Dr, Blacksburg VA 24060 USA
bhill@vcom.vt.edu
As instructors, we test our students regularly, often utilizing multiple choice exams. Many of us merely imitate our former instructors in terms of constructing multiple choice questions as we have had no formal training in this area. This session will focus on writing better exam questions by presenting the best practices for construction of multiple choice questions. Particular emphasis will be placed on the item writing guidelines used by standardized exams such as the Medical College Admissions Test (MCAT), Veterinarian College Admissions Exam (VCAT), Graduate Record Exam (GRE), etc.
Repeats as 803A

404A Get on the list
OH 300
Jason LaPres
Lone Star College - University Park, 11923 Canyon Valley Dr, Tomball TX 77377 USA
texashapster@yahoo.com
This workshop is intended to go through the steps in signing up for the HAPS-L listserv. Also, best practices will be shown on how to set up the HAPS-L listserv so it doesn’t control your inbox and your life. If you want to be on the listserv, but you are unsure how to sign up, have tried to sign up unsuccessfully, or if you don’t want to have your inbox “flooded”, this workshop is for you.
Repeats as 804A

continued on next page
Undergrads as a cheap, renewable source of energy: using peer-led teams in a large physiology class
OH 141
Kevin T. Strang
University of Wisconsin-Madison, Department of Physiology and Neuroscience, 1300 University Ave, Madison WI 53706 USA
kstrang@wisc.edu

A best-practice in teaching involves incorporating peer-to-peer collaborative learning into courses. While this can be used in class, many instructors are reluctant to surrender precious lecture time. Group learning activities designed to occur outside of class, however, often suffer from lack of student motivation or preparation for group work. In this workshop I will describe a program developed over the past 12 years in my large physiology class that enlists experienced and enthusiastic undergraduates to really make group learning work. Among the many positive outcomes discussed will be improvements in student performance, sense of community, and faculty satisfaction.

406B Expand your labs with iWorx data recording systems
KH 110
Judi D’Aleo
iWorx Systems, Inc. 62 Littleworth Rd, Dover NH 03820, USA
judid@iworx.com

This workshop will show you how easy it is to record and analyze data for Physiology, Biology, Metabolism, and Psychophysiology. Using the iWorx Data Recording Systems and LabScribe software, come learn how easy it is and how much fun you can have with your students doing live recordings of many different living systems. We will record and analyze live data from a subject and explore additional equipment that can be used to take your students to new levels of learning. This is an advanced workshop for those already using iWorx systems in their labs.

Using electromyography to demonstrate skeletal muscle physiology
OH 226
Eileen Bush, Aaron Fried, and William Perrotti
Mohawk Valley Community College, Department of Life and Health Sciences, 1101 Sherman Dr, Utica NY 13501 USA
ebush@mvcc.edu; afried@mvcc.edu; wperrotti@mvcc.edu

This is a demonstration of a customized laboratory exercise used at MVCC that replaces the traditional frog gastrocnemius muscle laboratory activity. Using an ADInstruments data acquisition system the activity of the triceps, biceps, and flexor digitorum superficialis muscles will selectively be recorded during specific maneuvers. In small groups, participants will actively predict and test hypotheses concerning muscle electrophysiology, as it pertains to isotonic and isometric contractions of muscles. Participants will then analyze their EMG data to answer questions about the agonist/antagonist relationship between the biceps and triceps. Participants will also test grip force fatigue in the forearm.

Entice and excite our students – it can be done
KH 112
Nahel Awadallah 1 and Mark X Vancura M.S., J.D., Ph.D. 2
1Johnston Community College, 2112 Edinborough Rd, Rocky Mount NC 27803 USA, 2Cape Fear Community College, 411 N Front St, Wilmington NC 28401
nwawadallah@johnstoncc.edu; mvancura@cfcc.edu

The field of medical simulation is growing at a geometric rate. The number of students enrolled in anatomy and physiology classes and preparing for medical and allied health careers parallels that growth. Medical simulators and virtual dissections allow students to learn “living physiology” that will excite and entice their curiosity. The iPod generation embraces technology; therefore, our assessment strategies and teaching methodology must integrate technology. Technology can help us with virtual dissections, effective assessment and feedback, and medical simulations. We will show you how to do it in one session and still retain your students and have fun teaching anatomy.

Repeats as 805A
Repeats as 601
409B I’m not a medical doctor, but I play one in A&P!
KEP M3
Kyla Turpin Ross
Georgia State University, P.O. Box 4010, Atlanta GA 30302 USA
kross@gsu.edu
Concerned you are unqualified to write a clinical case study because you don’t have a medical degree? Want to use cases in your A&P course, but aren’t sure how? Then join us for a hands-on workshop exploring how to create clinical case studies for your A&P course by adapting cases from the New England Journal of Medicine (NEJM). We will discuss how to use cases to promote active learning in any classroom, determine ways to assess student learning using cases, and develop a case from the NEJM. Then, watch your students thrive as everyone plays “House” in A&P!

410B Human physiology with Vernier
KEP M216
John Melville
Vernier Software & Technology, 13979 SW Millikan Way, Beaverton OR 97005 USA
jmelville@vernier.com
In this hands-on workshop, you will learn how easy it is to integrate Vernier technology into your Human Anatomy and Physiology curriculum. Activities from our Human Physiology with Vernier lab book will be performed using a variety of easy-to-use and affordable sensors. Come try our intuitive and innovative products, including Logger Pro software, LabQuest, and LabQuest Mini.

411B Assessment…that was easy!
KEP M9
Tracy Young
Middlesex County College, 2600 Woodbridge Ave, Edison NJ 08818 USA
tyoung@middlesexcc.edu
Assessment and Accreditation: The dreaded “A” words. If you are wondering: How do we begin this process? How do I get all of my colleagues on board? How do I manage and analyze the data? We will show you how to easily create assessment assignments by choosing pre-populated questions linked to LEARNING OUTCOMES, how to distribute the assignment to every student in every section (no matter how many sections and/or instructors), and how to collect performance results and run reports for the accreditation portfolio. Come see how painless it can be.

412B Get your students involved with concept mapping in the classroom
KEP U8
Ellen Lathrop-Davis and Ewa Gorski, Ph.D.
Community College of Baltimore County, 800 South Rolling Rd, Baltimore MD 21228 USA
elathrop@ccbc.edu; egorski@ccbc.edu
Join us for this interactive workshop and explore concept mapping as a strategy for engaging students in their own learning. This workshop will introduce you to effective techniques for getting your students involved, including whole-class kinesthetic concept mapping, small group concept mapping, individual concept mapping, and mapping of visual images.
413B The HAPS POGIL project: developing and using teaching modules that promote conceptual understanding through group learning and inquiry
OH 105
Dr. Murray Jensen¹, Dr. Ron Gerrits², and Dr. Jon Jackson³
¹University of Minnesota, 206 Burton Hall, 178 Pillsbury Dr, SE Minneapolis MN 55455 USA
²Milwaukee School of Engineering, 1025 North Broadway, Milwaukee WI 53202 USA
³University of North Dakota School of Medicine, Dept of Anatomy & Cell Biology, University of North Dakota, Grand Forks ND 58202-9037 USA
msjensen@umn.edu; gerrits@msoe.edu; jackson@medicine.nodak.edu

Process Oriented Guided Inquiry Learning (POGIL) is a teaching and learning strategy that combines cooperative group activities with constructivist learning theory. That may sound complicated, but the process provides easy-to-use teaching materials that promote active learning. Recent NSF grant funding has allowed a group of HAPS members to develop POGIL curriculum modules for each body system. This session will focus on how to use the POGIL strategy with your students and also discuss details of the NSF POGIL grant which will be completed by June, 2013. A few draft POGIL activities will be distributed during this workshop.

Repeats as 213

414B Fast and easy ways to incorporate technology into your classrooms
KEP L1N&S
Terry A. Austin
Temple College, 3116 River Place Dr, Belton TX 76513 USA
taaustin@templejc.edu

The age of technology is here to stay. It has proven to raise grades. Your students have it incorporated in their other classes, and you want to do the same in yours. In this session a Pearson Faculty Advisor will help you set-up a Pearson MasteringA&P site, and get your basic set up in just a few minutes. The rest of the time will be spent to go over easy ways you can use MasteringA&P and the technology that it contains to help your students inside and outside the classroom improve their A&P experience and grades.

Repeats as 612

Wednesday Workshops
Session 5 (60 min) 9:00am – 10:00am

501 Core learning and assessment using virtual anatomy software
OH 105
John Arle
Lane Community College, Science Division, 1960 Margaret St., Eugene OR 97401 USA
arlej@lanec.edu

This workshop examines one method of integrating core anatomy learning into the curriculum from instruction through self-assessment and formal assessment with an emphasis on individual and interactive student engagement. Emerging technologies have facilitated high quality interactive student experiences that rival or even exceed traditional lab instruction particularly for institutions that cannot afford hands-on cadaver labs. Student outcomes through these methods equal or exceed other more familiar instructional methods. One software package will be modeled but others may be of equal effectiveness depending on their interactive utility.

Repeat of 101

continued on next page
502 Creating lessons with the Biopac student lab system
OH 202
Tim Cook and William McMullen
BIOPAC Systems, Inc., 42 Aero Camino, Goleta CA 93117
timc@biopac.com; William@biopac.com
Learn how to use the power and flexibility of the Biopac Student Lab to customize existing lessons, create your own lessons, or design independent projects. Open to current BSL users and all instructors who want to see the full extent of the Biopac Student Lab's capabilities. No programming required, just simple pull-down menu selections and easy to set presets and preferences. The BSL PRO software allows you to perform exciting lessons on human and animal subjects. A wide range of BSL PRO lessons is downloadable from our web site—BSL PRO Lessons provide the lesson template file and lesson instructions.
Repeat of 102

503 Using online technology to improve lab time, preparedness, and student understanding
OH 300
Karen Dougherty, M.D.
Biology Department, Hopkinsville Community College, 1400 Gary Lane, Hopkinsville KY 42240 USA
kdougherty0003@kctcs.edu
This workshop will provide an opportunity for attendees to explore the new and exciting elements of Practice Anatomy Lab 3.0 and PhysioEx 9.0 within the coaching and tutorial system of MasteringA&P. This new version of PAL has major revisions to the cadaver and histology modules, as well as a new layering tool. PhysioEx contains major revisions to the user interface and the pedagogy that many instructors will find desirable and useful in their A&P courses. This workshop will include presentation of the products, how to assign them within MasteringA&P, as well as strategies for improving lab time and student preparedness.
Repeat of 103

504 Physiology of a multiple choice question
OH 228
Brian Hill
Via College of Osteopathic Medicine, 2265 Kraft Dr, Blacksburg VA 24060 USA
bhill@vcom.vt.edu
Even though they require significant time to construct, multiple choice questions are graded very easily either electronically or with an automated machine such as ScanTron. Today, even the most basic of electronic or automated grading machine produces a pile of statistics to analyze each question. This session will teach participants how to analyze these statistics to confirm the validity of each test item and how to use these statistics to tweak a question to improve its performance on future exams.
Repeat of 104

505 Dry erase mats & round robins: engaging them during lab reviews
KH 110
Tom Lehman
Coconino Community College, 889 Celilo St, Flagstaff AZ 86001 USA
tom.lehman@coconino.edu
How do you get students to review material during lab sessions and know that they’re getting it or just nodding along? I have several sessions throughout the semester where the students get a semi-structured setting of group review and practice writing out terms and listing/drawing structures. Come experience how we demonstrate retention, build confidence, and practice spelling.
Repeat of 105

continued on next page
506 Using learning outcome data from A&P courses to improve teaching and learning: a focus on global learning outcomes and strategies to improve critical thinking

KH 112
Lourdes Norman-McKay, Ph.D.1 and William Hanna, Ph.D.2
1Florida State College, 1556 Summerdown Way, Jacksonville FL 32259 USA; 2Massasoit Community College, Biology Department, 1 Massasoit Boulevard, Brockton, MA 02302-3996
Lnorman@FSCJ.edu; massasoit.bio@mac.com

If you haven’t yet felt pressure to track learning outcomes in your course, you will! Policymakers, funding entities, and accrediting bodies are requiring colleges and universities to track learning outcomes and use their data to improve teaching and learning at general education and discipline levels. Global outcomes like critical thinking are particularly under scrutiny. During last year’s presentation we focused on how we used Pearson’s MasteringA&P platform to track course learning outcomes; this year we will focus on global outcome data and strategies to strengthen student learning in fundamental areas, such as critical thinking and A&P laboratory applications.

Repeat of 106

507 A renewable method of teaching muscles: students use website to build muscles with clay strings and inexpensive plastic skeletons

KEP L1 N&S
Sandy Zetlan and Marsha Segerberg
Estrella Mountain Community College, 3000 North Dysart Rd, Avondale AZ 85392 USA
sandy.zetlan@estrellamountain.edu; marsha.segerberg@estrellamountain.edu

No more expensive cadavers, cats, or plastic models. Students learn muscle origins and insertions, and derive actions, by applying clay strings to small plastic skeletons. You will extrude clay, build muscles, and get access to our muscle web site, crib sheets, and printable flash cards, while utilizing existing on-line animations to learn to teach muscle anatomy in a hands-on, inexpensive, and renewable way suitable for in-class or on-line learning.

508 Apes in the classroom: a comparative perspective on body composition and obesity

KEP M3
Robin McFarland
Cabrillo College, 3050 Center Street, Soquel CA 95073 USA
romcfarl@cabrillo.edu

There is widespread recognition of the prevalence of human obesity and associated diseases. This workshop presents results of studies of body composition in great apes: gorillas, orangutans, and chimpanzees. Muscle and fat mass varies among species as a result of divergent ecological adaptations and evolutionary histories. Parallel to humans, body composition in apes also varies with age and sex. For students of anatomy and physiology, ape studies provide insight into why humans can become so fat. The information contributes to a discussion of the evolutionary context for human obesity and related diseases.

509 Developing an electromyography experiment into a more inquiry-based activity

OH 226
Aaron Fried1 and Wes Colgan III2
1Mohawk Valley Community College, Department of Life and Health Sciences, 1101 Sherman Dr, Utica, NY 13501 USA
afried@mvcc.edu
2ADInstruments, 2205 Executive Circle, Colorado Springs, CO 80906 USA
wcolgan@adinstruments.com

This demonstration will show the necessary steps needed to plan, customize, develop, and deploy an EMG laboratory exercise using ADInstruments data acquisition software. This session will focus on the process of refining goals for the experiment as well as the development of the experiment within the ADInstruments LabAuthor system. We will focus on presenting practical examples of how LabAuthor works including asset management, content editing, and experiment deployment. This presentation also tracks a change in delivery methodology towards a more inquiry-based approach.
510 Improving learning skills in anatomy  
KEP M9  
Audra Schutte  
Indiana University Medical Sciences Program, 1001 East 3rd Street, Jordan Hall 104, Bloomington IN 47405 USA  
afschutt@umail.iu.edu  
Are there students in your A&P course that don’t know how to study effectively and struggle to truly learn material? Do you have students repeating the course that could use extra help? Learn about some techniques you can implement as I discuss my supplemental course, MSCI M100: Improving Learning Skills in Anatomy. Because a course like this is not always available, this workshop will discuss possibilities for incorporating such activities into typical A&P courses.

511 Assessing anatomy and physiology courses  
KEP U7  
Dr. Maria Squire  
The University of Scranton, Loyola Hall, 800 Linden St, Scranton, PA 18510 USA  
maria.squire@scranton.edu  
Assessment has become a priority at many colleges and universities. For the past few years, I have been leading efforts to implement an assessment plan for the 2-semester Structure and Function course at The University of Scranton. We administer a 100 question pre-test (fall) and post-test (spring) and are working on developing course-wide objectives. If you are also working on assessment at your institution, come and share your experiences. What works well? What challenges do you face at the departmental level? What challenges do you face at the college/university level? Come and share your ideas and expertise!

Session 6 (90 min) – 10:30am – 12:00pm

601 Entice and excite our students – it can be done  
OH 226  
Nahel Awadallah1 and Mark X Vancura M.S., J.D., Ph.D. 2  
1Johnston Community College, 2112 Edinborough Rd, Rocky Mount NC 27803 USA, 2Cape Fear Community College, 411 N Front St, Wilmington NC 28401  
nwawadallah@johnstoncc.edu; mvancura@cfcc.edu  
The field of medical simulation is growing at a geometric rate. The number of students enrolled in anatomy and physiology classes and preparing for medical and allied health careers parallels that growth. Medical simulators and virtual dissections allow students to learn “living physiology” that will excite and entice their curiosity. The iPod generation embraces technology; therefore, our assessment strategies and teaching methodology must integrate technology. Technology can help us with virtual dissections, effective assessment and feedback, and medical simulations. We will show you how to do it in one session and still retain your students and have fun teaching anatomy.  
Repeat of 408B

602 Building the lymphatic system to achieve greater understanding  
OH 202  
Teri Fleming  
The University of Texas Medical School, 5827 Cartagena, Houston TX 77035 USA  
terifleming@comcast.net  
By creating the nodes and vessels of the lymphatic system and placing them on a model, the otherwise invisible system becomes visible. For this hands-on session, you will build parts of the lymphatic system in clay and see how this method can help your students get a better understanding of the anatomy and physiology of this system. Building body systems in clay allows students to attain a true three-dimensional appreciation and understanding of the human body.  
Repeat of 202
603 Building the muscles and tendons of the hand in clay
JOHNNY HOPKINS
JOHN HOPKINS UNIVERSITY, 14 S. E. 37TH ST., BALTIMORE, MD 21212 USA

Develop a true three-dimensional understanding of the anatomy of the hand by building the anatomical structures in clay. In this kinesthetic, multi-media learning experience, each person shapes clay fascia, ligaments, tendons, and muscle bellies on a specially-designed model of the hand. Based on exciting insights into anatomical orientation, nomenclature and comparative anatomical pattern, you will discover the simple logic of anatomy. Relevant research on clay sculpting and other kinesthetic approaches will also be discussed. Join us for this exciting hands-on "hand" workshop.

Repeat of 203

604 Learning how to use social media effectively via an LMS/CMS integration
KELLY BURKE II, MD and DENNIS BURKE
BUNKER HILL COMMUNITY COLLEGE, 250 NEW RUTHERFORD AVE., BOSTON, MA 02129

Social media can be a double-edged sword. However, if proper precautions are taken, and it is used effectively, learning can become interactive, student-centered, and collaborative. We will demonstrate several, creative ways in which sites like Facebook, Twitter, Tuatara and YouTube can be integrated with your LMS/CMS to improve learning outcomes and attrition rates. Simultaneously, social media will help your students' network and build learning communities with their peers that may serve them for a lifetime.

Repeat of 204

605 Bloom's taxonomy - a useful tool to determine cognitive level of course materials when used correctly
KH 110
JANET CASAGRAND and HEIDI BUSTAMANTE
UNIVERSITY OF COLORADO, DEPT. OF INTEGRATIVE PHYSIOLOGY, 1725 PLEASANT ST., BOULDER CO 80309-0354 USA

Bloom's taxonomy is a widely accepted tool for delineating understanding into six cognitive levels: knowledge/remember, comprehension/understand, application/apply, analysis/analyze, synthesis/create, and evaluation/evaluate. Bloom's taxonomy offers a means for developing assessments at appropriate levels; categorizing levels targeted by learning objectives or assessments; and assessing curricular alignment. Although Bloom's taxonomy can be a useful tool, there can be confusion/misconceptions when 'Blooming' course materials. For example, a question may be higher level initially, but if given again becomes merely remember level. After discussing the categories, participants will work with a dichotomous key and sample questions. Participants are encouraged to bring their own course materials.

606 Assessing student misconceptions about homeostasis
KH 112
JENNY MCFARLAND and ANN WRIGHT

Homeostasis is a core principle in physiology. Students often struggle to understand, apply and generalize this concept. We will (1) share a conceptual framework for homeostasis to improve student learning, (2) explore common student misconceptions that interfere with students' understanding of homeostasis and (3) demonstrate how misconceptions can be used to assess students' understanding of homeostasis. We are developing a concept inventory to diagnose areas of conceptual difficulty prior to instruction, and to evaluate changes in conceptual understanding related to change in instructional strategy. We will share our results to date and our future plans. Supported by NSF grant DUE-1043443.

Repeat of 206
Anatomia Italiana: the history of anatomy along the Italian peninsula

Kevin Petti, Ph.D.
San Diego Miramar College, 6222 Lake Atlin Ave, San Diego, CA 92126-2999 USA
kpetti@sdccd.edu

Human anatomy as a discipline studied by university students began along the Italian peninsula almost 800 years ago. Physicians along with painters and sculptors from across Europe traveled to these institutions for direct observation of the human form via dissection. Eventually, there was a desire to supplant the ephemeral corpse with a nonperishable substitute. An anatomically detailed and artistically stunning collection of waxwork models was the result. This lecture is a virtual tour of these centuries-old dissection theaters and waxwork collections that exist today, and tells a scientific and cultural story that is confined to the Italian peninsula.

Repeat of 207

Using Anatomy & Physiology Revealed 3.0 + Cat Version

KEP M3
Greg Reeder
Broward College, 11066 NW 8th Ct, Coral Springs FL 33071 USA
greeder@broward.edu

Most of us are limited in our teaching of ‘human’ anatomy to the use of plastic models or animals (requiring students to make the connections). In this workshop, you will be able to access the best-selling virtual cadaver dissection product (now customizable), and go hands-on. Come see how easy it is to use. This workshop will let exciting new information “out of the bag” regarding the Anatomy & Physiology Revealed Cat Version that will be available this summer.

Repeat of 208

Engaged technology and experiential learning: iPads, digital microscopy, and Internet freeware in the creation of lab atlas projects

KEP M9
Todd C. Shoepe
Loyola Marymount University, Department of Health and Human Sciences, 1 LMU Dr, MS 8160, Los Angeles CA 90045 USA
tshoepe@lmu.edu

Self-paced project-based learning is an effective method of instruction that engages students in personal, constructed, experiences. We will see how students can learn how to create a personalized photographic atlas by the acquisition of specimen images taken with iPads and digital microscope cameras, transfer these to laptops, complete an editing and labeling activity, journal them in Blackboard blog spaces for instructor feedback, and then compile them into a digital book using Internet publishing freeware (bookemon.com). The initiation of this project was supported through the HAPS Faculty Research Award, 2011. Current efficacy studies are still underway.

Repeat of 209

Easily expand the boundaries of your LMS and broaden your students’ learning experience

Steve Sullivan
KEP M10
Bucks County Community College, 275 Swamp Road, Newtown PA 18940 USA
sullivan@bucks.edu

Are you limited by what your LMS allows you to do and how it organizes your content? Are you nervous that you’ll have to start from scratch if your school changes learning management systems? Do you think your students would relate more to content if they could obtain access to it in a way that’s more familiar to them? I got sick of rebuilding my sites even though I was told “everything would import easily”. I’ll show you what I did to break the chains of my school’s LMS while still using it enough to placate my administration.

Repeat of 210
611 Planned Assessment: Exam blueprinting and rubric scoring  
KEP 216  
Margaret A. Weck  
St. Louis College of Pharmacy, 4588 Parkview Pl, St. Louis MO 63110 USA  
Margaret.Weck@stlcop.edu  
Students know that what is important is what they get tested over. In this workshop we will provide brief overviews of some tools making assessments of student learning more systematic, including exam blueprinting and rubric scoring. As we shall see a side benefit is that these tools also help in clearly communicating to students what we think is essential for every passing student to know and be able to do with the content and concepts that we teach. Time will be provided for participants to develop their own rubrics or blueprints tailored to their specific student populations.  
Repeat of 211

612 Fast and easy ways to incorporate technology into your classrooms  
KEP L1N&S  
Terry A. Austin  
Temple College, 3116 River Place Dr, Belton TX 76513 USA  
taaustin@templejc.edu  
The age of technology is here to stay. It has proven to raise grades. Your students have it incorporated in their other classes, and you want to do the same in yours. In this session a Pearson Faculty Advisor will help you set-up a Pearson MasteringA&P site, and get your basic set up in just a few minutes. The rest of the time will be spent to go over easy ways you can use MasteringA&P and the technology that it contains to help your students inside and outside the classroom improve their A&P experience and grades.  
Repeat of 414B

Session 7 (60 min) – 1:45am – 2:45am

701 Gamification of anatomy learning – using a tournament module to enhance the study of anatomy  
OH 105  
Daniel Belliveau  
Western University, School of Health Studies, London ON, N6A 5B9 Canada  
dbellive@uwo.ca  
The use of game-like settings to practice learned principals in a course such as anatomy has offered a stimulating and entertaining learning environment as popular game show templates such as Jeopardy or Trivial Pursuit has provided edutainment value. In this workshop we will explore an online tournament module that offers participants an opportunity to compete head-to-head in a race to anatomy supremacy! During the workshop, participants will be able to work with the tournament module and learn how to organize practice sessions and tournament game play. Bring your laptop, smartphone or tablet to take full advantage of the experience.  
Repeat of 301

702 Teaching how the countercurrent multiplier works  
OH 202  
John Cornell  
Saint Cloud State University, Department of Biological Sciences, 720 Fourth Ave. South, Saint Cloud MN 56301 USA  
jcornell@stcloudstate.edu  
Although the basic mechanism of the countercurrent multiplier has been understood for many years, it still remains a challenge to present this to a beginning student. The author has addressed this problem by developing an exercise to accompany a simple computer program. The program demonstrates how the gradient is formed and why long Loops of Henle allow desert mammals, such as the Kangaroo rat, to produce urine that is five times as concentrated as our own. You may wish to bring a calculator.  
Repeat of 302 

continued on next page
703 Visual story telling: aesthetics and customization of lecture presentation
OH 228
Kaushik (KASH) Dutta
University of New England, Dept. of Biology, 11 Hills Beach Rd, Biddeford, ME 04005 USA
kdutta@une.edu
One of the exciting, yet difficult decisions in teaching a visually intensive course like Anatomy and Physiology is choosing and customizing publisher-provided ancillary resources, as well as developing one’s own materials. Quality visual presentations play a major role in generating meaningful classroom experiences for students. This workshop will focus on incorporating design elements, static and dynamic figures, and simple animations for creating visually engaging lecture presentations that leverage student curiosity to improve learning. The presenter will make extensive use of Apple's Keynote software to deliver this workshop. However, the principle ideas are applicable to any platform with multimedia capability.

Repeat of 303

704 Understanding cranial nerves – a comparative and developmental approach
OH 300
Mark Nielsen
University of Utah, Department of Biology, 257 South 1400 East, Salt Lake City UT 84112 USA
marknielsen@bioscience.utah.edu
When teaching and learning cranial nerves we often encounter fancy mnemonic devices accompanied by tables of information regarding the twelve cranial nerves. While these mnemonic devices can help summarize the tables of information, there is still a lot of detailed memorization that has to accompany the learning process. This presentation illustrates structural patterns, which arise during the evolution of the nervous system that can clarify the structure of cranial nerves. You will learn that the cranial nerves are more primitive than the more derived spinal nerves, and the structural patterns will clarify the distribution and functional components of cranial nerves.

Repeat of 304

705 Warning - an interactive class! - you may learn more and have fun, too.
KH 110
Santa Makstenieks
Concordia University, Natural Science Department, 12800 North Lake Shore Dr, Mequon, WI 53097-2402 USA
santa.makstenieks@cuw.edu
Students say about classroom response pads (clickers) that “…clickers allow for entertaining way of reviewing the in-class material, …help to stay in focus, …give regular feedback”. Perceptions of this tool and learning outcomes, along with student learning behaviors outside class, have been studied now for 2 consecutive years in my A&P classes. I will share the findings of this study and will demonstrate some pedagogical approaches that have worked well and not so well in class. And yes, we will be clicking! If you are a user of this tool, please come with your ideas.

Repeat of 305

706 Presenting clinical topics so that students understand them
KH 112
Cindy Stanfield
University of South Alabama, Department of Biomedical Sciences, 5721 USA Drive North, Rm 4004, Mobile AL 36688 USA
cthursto@usouthal.edu
A challenge to all college instructors is to generate student interest and keep them attentive during class. Most anatomy and physiology instructors use clinical topics as one way to do this. However, presenting diseases to students to generate interest can often turn complex very quickly. One approach is to move gradually into the topic and increase the depth of knowledge, either in a single lecture or throughout the course. Both approaches will be addressed.

Repeat of 306
Presenting the anatomy of the cardiovascular and respiratory systems can also introduce the students to the regional anatomy of the thorax.

**KEP M3**

**Anthony J. Weinhaus**

University of Minnesota, Department of Integrative Biology & Physiology, 6-125 Jackson Hall, 321 Church St SE, Minneapolis MN 55455-0328 USA

weinh001@umn.edu

Most Anatomy and A & P courses are taught by systems. Some courses are taught by regions - which incorporate surface anatomy and spatial relationships of the contents. In my systems-based course, students’ evaluations rate highly a presentation of the cardiovascular and respiratory systems through an interactive session on the regional anatomy of the thorax. This helps the students consider the positions and spatial relationships of all the organs in the thorax. The use of surface anatomy is also used to identify the divisions of the mediastinum, and location of the organs and structures within the thorax.

**Repeat of 307**

**708 “Bring your own device to class”: an effective modern alternative to clickers**

**KEP M9**

**Mohsen Shahini**

Top Hat Monocle Corp, 730 Bridge St, Unit 2, Waterloo ON N2V 2J4 CANADA

mohsen@tophatmonocle.com

Despite their effectiveness, Personal Response Systems or ‘clickers’ suffer from some challenges. Distribution and maintenance of devices (especially when owned by the organization) impose logistical barriers. Additionally, students can cheat by bringing multiple devices, while others may forget to bring their own. In this workshop, participants will have the opportunity to interact with a new technology, Top Hat Monocle. Top Hat Monocle allows students to use the devices they already bring to class such as cell phones, smart phones or laptops. They can answer several forms of questions in class and review them at home. BYOD and experience TOPHATMONOCLE!

**709 Interactive, effective techniques for building mastery inside and outside the classroom**

**KEP U8**

**Janice Yoder Smith**

Tarrant County College District, Northwest Campus, 4801 Marine Creek Parkway, Fort Worth TX 76179 USA

janice.smith@tccd.edu

How many times have you heard comments or questions like these from a student? “I can’t follow you in class.” “I did study, but nothing stuck.” “If I can memorize the terms, why am I failing?” “What can I do to pass?” Let’s explore some activities that can be done in class and used by students outside of class as well. We’ll start with some introductory activities, and then move on to a method that merges flash cards and concept maps that work for well for many types of learners. Please bring your great ideas to share.

**710 Banking on the students: using google forms to establish a student-driven test bank**

**KEP L1 N&S**

**Scott Taylor**

Montana State University, 513 Leon Johnson Hall, Bozeman MT 59717 USA

scott.taylor@montana.edu

With the internet age, student access to frequently-used test banks has led to the potential for academic dishonesty. It is possible to turn this entire structure around and have the students themselves submit questions that can be used at the discretion of the instructor for both formative and summative assessment. Google Forms is an extremely user-friendly format for submitting, sorting, and presenting questions and this workshop will take you through the steps needed to create a living, workable resource that benefits instructors and students, both current and future.
801A PhysioEx, PhILS, PowerPhys - what’s the difference?
OH105
Betsy C. Brantley
Valencia College, 4630 S. Kirkman Rd, #241, Orlando FL 32811 USA
bbrantley3@valenciacollege.edu
Are all virtual physiology lab products the same? This workshop gives an overview and review of three products: PhysioEx (Pearson), PhILS (McGraw-Hill), and PowerPhys (Wiley). Participants will have an opportunity for hands-on experience with each product.

Repeat of 401A

802A Introducing the new BIOPAC MP45 – a budget busting physiology lab solution for community colleges
OH 202
Tim Cook and William McMullen
BIOPAC Systems, Inc., 42 Aero Camino, Goleta CA 93117
timc@biopac.com; William@biopac.com
The new handheld MP45 is the latest addition to the Biopac Student Lab family. The powerful two-channel system works with BIOPAC’s extensive curriculum library and broad range of transducers. The MP45 connects to the computer via USB to receive power and transmit data. Like all BSL products, the system is intuitive and extremely robust. There are no knobs, dials, or switches to confuse students, just a USB cord and two ports to connect transducers and electrodes. Connect the USB, launch a BSL Lesson, and start recording data. Attend the workshop and be amazed by the power, flexibility and budget-beating price.

Repeat of 402A

803A Anatomy of a multiple choice question
OH 228
Brian Hill
Via College of Osteopathic Medicine, 2265 Kraft Dr, Blacksburg VA 24060 USA
bhill@vcom.vt.edu
As instructors, we test our students regularly, often utilizing multiple choice exams. Many of us merely imitate our former instructors in terms of constructing multiple choice questions as we have had no formal training in this area. This session will focus on writing better exam questions by presenting the best practices for construction of multiple choice questions. Particular emphasis will be placed on the item writing guidelines used by standardized exams such as the Medical College Admissions Test (MCAT), Veterinarian College Admissions Exam (VCAT), Graduate Record Exam (GRE), etc.

Repeat of 403A

804A Get on the list
OH 300
Jason LaPres
Lone Star College - University Park, 11923 Canyon Valley Dr, Tomball TX 77377 USA
texashapster@yahoo.com
This workshop is intended to go through the steps in signing up for the HAPS-L listserv. Also, best practices will be shown on how to set up the HAPS-L listserv so it doesn’t control your inbox and your life. If you want to be on the listserv, but you are unsure how to sign up, have tried to sign up unsuccessfully, or if you don’t want to have your inbox “flooded”, this workshop is for you.

Repeat of 404A
Undergrads as a cheap, renewable source of energy: using peer-led teams in a large physiology class
OH 141
Kevin T. Strang
University of Wisconsin-Madison, Department of Physiology and Neuroscience, 1300 University Ave, Madison WI 53706 USA
kstrang@wisc.edu
A best-practice in teaching involves incorporating peer-to-peer collaborative learning into courses. While this can be used in class, many instructors are reluctant to surrender precious lecture time. Group learning activities designed to occur outside of class, however, often suffer from lack of student motivation or preparation for group work. In this workshop I will describe a program developed over the past 12 years in my large physiology class that enlists experienced and enthusiastic undergraduates to really make group learning work. Among the many positive outcomes discussed will be improvements in student performance, sense of community, and faculty satisfaction.

The fine art of transforming your students into “anatomy & physiology nerds”
KH 110
Carol Veil
Anne Arundel Community College, 101 College Parkway, Arnold MD 21012 USA
cbveil@aacc.edu
Every year I tell my students that one of my goals is to turn them into A&P nerds by the end of two semesters, if not sooner. What are A&P nerds? They are individuals who are fascinated to see the application and the true beauty of A&P in every aspect of their lives, much to the bewilderment, amusement, and sometimes disgust, of family and friends. Join me to see how music, art, humor, and personal testimonials can enhance your teaching and, step by step, turn your students into true A&P nerds.

Investigative exercises for the human anatomy & physiology laboratory
OH 226
Karen A. McMahon
The University of Tulsa, Biological Science, 800 S. Tucker Dr, Tulsa OK 74104 USA
karen-mcmahon@utulsa.edu
Three exercises are presented for the A & P Laboratory which introduce students to hypothesis-testing. The exercises are: (1) Can taste reaction to unsweetened grapefruit predict taster status and relative number of fungiform papillae?; (2) Will 2D:4D ratio (length of 2nd digit to 4th digit) for male and female athletes be lower than expected values for non-athlete males (<1 )and females (=1)respectively?; and (3) Can a blind taste test determine how salt improves food flavor? Detailed instructions and data from lab are presented. Participants take part in the exercises for a hands-on experience.

CPR: Revive writing in your classroom
KH 112
Eric Sun and Donna Balding
Macon State College, Dept of Natural Science and Engineering, 100 College Station Dr, Macon GA 31206 USA
eric.sun@maconstate.edu; donna.balding@maconstate.edu
Are writing assignments missing from your A&P course because your classes are too large? Then, this session is for you! Using a software program called Calibrated Peer Review (CPR), which addresses all the disadvantage of assigning written work, this workshop will demonstrate how you can put writing back into your classroom. In addition, a counterintuitive feature of CPR is that the larger the class size, the better this program works.
809B Bloom’s taxonomy - a useful tool to determine cognitive level of course materials when used correctly
KEP M216
Janet Casagrand and Heidi Bustamante
University of Colorado, Dept. of Integrative Physiology, 1725 Pleasant St., Boulder CO 80309-0354 USA
Janet.Casagrand@colorado.edu; Heidi.Bustamante@colorado.edu

Bloom’s taxonomy is a widely accepted tool for delineating understanding into six cognitive levels: knowledge/remember, comprehension/understand, application/apply, analysis/analyze, synthesis/create, and evaluation/evaluate. Bloom’s taxonomy offers a means for developing assessments at appropriate levels; categorizing levels targeted by learning objectives or assessments; and assessing curricular alignment. Although Bloom’s taxonomy can be a useful tool, there can be confusion/misconceptions when ‘Blooming’ course materials. For example, a question may be higher level initially, but if given again become merely remember level. After discussing the categories, participants will work with a dichotomous key and sample questions. Participants are encouraged to bring their own course materials.
HAPS Institute Courses - Full-Day Workshops

These workshops are open only to students pre-registered in these courses.

*Human Embryology (1 graduate semester credit)*
OH 200 9:15am – 12:15pm and 1:30pm – 4:15 pm Tuesday
Valerie Dean O’Loughlin, Ph.D.
Indiana University, Medical Sciences Jordan Hall 010A Indiana University, 1001 East Third St, Bloomington IN 47405 USA
vdean@indiana.edu

This course is designed to provide college-level instructors with the opportunity to expand their understanding of human embryology. Participants will complete significant preparatory background work prior to the face-to-face course meeting at the Human Anatomy and Physiology Society (HAPS) national annual conference. The first part of the course (performed online and prior to the conference) will explore general human embryology topics, such as gametogenesis, fertilization, implantation, general growth and development of the fetus, as well as labor (parturition). We will explore the major events occurring in the pre-embryonic, embryonic and fetal periods and discuss the role of teratogens in the development of birth defects. The face-to-face portion of the course (held at the HAPS Annual conference) will explore specific developmental processes in depth, such as heart development and gastrointestinal development. Participants will learn the material through directed readings, viewing of narrated PowerPoint lectures, completion of online exercises, participation in discussion forums, viewing of embryology videos, and the face-to-face instruction. In addition, participants will apply the information they have learned in the independent development of a peer-reviewed case study or review article appropriate for A&P faculty teaching undergraduate students which enhances their understanding of key human development events as they relate to either normal development or common birth defects. (Note: we will NOT be going into detail about the molecular regulation of embryology.)

*Current Topics in Anatomy and Physiology  (1 graduate semester credit)*
KH140 9:00am – 12:00pm and 1:45pm – 4:30pm Wednesday
John R. Waters, Ph.D.
The Pennsylvania State University, Department of Biology, 413 Mueller Laboratory, University Park PA 16802 USA
johnwaters@psu.edu

This course is designed to provide college-level instructors with the opportunity to expand their understanding of a variety of current topics in the fields of anatomy and physiology, and how these relate to other scientific disciplines. The specific topics covered will vary year to year, and will be built around the Update Seminars offered at the Human Anatomy and Physiology Society’s (HAPS) annual national conference. This course is offered in a hybrid format (online and face-to-face meetings) and requires participants to attend the HAPS Annual Conference. Participants will complete on-line preparatory work before attending the annual national conference. The first part of the course will include critically analyzing scholarly articles related to the Update Seminars, and then discussing the hypotheses, methods, conclusions, strengths and weakness of those articles during on-line discussions. During the face-to-face portion of the course (held at the HAPS annual conference), participants will attend all Update Seminars and then meet afterward to discuss and evaluate the speakers’ presentations in relation to the literature reviewed prior to the conference. Participants will be assigned a specific Update Seminar and prepare a brief review of that seminar to share in a meeting with other course participants. This review will be the basis for a more comprehensive review article to be written after the conference. The final review article will include additional citations specific to one assigned Update Seminar topic, and will summarize the speaker’s presentation and the relationship of that presentation to other scholarly research and A&P education.
Mechanisms of Disease: diabetes mellitus (1 graduate semester credit)
OH 200 9:00am – 12:00pm and 1:45pm – 4:30pm Wednesday
Brian R. Shmaefsky, Ph.D.
Lone Star College – Kingwood, 20,000 Kingwood Dr, Kingwood, TX 77339-3801 USA
Brian.r.shmaefsky@lonestar.edu

This course is designed to provide college-level instructors with the opportunity to expand their understanding of key molecular and cellular concepts and processes as they relate to physiology and human disease. Participants, who begin their preparatory background work prior to the first course meeting, will subsequently participate in discussions and activities that examine one or more pathologies from the molecular to the whole organism level. Basic molecular and cellular concepts will be explored within the context of this disease (or group of diseases), and participants will be introduced to publically available tools and databases that they can use for their research-based project. Participants will apply what they've learned from the preparatory and face-to-face instruction to write a case study or review article appropriate for A&P faculty teaching undergraduate courses who wish to integrate molecular and cellular basis of human disease concepts into their A&P courses. Participants will be evaluated on the basis of a variety of criteria, including attendance, participation in preparatory and workshop activities, and quality of final submitted materials.
T- Town

The 2012 HAPS Annual Conference will be held May 26th-31st in Tulsa OK, or as residents of the state call it T-Town. Here are a few of the sites to visit while attending the HAPS Conference:

Center of the Universe— Have you pondered the location of the exact center of the universe? Want to visit? Directly north of the main entrance to the HAPS Conference Hotel (Hyatt Regency Downtown) is the pedestrian bridge. From the street you can see the Artificial Cloud structure. Follow the bridge and stop in the middle of the brick circle. Any sound you make can be heard as an echo only to you and not to any of your companions at the edge of the circle. This acoustic anomaly is undeniable proof that you have reached the Center of the Universe, a fact we Oklahomans have known for years. Nearby is the Union Central Depot, the former passenger railroad station, which now houses the Oklahoma Jazz Hall of Fame, one of several musical styles that make up the distinctive Tulsa sound.

Brady District, Brady Theater, and Cain’s Ballroom – Continue on the pedestrian bridge to reach the Brady district, so-called because of the Grand Lady O’ Brady, the Brady Theater. Built in 1914, the Brady Theater had a major interior re-model in the art deco style in 1930, with later remodels in the 1950s. Listed on the National Register of Historic places, the Brady Theater has hosted some of the most famous entertainers in the world and is still a venue for entertainment. Check out the Brady Theater website for events in May (www.bradytheater.com/) The Brady district is also the home of Cain’s Ballroom made famous in the 30s and 40s as the home of Bob Wills and the Texas Playboys and western swing, and is still the place for many famous acts of all types of music. (www.cainsballroom.com/) The Brady district has many pubs, restaurant, cigar stores, chocolate shop, art houses, violin shop to name a few — all within walking distance of the Hyatt Regency.

Drillers at ONEOK Field, BOK Center, and the PAC – MLB Drillers will play five home games at ONEOK Field, a short walk from the conference hotel, at the end of May. Currently the Drillers lead the Texas Northern Division. Find out the schedule and buy tickets at (milb.com/index.jsp?sid=t260). Across from ONEOK field is Reconciliation Park, a part of the Greenwood district. The Greenwood District was known as Black Wall Street because of the success of black American businessmen and entrepreneurs in this area until a race riot in 1921 destroyed the area. In 2009 John Hope Franklin, a noted African American historian who as a boy lived through the race riot, dedicated the Park of Reconciliation to memorialize the victims of the riot and prevent it from ever happening again. The Greenwood District has since made a comeback with shops and businesses and the Oklahoma State University branch campus.
The BOK Center is the place for the biggest acts in the entertainment industry and the home of the WNBA Tulsa Shock. Events and tickets can be found at [www.bokcenter.com/](http://www.bokcenter.com/). The Tulsa Performing Arts Center (PAC) brings in quality performances from around the world and is the home of the Tulsa Ballet. The Tulsa Ballet was founded in the 1950s by Roman Jasinski, a premier danseur from Poland, and Moscelyn Larkin, one of the famed Oklahoma Indian Ballerinas, after they retired from performing in the Ballet Russe de Monte Carlo. Find out about performances at the PAC at [www.tulsapac.com/](http://www.tulsapac.com/). Both the BOK and PAC are near to the Hyatt.

**Blue Dome District** – Named after a blue-topped gas station for Route 66 travelers in the 1920s, the Blue Dome district is two blocks east of the conference hotel. Some of the most popular eateries and taverns (Blue Dome Diner, McNellie’s Pub, El Guapo, Yokuzuna) as well as unique souvenir shops (Lyon’s Indian Store and Dwelling Spaces) and fun entertainment (The Dust Bowl) makes the Blue Dome District one of the top nightlife destinations in downtown Tulsa.

**Deco District** – Directly south of the Hyatt is the Deco District, home to some of the most exquisite examples of art deco architecture in the nation. The most famous is the Boston Avenue Methodist Church designed by Bruce Goff. Other art deco notables include the Tulsa Union Depot and the Pythian Building. Also in the Deco District, is Eloté, “home of the fluffy taco” and luchadore wrestling.
The Tulsa Zoo and Living Museum, the Oklahoma Aquarium, and Museums – The Tulsa Zoo features exhibits on the major biomes of North America, the American Tropical Rainforest, a Conservation Center, a Children's Zoo, and much more. The decorated 6 ft penguins seen around the City of Tulsa funded the African Penguin Exhibit and a new Sea Lion Exhibit just opened in the spring.  [www.tulsazoo.org](http://www.tulsazoo.org)

Built in 2003, the Oklahoma Aquarium resembles a collection of Victorian bath houses and boasts the largest bull sharks in captivity as featured on the Discovery Channel. The Ozark Stream and the Fishes of Oklahoma exhibits spotlight the abundant forms of aquatic life in the area.  [www.okaquarium.org](http://www.okaquarium.org)

The Philbrook Museum was originally the home for Tulsa oilman, Waite Phillips. Built on 23 acres in 1927, it was designed as an Italian Renaissance Villa. In 1938, Philips gave the 72 room mansion as a gift to the City of Tulsa for use as an art center. Two current exhibits are *Seeking the Sacred: Religious Ritual in Native American Art* and *This Great Land: Contemporary America in Art*.  [www.philbrook.org](http://www.philbrook.org)
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