HAPS Needs You
to host a Regional Conference

Benefits of a Regional Conference:
1. Low travel expense-draws people from a 250-mile radius, some who can not attend the national conference
2. Low registration cost-often under $50 for registration & lunch
3. Convenience-usually held on weekends
4. Relevant Topics & Updates in your teaching field

Contact: Local Conference Chair (or your Regional Director)
Javni Mody, Chair
Anne Arundel Community College
101 College Parkway
Arnold, MD 21012-1895
(410) 777-2265
(410) 777-2525 fax
jmody@aacc.edu
Greetings From Your President ......................................................... 3
Ric Martini

Austin…HAPS 2006 ............................................................................. 4
Dee Silverthorn, PhD

The Body Bag
Cadavers: Gifts That Keep On Giving .............................................. 6
Terry R. Martin

EDU-Snippets
Analogous-Snippets ........................................................................ 7
Roberta Meehan and Richard Faircloth

HAPS Grants and Scholarships Committee News .......................... 8
Amy Way

Better Safe .......................................................................................... 9
Karen McMahon

Educational Issues
Rethinking the Teaching of Human Anatomy & Physiology ............ 11
Karen Webb Smith

Comments from the Id .................................................................... 13
Dayton J. Ford

Teaching Tips
A Method for Teaching the Osteology of Irregular Bones .............. 15
R.M. Gravenhorst and M.L. Bareither

HAPS 2005 in Review
Summary of Update Seminar #5...................................................... 17
Claudie Biggers, summarizer; Norman W. Kettner, DC, DACBR, presenter

In Memory of Muffie Slater ............................................................. 19
Elizabeth Becker

HAPS Needs You

to host a Regional Conference

Benefits of a Regional Conference:
1. Low travel expense—draws people from a 250-mile radius, some who can not attend the national conference
2. Low registration cost—often under $50 for registration & lunch
3. Convenience—usually held on weekends
4. Relevant Topics & Updates in your teaching field

Contact: Local Conference Chair (or your Regional Director)
Javni Mody, Chair
Anne Arundel Community College
101 College Parkway
Arnold, MD 21012-1895
(410) 777-2265
(410) 777-2525 fax
jmody@aacc.edu
HAPS-EDucator is the official publication of the Human Anatomy and Physiology Society (HAPS) and is published four times per year. Major goals of the Human Anatomy and Physiology Society are: to promote communication among teachers of human anatomy and physiology in colleges, universities, and related institutions; to present workshops and conferences, both regional and national, where members can obtain information about the latest developments in the health and science fields; and to encourage educational research and publication by HAPS members. HAPS was established in 1989.

Annual membership dues are $50. Annual membership renewals shall be due on January 1, April 1, July 1, or October 1. New members shall renew on whichever date most closely follows the date of their initial membership. HAPS Hotline: (800) 448-HAPS (4277). Information on membership, meetings, and more! Send correspondence to: HAPS, 8000 Bonhomme, Suite 412, St. Louis, MO 63105. Check out our new webpage at: http://www.hapsweb.org/

SUBMISSIONS TO HAPS-EDucator

Papers for publication, requests for information, positions available and wanted, and letters to the editor are welcomed. Articles may be submitted to the editor as an e-mail attachment as a Microsoft Word or Word Perfect file, 3.5” double density disks--please include a hard copy as a backup. If references are included, please follow the methods suggested in Scientific Style and Format: The CBE Manual for Authors, Editors, and Publishers. 6th Edition, Style Manual Committee (Council of Biology Editors) Cambridge, Cambridge University Press. 1994.

It is the policy of the Human Anatomy and Physiology Society (HAPS) that any advertising appearing in its publication(s) must be related to the teaching of anatomy and physiology. The HAPS-EDucator Editor and HAPS-EDucator Editorial Advisory Panel jointly determine whether an advertisement meets the criteria of HAPS. Any advertisement that is deemed not to meet the needs of the organization will not be printed, and the advertisement plus any monies collected from the advertiser will be returned. The opinions reflected in advertising that appear in this publication do not necessarily represent the opinions of HAPS. Advertisement of a product in the HAPS-EDucator does not represent endorsement of that product by HAPS. Contact the Editor for information on advertising rates, advertisement size and the procedure for submitting an advertisement to HAPS-EDucator for publication.

DEADLINES FOR SUBMITTING MATERIAL TO HAPS-EDucator: April 15 (Summer issue); August 1 (Fall issue); November 1 (Winter issue); February 1 (Spring issue).

CONTACT THE HAPS-EDucator Editor: Susan Baxley, 8000 Bonhomme, Suite 412, St. Louis, MO 63105. hapsed@hapsweb.org
As I write this, Spring is still waiting in the wings. I hope the winter has been enjoyable, and the holidays joyous. Things have continued to proceed at a rapid rate, and I have a number of updates for you.

As you may recall, the Position Statement on Accreditation (hapsweb.org Members’ Only area) was prompted by accreditation problems within the Southern Region. Discussions with Southern Association of Colleges and Schools (SACS) continue, but at this stage the outcome remains uncertain. Although the Commission on Colleges has revised its printed guidelines for the review of faculty, the SACS consultants appear to be recommending the old guidelines in discussions with administrators. This has led to a difficult situation in which responsibility is diffuse and accountability lacking. In general, it appears that most holders of professional degrees (OT, PT, DVM, DC, DPM, etc.) are being disqualified from teaching A&P at schools under accreditation review in the Southern Region. This is a concern for the entire US, as these sub rosa standards – if unchallenged – would likely spread to other regions. HAPS has devoted considerable time and effort to addressing this problem, and we will continue to do so. Chiropractic and veterinary associations are now getting involved, and by the Summer issue of HAPS-EDucator, I would hope that there will be more progress to report.

With regard to the course and faculty survey on the website, we now have accumulated data from courses teaching over 43,000 students. The data have been reviewed and will be a poster presentation at the joint meetings of the American Association of Anatomists and the American Physiological Society in April. A copy of the abstract and the associated graphics will have been posted on the website (hapsweb.org) in the Members Area by the time you read this. Please fill this out if, no one else at your college has already done so. There is also a new poll concerning the pass/fail rates of anatomy and physiology students. This information could be very useful in assessing (and supporting) the value of course prerequisites.

And on the educational front-lines, HAPS and Trevecca Nazarene University in Nashville, Tennessee, have submitted an NSF grant proposal for enhancing the HAPS standardized exam. Chris Farrell, Chair of the Testing Committee is leading this initiative. You can contact him if you are interested in learning more at cfarrell@trivecca.edu. As the primary applicant for a substantial grant, this is a big step for HAPS; if the grant is funded, it will enable us to develop and distribute the standardized exam in both print and electronic formats.

The 20th Annual Meeting of the Human Anatomy and Physiology Society will be held in Austin, Texas May 27-June 1, 2006. It is never too late to register, and you can find complete information on the conference, hotel, and transportation at the HAPS website. Given everything in which HAPS is now involved, you really should consider planning to attend the anniversary celebration! While at the website (hapsweb.org), do not forget the Members’ Only portal, which is your own personalized web page. It contains a “shopping mall” with deals for HAPS members, a calendar that you can personalize, and a place where you can edit your own profile. By using the mall and on-line store from our website, HAPS will receive a donation from the companies involved. Please check out the “Mall Vendors,” and try to remember to use the HAPS website to purchase products or services from these vendors. Note that your airline tickets for the Austin conference can be purchased in this way, at no additional cost to you.

In other conference news:

- At the winter board meeting, the Board of Directors approved the Robert Anthony Scholarship and Adjunct Grant recipients. For the Robert Anthony Scholarship, the recipients were Tina Ross (North Hennepin Community College), Mitzei Leigh Sowell (Pensacola Junior College), Elizabeth Kavan (Ursuline College), and Christina Gentle-Renda (Naugatuck Valley Community College). Mandi Dupain was awarded the Adjunct Grant. Each recipient will have his/her registration and banquet fees for the Austin Annual Conference covered. The Robert Anthony Scholarships are paid for from a donated fund. The Adjunct Grant is funded by HAPS and by an anonymous donor; for more details, see the HAPS website (hapsweb.org).
- Javanika Mody from Anne Arundel Community College in Maryland is taking on the role of HAPS Marketing Manager while finishing her term as Regional Conference Committee Chair. She is taking over from Donna White, who has done a wonderful job as our Marketing Manager for the past several years.

There are many other initiatives underway. We are investigating options for offering continuing education programs, developing useful HAPS products for sale at meetings (and perhaps online), moving ahead on several regional conferences for the Fall, and interacting with other societies to pursue mutual goals. If you have any questions about what is happening, or if you have suggestions for ways HAPS can better serve the membership, please do not hesitate to contact me. I look forward to seeing you in Austin!

HAPS-EDucator - Spring 2006 - page 3
The 20th annual HAPS Conference will be held at the University of Texas in Austin, with participants staying at the nearby Marriott at the Capitol. You will be in the center of the city, within walking distance or a free “Dillo” trolley ride of the best Austin has to offer. Do not miss the opportunity to see why Austin keeps showing up on many of the nation’s “Best places to...” lists.

We have an exciting conference planned, with six Update Talks on Sunday and Monday and a full slate of workshops on Tuesday and Wednesday. Come in early and take advantage of some Saturday afternoon tours. Stay late and choose between a tour to San Antonio or one to the Texas Hill Country. Or tour the area on your own. There is plenty to do for everyone of all ages.

Saturday 27 May

Fly into Austin-Bergstrom International Airport, and you will know you are in Texas by the cowboy hats and boots. HAPS registration opens at 1:00, and tours begin at 2:30. Choose between a walking tour of the city or a visit to the Ladybird Johnson Wildflower Center with a guided tour (see fees in the conference brochure). At 6:00 greet old friends and welcome newcomers at the Welcome Reception (included in registration fee). After the reception, stroll down to 6th Street, the entertainment district that contributes to Austin’s nickname as the Live Music Capital of the World. Book a seat at Esther’s Follies, Austin’s answer to Saturday Night Live, or stop by the Driskill Hotel for the sinful chocolate cake in the 1886 Café & Bakery.

Sunday 28 May

The meeting begins with a continental breakfast in the exhibits hall or a welcome breakfast for those attending a HAPS conference for the first time. The day is filled with update talks, poster sessions, and time to visit the exhibits. On Sunday night, we will have a fiesta and margaritas dinner at the Bob Bullock Texas State History Museum with a chance to tour the exhibits and experience a multimedia special effects presentation on the history of the Lone Star state. This evening event requires a ticket (see conference brochure).

Monday 29 May

Monday begins with continental breakfast in the exhibits, followed by the HAPS business meeting and two more Update Talks. There will be plenty of time to visit the exhibits, with several hours of free time in the late afternoon, when you can go to the University of Texas and visit the newly opened Blanton Art Museum, the Harry Ransom Center, or the LBJ Presidential Library. On Monday evening, we celebrate 20 years of HAPS at a cocktail reception (free) and buffet banquet (ticket purchase required). The evening ends with dancing to the Lucky Strikes Swing Band, an Austin favorite.

Tuesday 30 May

The day starts at the University of Texas with a continental breakfast and breakfast tacos, a local favorite. We have quite a few exciting workshops ranging from computer-based sessions and hands-on labs to interactive classroom sessions. Over the lunch break (box lunches included in the registration fee), you can get more involved in HAPS by attending one of the HAPS committee meetings. In the evening, after dinner on your own, we will gather to see the largest urban bat colony in North America emerge from under the Congress Street Bridge (free from the shore or purchase a ticket for a boat tour).

Wednesday 31 May

The conference program concludes with another round of workshops at the University and an afternoon ice cream social, where you will have an opportunity to meet Bevo, the University of Texas longhorn steer mascot, and have your picture taken with him. (No, they do not drug him for public appearances.) Wednesday night conference attendees will have an opportunity to head up I-35 to the historic town of Round Rock to watch Nolan Ryan’s AAA baseball team, the Round Rock Express, play ball.

Thursday 1 June

The official conference has ended, but we have scheduled a day tour to the historic German community of Fredricksburg. You will be on your own to visit the unique shops, take a walking tour...
of the community, tour the Nimitz Museum, or visit the Japanese Garden of Peace adjoining the museum. Enjoy lunch in one of the many eateries before continuing to the LBJ Ranch. The guided ranch tour includes LBJ’s birthplace and final resting place on the banks of the Perdenales River. After viewing the western White House, the tour continues through the working cattle operation. The plans include returning to Austin by 4:45 for those who wish to plan an evening flight home. (Optional day trip at additional cost.)

**Typical weather for Central Texas in May is average high of 85 °F, low of 67 °F, and 9 days of rain.**

**Things to See and Do in Austin**

For those who want to explore Austin and the surrounding area on their own, here are some suggestions and web links.

Austin Convention & Visitors Bureau
http://www.austintexas.org/home

Request a free visitors’ guide at
http://www.austintexas.org/visitors/visitor_kit.php

Golf: Austin is a golfer’s paradise, with a variety of public, semi-private, and private courses. See listings at
http://www.nxtbook.com/fx/books/vg/auovg105/
http://austin.about.com/od/golf/

Austin Children’s Museum http://www.austinkids.org/

**Exhibits & Events:**

**The Image Wrought: Historical Photographic Approaches in the Digital Age** at the Harry Ranson center, University of Texas. This exhibit examines the use of historical photographic processes in the modern age.

**The Vietnam Experience** (closes May 29, 2006): Visitors to the Lyndon Baines Johnson Library and Museum can experience the Vietnam War through the eyes of U.S. Navy combat artists.

**Republic of Texas Biker Rally** (June 1-4, 2006): The state’s largest motorcycle gathering attracts thousands of bikers and others.

**HAPS 2006 Update Talks**

<table>
<thead>
<tr>
<th>T. Blevins, M.D.</th>
<th>Austin TX</th>
<th>New Developments in Endocrinology</th>
</tr>
</thead>
<tbody>
<tr>
<td>R. Carroll, Ph.D.*</td>
<td>East Carolina School of Medicine</td>
<td>Thermoregulation</td>
</tr>
<tr>
<td>S. Chopin, Ph.D., M.B.A.**</td>
<td>Texas A&amp;M - Corpus Christi</td>
<td>Biological Basis of Aging</td>
</tr>
<tr>
<td>H. Gill-King, Ph.D.</td>
<td>Univ. North Texas Health Science Center</td>
<td>A&amp;P in Forensic Science</td>
</tr>
<tr>
<td>B. Goodman, Ph.D.</td>
<td>Univ South School of Medicine</td>
<td>What Everyone Should Know for Teaching GI Physiology</td>
</tr>
<tr>
<td>M. Henkemeyer Ph.D.</td>
<td>Univ. Texas Southwestern Med Ctr.</td>
<td>Cell-Cell Signaling during Embryonic Development</td>
</tr>
</tbody>
</table>

* Speaker sponsored by the American Physiological Society
** Speaker sponsored by the American Association of Anatomists
Most of us can recall the first time we met that most unique and significant of others. That person who was not a “nobody” and not just “anybody” but the body, the first cadaver we ever observed. Besides being one of the best educational experiences in anatomy and physiology, a cadaver is one of the best learning experiences about humanity--learning to share and sharing what we learn.

The use of cadavers at Kishwaukee College was a direct outcome of my attendance at a national anatomy and physiology workshop at Triton College, River Grove, IL, in June 1987. The coordinator of the workshop was Robert Anthony and from an outgrowth of this conference, HAPS (Human Anatomy and Physiology Society) was formed. For me, as for many other attendees, this was our first experience to observe prosected cadavers and to be involved in dissections of limbs and trunk on separate days. There was phenomenal interest and enthusiasm among the participants. The workshop included tips on how to obtain, handle, and maintain cadavers at one’s own college. This was a pivotal workshop, since prior to this conference cadavers were primarily available for medical schools, but then, interest in using cadavers in college-level human anatomy and physiology courses increased.

After the workshop, my proposal to acquire a cadaver for our classes was fully supported by the administration at Kishwaukee College. Before the end of the same calendar year, our first cadaver was procured. Students christened the cadaver “Ichabod” and the name seemed to fit. The family of our cadaver did not request return of the cremains, enabling us to keep the cadaver until it could no longer meet our needs. (In Illinois, if a family requests the return of cremains, the dissection needs to be completed in approximately two years or less. This may vary in other states.)

Over the next 18 years, students from a variety of programs including nursing, radiology, massage therapy, EMT, and paramedic programs learned the intricacies of the human body from Ichabod. We have hosted visits and workshops for other colleges (including some from neighboring states) in our cadaver lab, and also from high school students enrolled in anatomy and physiology classes. The memory of Ichabod is held dear by many former students who often ask about him before they tell me how they are and what they are presently doing.

Eighteen years is a long time for a cadaver to serve a school’s needs. How did Ichabod remain actively useful for 18 years? A cadaver kept over that extended period must have exposed parts frequently moistened with preservative. Towels soaked in preservative covered all body areas not being dissected or studied. Limiting time for the body to be exposed to open air and drying was of significant importance. Even with all of these precautions, over a period of many years and expanding use, tissues continue to dry out and were no longer useful for study.

We retired Ichabod in 2005 and his cremains are kept in a respectful area on campus. By the time of his retirement Kishwaukee College had added two other cadavers to our family. By keeping Ichabod’s cremains, we acknowledge the significant contributions cadavers have made to the students at Kishwaukee College. The cremains also signify the historical onset of cadavers’ use in standard anatomy and physiology classes and the appearance of cadaver photographs in regular anatomy and physiology textbooks and laboratory manuals. A cadaver really is a gift that keeps on giving!
EDU-Snippets

Analogous-Snippets

Robert Meehan
Troy University, Montgomery Campus
Montgomery, Alabama 36103
biology@ctos.com

Richard Faircloth
Anne Arundel Community College
Arnold, Maryland 21012
Rfaircloth@aacc.edu

EDU-Snippets is a column designed to let you, the members of HAPS, share your personal or institutional educational experiences. So, here are this edition’s contributions! Our theme for this issue is Analogies in Anatomy and Physiology. For a while we thought that gathering these analogies was like pulling hens’ teeth. Then they started rolling in! We all use analogies, but we all forget to write them down!

For the sake of column continuity, we have done a bit of editing. We have also avoided quotation marks (except in-text). However, we think everyone will be able to tell where our introductions and commentaries end and where our contributors’ words begin. We have also used a modified outline format to help with the organization.

I. Preliminary Analogy
We would like to award the first analogous snippet to Robert Hooke who, almost 400 years ago, said (very loosely paraphrased), “This cork compartment looks like the cell a monk lives in. I think I will name this fundamental unit of life a CELL. Thus may it always be!”

II. Cellular Analogies
A number of people sent us analogies having to do with the cell. We believe this is a very popular area for analogies.

A. Endomembranous Buildings
Craig Clifford (Northeastern State University, Clifford@nsuok.edu) told us about using the science building itself as a cellular analogy.

I use the analogy of the walls and floors of a building as a comparison to the compartmentalization of the endomembrane system of a cell. I ask the class to imagine one big open space of the Science Building where we are holding class. How many different activities could go on at the same time in isolation without the walls and floors. Not many.

B. Lava Lamps
Harold Grau (Christopher Newport University, hgrau@cmu.edu) likened the intramembranous system to lava lamps.

I ask the students to visualize this system by thinking of lava lamps. The bubbles that fuse and dissociate are like the back and forth melding of vesicles. I ask them to see this in relation to the transport between the ER and the Golgi, and between the transport vesicles and the cellular membrane. This analogy also helps in understanding the significance of the common phospholipid membrane.

C. Targeting the Ion Channels
Pat Bowne (Alverno College, Pat.Bowne@alverno.edu) gave us a rather interesting idea for demonstrating an often difficult cellular concept.

The ion channels in the cell membrane are like the doors at Target™. One set of entrance doors only opens if you push it. Those doors are the ligand-gated Na+ channels. But when you get inside and step on the mat, the electric doors open. Those are the voltage-gated Na+ channels. Now lots of people can enter the store.

The exit doors are the voltage-gated K+ channels that open electrically to let K+ ions out.

D. Bread and Butter Cells
Ken Saladin (Georgia College & State University, ksaladin@alltel.net) had a rather tasty idea for his cellular analogy.

I compare the cell membrane skeleton and plasma membrane to a slice of bread and butter. The membrane skeleton (terminal web) is like the bread, providing physical support, without which the plasma membrane would not hold together. The plasma membrane is like the butter, a lipid layer that limits surface permeability (so the juice from the tomato slices does not make the bread soggy).

E. Fruity Fluid Mosaics!
We were amazed at this interesting use of fruit from Melaney Birdsong Cook (Salt Lake Community College, melaney.cook@slcc.edu).

An analogy I commonly use to describe the “fluid mosaic” nature of the plasma membrane (from a top or extracellular view) is bobbing for apples. I begin by asking the students to imagine a tub filled with apples (phospholipid heads), some oranges (membrane protein), a pineapple or two (with leaves representing glycoproteins), all floating around in the water. I then ask them to imagine running their arms through the bucket and watching the apples and other fruits rearrange into a similar, but unique, intact fluid mosaic. This usually helps everyone get around the idea of thinking of the plasma membrane as a static, immovable structure.

III. Nervous Analogy
Richard Faircloth (Anne Arundel Community College, Rfaircloth@aacc.edu) likened an action potential to the cascade that occurs when dominos fall down in a line.
IV. Muscle Analogies
   A. Muscle Architecture
      As we learned from Elizabeth Hodgson (York College of Pennsylvania, ehodgson@ycp.edu), oranges can be valuable in teaching about muscle anatomy.

      I have an analogy that I use for the connective tissue coverings around muscles. I use an orange! I bring in an orange and explain that the peel is similar to the epimysium. I peel the orange and explain that the orange segments are analogous to the fascicles. Each orange segment is covered with the "perimysium." Then I CAREFULLY peel the membrane off of the orange segment to reveal the orange pulp. Each piece of pulp has the "endomysium" surrounding it. While this analogy is not completely accurate, the students have a better idea of the muscle after peeling the orange!

   B. Muscle Movements
      On the physiological side, we heard from Charlene Hartlaub (Charlene.newby@sbcglobal.net) who gave us an idea for explaining gross movements.

      I teach my students that flexion and extension are like forward and backward movements. Also, I explain that a sideways movement is abduction/adduction. So, for describing movements, if the movement is going toward the midline, no matter what position it is already in, it is being adducted. To be abducted, something is taken away, just as in a criminal abduction. In this case movement is away from the midline.

V. Genetic Analogies
   Food certainly does seem to be an analogous theme this issue! Alice Mills (University of Tennessee at Martin, amills@utm.edu) went straight to the school of culinary arts!

   Making a protein is like using a cookbook. The gene is the recipe, the chromosome is the cookbook, and the genome is the library full of cookbooks. Obviously, all the recipes are for proteins!

VI. Digestive Analogies
   Roberta Meehan (Troy University Montgomery Campus, biology@ctos.com) suggested that peristalsis is like the motion one uses in trying to get that last bit of toothpaste out of the tube.

   Harold Grau (Christopher Newport University, hgrau@cnu.edu), on the other hand, likened peristalsis to the pig in the python. That pig is quite a bolus!

VII. And We Hope You Will….
   Keep those cards and letters coming! We thank you all for your EDU-Snippet contributions. Although we will announce our theme online, sometimes we mold Snippets to fit a theme. So, you can submit your ideas now and maybe next issue you too will see your EDU-Snippet in print!

---

**HAPS Grants and Scholarships Committee News**

**Congratulations to this Year’s Scholarship Recipients!**

Robert Anthony Scholarship:
- Christina Gentile-Renda
- Elizabeth Kavran
- Tinna Ross
- Mitzie Sowell

Adjunct Faculty Scholarship:
- Mandi Dupain

Please congratulate these individuals and welcome them to their first HAPS meeting when you see them in Austin!
What is the recommended ratio of students to instructor in a laboratory classroom?

What is the acceptable limit of exposure to formaldehyde?

How many air changes per hour provide adequate ventilation for a laboratory classroom?

What common acid should be stored away from other acids and chemicals?

What solution should be used to clean-up blood spills?

The answers to these questions (see below) and more can be found in the HAPS Safety Guidelines, a resource written by the Safety Committee and now available to members on the HAPS web site.

Under the leadership of Sandy Lewis, the Safety Committee was formed in 2000 - 2001 in order to promote safety in the human A&P laboratory. As its first goal, the Safety Committee decided to create the Safety Guidelines, a resource for safety protocols and information for the purpose of integrating safety in the human A&P laboratory curriculum.

The Safety Guidelines consists of ten sections, beginning with general rules of safety in the laboratory classroom and resources for safety training. Another section addresses the safety concerns of A&P students who are pregnant or have special needs. Current privacy rulings and how they may impact the collection of student health data from A&P laboratory exercises are included. Universal precautions are described in the section dealing with the safe handling of body fluids (blood, urine, or saliva). A detailed protocol is presented on how to organize and store chemicals. Management of biological materials, from prepared slides to dissection specimens, is also addressed with information on potentially hazardous fixatives and preservatives. A checklist for the correct operation of microscopes, glassware, dissection instruments, and other common laboratory equipment is the subject of another section. The recommended standards for laboratory ventilation, fume hood operation, class size, and laboratory space are all to be found in the Guidelines.

The HAPS Safety Guidelines is now available in the Members’ Only area on the HAPS web site, hapsweb.org. Please look over the Safety Guidelines and send your corrections and suggestions to the HAPS Safety Committee.

The Safety Committee is currently working on a disaster plan to be included in the Safety Guidelines. This plan would provide details about the steps to take in case of a disaster: the availability of a back-up power supply and refrigeration, contact numbers for faculty and university officials, and protocol for specimens and chemicals. If you would like to participate in creating the disaster plan, the Safety Committee would love to hear from you! Please consider attending the Safety Committee meeting which is open to all members at the HAPS Annual Meeting in Austin.

Answers to safety questions:
One instructor per 24 students.
The current standard is 0.75ppm averaged over an 8 hour period.
A complete air change every 5 minutes or 12 per hour for a general laboratory; for the cadaver laboratory, 18-20 air changes per hour are recommended.
Nitric acid should be isolated and stored by itself.
A 10% bleach solution made within 24 hours.

Thanks to all current and past members of the Safety Committee who helped in the development of the Safety Guidelines:

Elizabeth Becker
Paul Boehlke
Laurie A. Choate
Sandra G. Lewis
Karen McMahon
Bonnie C. Revelle
Edna J. Steele
Rema Suniga
Estry Ang

Robert P. Brozanski
Peter E. Hogan
Jackie Butler
Linda R. Nichols
Colleen Nolan
Ben Rains
Donna L. Ritch
Amanda Starnes
Glenn Yoshida
Announcing
Anatomy & Physiology Revealed!
You must see this to believe it!

Stop by the McGraw-Hill booth and experience—hands on—the hottest A&P technology available.

Anatomy and Physiology Revealed was developed to give anyone with computer access the opportunity to learn from cadaver dissection.

**State-of-the-art layering.** Structures are grouped in layers allowing you to see the key structures within each layer as you move from skin to skeleton, all at your own pace.

**Imaging and animations.** Anatomy & Physiology Revealed offers a variety of radiological images including x-rays, MRIs, and CT scans. Compelling animations demonstrate muscle actions, clarify anatomical relationships, and explain difficult physiological concepts.

**Capture any image.** Images never before available can be electronically captured for lecture presentations and testing. Students can capture and print images for practice and study.

**Self-Test.** Challenging quizzes allow the user to test their ability to identify anatomical structures in a timed practical exam format. After the completion of each self-test, a results page is generated and lists all incorrectly identified structures, and provides links back to the program for immediate review.

---

**Some additional must-sees...**

**Saladin: Anatomy & Physiology, 4th edition**
From the completely new, exceptional art program, to the complete integration of the text with technology, Saladin has created a teaching solution that will both motivate and enable your students to understand and appreciate the wonders of anatomy and physiology.

**Shier/Butler/Lewis: Hole’s Human Anatomy & Physiology, 11th edition**
In biological evolution, a successful species becomes the best suited that it can be for a particular environment. In a similar manner, Hole’s Human Anatomy and Physiology continues to evolve as a modern exploration of the human, from the cellular and molecular underpinnings of the functions of life to its interacting organ systems.
If I knew eight years ago that I would be teaching the course that I love the way I am now, I would have said, “It absolutely will not work.” It is a good thing that I have no power in predicting the future because here I am, teaching Anatomy & Physiology online every school day in the nation’s first “REAL” Virtual School.

About ten years ago, it occurred to educators in Southwest Virginia that the needs of gifted and talented high school seniors could not always be met locally. Many factors complicated this phenomenon. Our students are somewhat geographically isolated due to the mountainous terrain, and the winters here can be harsh. This impacts the number of students in the local high schools and prevents the students, capable of accelerated work, from taking classes with their peers in one physical location. Along came the Internet, and the Virtual School concept became the solution. The gifted and talented students of the Holton Governor’s School log into class everyday using their computers or laptops.

My typical day begins at 7:20 AM with my early-bird class. Most of the students in this class log-in from home as the day in their high schools does not begin that early. Keep in mind I am teaching extremely bright future medical professionals, bioengineers, and forensic scientists.

This Anatomy & Physiology class is repeated at 8:30 and 11:30 AM. Presently I have 135 students, and they are located in 28 different high schools. All classes at our school are dual enrolled for college credit. I am able to reach my students by using software that allows interactive audio and streaming video. We communicate verbally as well as with text chat. I use PowerPoint® in my lectures and, with the synchronous web browser, I am able to take the class to any website that I feel enhances the lecture or discussion of the day. There is a virtual chalkboard which I use mostly for the physiology portion of the course. All class lectures are archived on the school’s webpage. When students are ill, they can come to class from home. They even “come to” class from hotel rooms when they have to be out of town. In other words, they do not miss class. I often ask people in the medical field to log-in to my classes and share their professional knowledge.

What about labs in this “Virtual Anatomy & Physiology” course? I was baffled for a while, but again the Internet was very valuable. Using several different sources, I developed laboratory activities that could be done at home using protein and enzyme sources available in the kitchen. It is amazing what students can learn from the epithelial tissues and body organs of a chicken. In addition to their Hole’s Human Anatomy & Physiology college textbook, my students carry seven CDs with them at all times for other interactive physiology labs. Two of the CDs are interactive cadaver laboratory experiences. There are also websites for virtual cat and human dissection lab activities. The highlight and the most exciting component of the course for the students is the experience they receive at one of the medical colleges in Virginia. They actually do work “hands-on” work on cadavers. This experience also allows them to talk to medical students and other members of the medical arena.

The question I am most often asked is how teaching this course online compares with teaching it in the regular classroom and laboratory. The content of this subject requires students to be disciplined in their studies. My students have found that the addition of synchronous and asynchronous technologies makes the classroom even more enticing. This technology allows them to see, talk, and share applications with students miles away simply by using a program on their computers. Here are some of their comments.

“Technology helps me learn new information faster and easier.”

“Virtual labs are convenient and allow me to take my time.”

“Virtual learning allows me to contact mentors all over the world. Feedback is personal and speedy – a real positive.”
“Learning is more exciting when technology is involved.”

“I can make new information become mine with technology.”

Are the days of the regular Anatomy & Physiology classroom numbered? Can we teach outside the normal “bricks and mortar” classroom? I have read comments from college and university administrators that it is going to be increasingly harder to find the money to build new lecture halls and other buildings in the future. My experience with “virtual reality” has been very positive. I have former students in some of the best medical schools in the country.

For more information concerning the A. Linwood Holton Governor’s School, a Virtual School, see our website http://www.k12.va.us. Any questions or comments can be addressed to Karen Smith at her desk ready for a full day in class.
I have just finished teaching the clinical case discussion sections for our Advanced Physiology course. The course consists of 3 hours of lecture (1 hour of lab, 2 hours of clinical case discussion), designed to act as a bridge between the basic science courses that our students completed in years one and two of the Doctor of Pharmacy program and the clinical sciences, which make up the majority of course work in years four and five of the curriculum. I teach all seven case discussion sections, while my colleague, Margaret Weck, teaches the lecture and is in charge of the labs. Now that we have finished grading, it is time to (yes, you guessed it) read the fall semester course evaluations.

If you are anything like me, you take great pride in the things that you did well and agonize over the things that you did not do so well. Thus, I usually try to approach course evaluations as objectively as possible. I make notes on the perceived strengths and weaknesses of the course. I try not to focus on the personal comments. Just the facts ma’am, yes that is me. Frankly, I am a little sick of that approach right about now. The comments are pretty much always the same. Some students like group work, some hate it. Some students like my teaching style, some hate it. Blah! Blah! Blah! After grading all of their case studies, the last thing that I want to do right now is to critically evaluate their comments about the case discussion portion of the course. I want to have some fun! I am done with the course!

I have decided that this year things will be different. I am going to try a little experiment. I am going to turn off my ego. That is right, the part of my psyche that balances the desires of the Id with the rules of the superego. I am turning it off! Then I am going to temporarily suspend the function of my superego.

Woohooo! What you have now is all id all the time baby! Now let us tackle those course evaluations, shall we?

[Note: Student comments appear first (in quotes), with id comments immediately following (italicized).]

“I actually liked discussion. I thought it was helpful, with the exception of my group being mildly dysfunctional.” sic.

Dis = separation; fuction = ???:, al = of or relating to….. Of or relating to separation of fuction?

“The video of the neuro-exam should be dropped it was as dull as it was pointless.”

ZZZZZZZZZZZZZZZ…. Huh, I was payin’tention!

“Too much work.”

You are tellin’ me!

“Dr. Ford really knows how to generate interest in physiology for the students. Just because we had the class at eight in the morning, people did not seem to be interested in participating in the discussion itself.”

That is ok. We will participate for you. Speak for yourself! Hey be nice!
Oh you generate sooooooo much interest. Yes I am a very interesting… Oh Puhhhhhleeeaaze! Medication adjustment time methinks.

“I wish that Dr. Ford would have graded groups easier. I know that what we are dealing with is human lives and it is crucial that we take it into consideration now, but the way he grades is just plain and painfully ridiculous!”

Hey! I am not a plain grader! I am a rather flamboyant grader. Have you not noticed my wardrobe!?

“I hated the fact that we worked on the course… and if we got something wrong about it we talked about it for maybe 5 min…. that’s not cool…. We should talk about the course and then do the write-up… reinforcement… it helps.”

Well it is my course and I do not want you working on it. If you do not do your case you cannot have any pudding! How can you have any pudding if you do not do your case!?

“I LOVED the cases and I felt they were very practical!”

Ummm… there are some states that have laws prohibiting that ya know.

“Kind of a waste of time, but a good grade booster, but alot of time for that.”

Lithium anyone!?

“Helped a lot to see why we were learning all this about physio”

My work here is done…..

“Helpful, but not at the same time. I’m going to be a pharmacist not a doctor”

Jim, I am a pharmacist, NOT a doctor!

“I liked it, but for a lot of people it was dependent on the type of group you got.”

Dysfuction junction, what is your function? Hooking up groups of… O never mind!
Edental Issues - continued from page 13

“Learned a lot, but was a pain.”

My oh my! Tricyclic antidepressants as first line treatment for neuropathic pain… Wonder if it works on case study pain?

“I really liked the case discussion because we were able to apply what we were learning to an actual person.”

Okay, then this week we are applying a hypersecreting pituitary tumor that has to be removed via trans-sphenoidal hypophysectomy. Any volunteers?

“I think that the case discussion part of the course was the source of many unnecessary headaches for many of us this semester.”

Next on Mutual of Omaha’s Wild Kingdom! I (Marlin Perkins) will sit in this tree while Jim teases the rhinoceros.

“9/10. Doing the cases helped me prepare greatly for the tests.”

Amnnnd the judge from East Germany… OH! A 2/10. There goes the gold medal folks…

“I did learn some stuff in this class. This class had the best teacher presenting the material in the best way.”

Thank you! I am here until Tuesday. Do not forget to tip your waitress.

“Not very helpful. Most dredded part of the class.”

Ya Mon!

“I really enjoyed case discussion. It gave us a chance to put our knowledge of physiology to use.”

But will that use be for good or for evil young Jedi?

“It helped me to understand the physiology in a body!”

Sooooooo are you gonna tell me which body or what?

“Dr. Ford is awesome! That is all.”

Duuuuude! Like tooootally…

“Excellent – Dr. Ford is a wonderful professor who genuinely shows a passion for what he teaches and I believe that this passion rubs off on his students.”

Eeeewwwww! Get that stuff offa me! Good way to get more face time with the dean, eh?

“Enlightening and interesting”

So sayeth Siddhartha…. Gunga galunga…gunga -- gunga lagunga

“While the format is excellent for true education, it was very brutal to my grade and very time consuming. I have to say that if it weren’t for Dr. Ford being the teacher my opinion of that portion would be very, very low. But like I said, it did force education and that’s what we are here for.”

Every sperm is sacred, every sperm is great, if a sperm is wasted, God gets quite irate…..

“Case discussion was great. I got a chance to improve my skills in working with others. Dr. Ford was a wonderful instructor; he makes learning fun.”

Yoooooorrryyyy you make learning fun… and I do not have to tell you that you are the only one

“Awesome! I learned a lot. I want to have Dr. Ford’s babies.”

When the moon hits your eye like a big pizza pie… everybody sing! Gosh I hope it is a female…

“Group work is horrible… nothing ever really happens as a group, except the fact that everyone’s portion of the assignment gets slapped onto a piece of printed paper.”

Welcome to congress! Heeeere is your sign.

“Ford helped me to connect the dots. Which is kind of rewarding when you realize how much we might actually know.”

See, I told you it was a polar bear! Now for a Rorschach test!

“He also tends to keep things lighter.”

Law of gravity? Phbbbtt! I never studied law.

“I know that I will actually get something out of his discussions.”

Nothing a little tetracycline cannot get rid of mate.

“I think that Ford did a great job relating physiological pathways to real life people…”

And now the story of Dean Martin’s liver….

“I think Dr. Ford is very engaging in the discussion sections and demonstrates an adequate understanding of the subject matter.”

Had a girlfriend that called me adequate once…...ONCE!

“Dr. Ford is great in discussion. I enjoy how there’s no BS.”

_or_yrygmu_

“I did NOT enjoy watching a baby being born. I am scarred for life.”

Time heals all wounds… except stretch marks from past pregnancies.

“I did not really understand the “point” of discussion”

Pointed stick? Oh, oh, oh. We want to learn how to defend ourselves against pointed sticks, do we? Getting all high and mighty, eh? Fresh fruit not good enough for you eh?

“I really enjoyed the pac-man diagrams to illustrate immunology with B and T cells.”

Doh! Those were macrophages…. Feed ‘em some interferon gamma and they become “Mad-Macs”!

“He seemed to explain things pretty well.”

Not real big on the commitment thing are we?
A METHOD FOR TEACHING THE OSTEOLOGY OF IRREGULAR BONES

R.M. Gravenhorst and M.L. Bareither
Department of Movement Sciences
College of Applied Health Sciences
University of Illinois at Chicago
901 W. Roosevelt Road, Room 337 PEB
Chicago, IL 60608
rgrave2@uic.edu
mbareith@uic.edu
(312) 996-4600
(312) 413-3699 fax

Introduction
The ossa coxae, scapulae, and vertebrae are irregular bones whose structure students frequently struggle to understand and remember. Students’ difficulties reflect directional confusion and their lack of experience in identifying anatomical relationships. Here we will outline a method utilized in an undergraduate anatomy and physiology course for teaching the anatomy of irregular bones. We will use the os coxa as a case in point.

Our approach creates an analogy between the os coxa, comprised of three bones, and a hypothetical continent comprised of three countries. Students “circumnavigate” the coastline of this coxal continent and learn the bony landmarks as “anchor points” along the way. This approach allows students to equate unfamiliar anatomical terminology with terms and directional concepts that are already familiar to them from basic geography. Students’ comments suggest that this unique analogy is helpful in alleviating some of the orientation difficulties otherwise encountered in learning osteology.

Navigational Approach
The navigational approach entails three main elements: (i) orientation of the bone in the correct anatomical position; (ii) selecting an easily identifiable landmark to use as the departure point; and (iii) using correct directional terminology to describe the journey’s course between sequential anchor points. A sample outline of how this approach can be applied to teaching the bony landmarks of the os coxa follows.

Orientation
- Grasp the os coxa, placing your thumb in the greater sciatic notch. Orient the bone so that the greater sciatic notch faces posteriorly; the acetabulum faces laterally and the iliac crest faces superiorly.

Landmarks
- Find the Anterior Superior Iliac Spine to begin the journey.

Navigation
- Depart at the Anterior Superior Iliac Spine of the first country, the Ilium.
- Journey posteriorly along the coast, observing the shoreline of the Iliac Crest.
- Round the Posterior Superior Iliac Spine.
- Sail inferiorly to reach the Posterior Inferior Iliac Spine.
- Observe a small peninsula, the Ischial Spine of the second country, the Ischium, jutting out across the bay of the Greater Sciatic Notch.
- Travel along the rocky shoreline of the Ischial Tuberosity.
- View an isthmus, the Ischial Ramus, where the Ischium abuts the third country, the Pubis.
- Inland, a lake, the Obturator Foramen, can be seen.
- Turn superiorly to sail past the Pubic Tubercle.
- An anterior view of the United Nations Building, the acetabulum, can be seen from this coast.
- Sail past the Anterior Inferior Iliac Spine.
- Return to the port of departure at the Anterior Superior Iliac Spine.

A similar navigational analogy can be applied to teaching other irregular bones, e.g., the vertebrae or bony landmarks of the scapulae. In 2005, we presented a poster on this topic at the HAPS
Teaching Tips - continued from page 15

regional meeting in St. Louis, Missouri. The poster comprised a visual aid that can be used by students to apply the navigational approach to the os coxa as described above. A section of the poster is included as Figure 1.

CLASSROOM USE *

While Figure 1 could be used as a stand-alone teaching tool, for maximum benefit, we recommend that students use it as a visual aid while handling the actual bones. This lends a more active aspect to the exercise by requiring students to match labeled structures on the diagram to unlabeled structures on the bony specimen and also to translate a two-dimensional figure into three-dimensional relationships. We hope that other anatomy educators will find this method useful in teaching their students the osteology of irregular bones.

* For a complete version of the poster, e-mail Robynne Gravenhorst (rgrave2@uic.edu).

Figure 1 – Visual Aid for Applying the Navigational Approach
Advancement in imaging has made it possible to research the effects of manual therapy. A common obstacle to the research has been capturing an image during movement. Modern 3-D imaging tools such as structural magnetic resonance imaging (MRI), functional magnetic resonance imaging (fMRI), magnetoencephalography (MEG), and positron emission tomography (PET) offer a window of understanding to the functional and structural effects of manual therapy on a functional spinal lesion, otherwise known as a subluxation.

A functional spinal lesion can be defined as an acute traumatic or chronic mechanical overload of a specific functional joint within the spine, causing imbalance dependent on the vector, rate, and magnitude of the joint overload. The imbalance leads to a displacement between segments of the spine causing stress within a functional spinal unit. A functional spinal unit consists of a disc, a nerve, a ligament, and facets.

The functional spinal lesion caused by mechanical overload results in mechanical irritation that triggers an inflammatory cascade. This cascade encompasses a neurophysiological reaction, and, concurrently, a neurogenic inflammation causes tissue injury and the release of polypeptides. The polypeptides stimulate nerve ending sensitivity and nociceptors, causing spinal pain with movement.

Vasogenic agents such as bradykinin and histamine are then released, causing further impairment to the functional spinal lesion. Autonomic reflex involvement is also related to the mechanical overload.

Manual therapy treatment is a biomechanical approach to correcting the imbalance problem at the segmental site of the lesion. This therapy consists of high-velocity low-amplitude (HVLA) spinal manipulation which is a controlled force delivered by a thrust in a corrective direction. The thrust generates an inertial force that transmits an acceleration of the spine 100-500 ms. The force alters the position of the functional spinal lesion unit including the spinous process, transverse process, and paraspinous tissues. The overall result is a reduction in the mechanical stress of the joint and traction of the disc space. An audible cavitation is heard when a gas is released at the site of the apophyseal joint in response to the sudden separation of the joint from the applied force.

The use of modern technology has made it possible to explore the benefits of manual therapy on a functional spinal lesion. The 3-D imaging allows research on the clinical correlations among the sensory, cognitive, and motor functions of the central nervous system, pain perception, vascular physiology, synaptic activity, structural changes, and manual therapy.
What More Should You Expect from Your Physiology Teaching Solutions?

How about...

More lab experiments and exercises...

More integrated courseware...

More interesting and fun ways to learn!

Thousands of students from hundreds of universities and colleges now use iWorx teaching solutions to learn physiology in more interesting ways.

More Learning

iWorx features over 150 animal and human physiology teaching lab exercises in seven lesson areas. The fully integrated kits include a choice of rugged data recorders and transducers, intuitive LabScribe recording and analysis software, professionally developed courseware, and all of the accessories needed for college-level lab experiments.

More Courseware, Free Site License, and Software Upgrades

It’s not often you get more for less, but iWorx gives you a free site license for an unlimited number of students and they don’t charge for software or courseware upgrades either. They are free forever. iWorx is also expanding its courseware to complement the most popular lab manuals in publication.

More Teaching Options

iWorx has developed virtual animal and human lab experiments in cardiovascular, respiratory, and neuromuscular physiology that are presented on CD or accessible via the Web. The self-contained virtual labs are an excellent supplement to Wet labs and ideal for distance learning curricula.

What More Can You Ask For?

Just an open invitation to schedule a live demonstration at your site. It could be the most interesting thing that has happened in your physiology department in years... more or less.

iWorx/CB Sciences
One Washington Street
Dover, NH 03820
800-234-1757
www.iworx.com
In Memory of Muffie Slater
July 28, 1950-March 2, 2006

Elizabeth Becker
Biology Department
Elgin Community College
1700 Spartan Dr.
Elgin, IL 60123
(874) 218-7318 x73
(874) 214-7965 fax

Muffie Slater was the type of student with whom most of the HAPS members are familiar. She returned to school as a non-traditional student after her four children, Kristen, John, David, and Timothy were in school. She graduated from Elgin Community College (ECC) with her associates degree then immediately transferred to Northern Illinois University (NIU). While she was working on her Bachelor’s degree, she was hired to tutor Anatomy and Physiology students in the Biology Department at ECC. The students came to value her abilities to explain things in ways they could picture and understand. Her job soon expanded to doing lab setups at ECC.

While her dream was to go to medical school but children, single mom financial issues, and a very bad back were not going to allow her to pursue that dream. Her advisors at NIU and Elizabeth Becker at ECC got together to plant the idea of teaching. Muffie was so very good at teaching that it seemed like an excellent fit. Muffie made her decision, and, after graduating with her Bachelor’s in Biology, she immediately entered the MS program at NIU.

Muffie’s MS was in Biology, with an emphasis in Human Anatomy. She continued to tutor at ECC and picked up TA duties at NIU. While she was finishing her MS degree, the Biology department at ECC started looking for another individual who could teach Anatomy and Physiology. Muffie was hired, one of ECC’s own students had come home. For the past three years, Muffie taught Bio 130, the one semester, intensive Anatomy and Physiology course. She took the class and made it her own. Her students loved the class and they loved the way she taught it. They loved her too. Former students were frequent visitors to her office, and she always made time for them. Muffie truly thrived on what she did. She frequently commented, “they actually pay me to do this” and “I love what I do!”

While she was a graduate student, Muffie joined HAPS. Her first HAPS meeting was the annual conference in Maui - talk about off to a flying start. She loved the meeting and was so excited that everyone wanted to discuss things with her, even though “she was still just a student” at that time. Muffie did not miss a single Central Region or Annual meeting after that time. She loved going to HAPS meetings to get more ideas for her classes. She picked up the idea of a “scavenger hunt” at the meeting just before she began teaching at ECC. In her enthusiasm she ended up having to grade more than 700 projects that term. One could barely find her in her office that semester! The faculty at EDD suggested that she assign fewer projects while making each project worth more points.

Muffie was a recipient of the Robert Anthony Scholarship her first year as a full time faculty member. She was so proud. She joined the Scholarship Committee in 2005. She felt honored to give something back to HAPS.

Muffie was a Boy Scout pack leader. She was a member of the Hampshire, IL Library Board and was currently serving as its treasurer. She was very active in her church and served on numerous committees there. Muffie loved to fly and had her pilot’s license, as did her ex-husband, Robert. She and her family had traveled all over the US flying. They even flew their planes to Europe and toured that way! How many people talk about landing their plane in Iceland and having reindeer steaks? She enjoyed hiking, camping, and all things outdoors. Muffie’s family has a cabin in Michigan on the shores of Lake Michigan. It was one of her very favorite places.

Muffie died in a car accident while driving from ECC to her church for a church council meeting on Thursday, March 2. It was about 6:30 p.m. Her car was hit on the driver’s side and pushed 150 feet into a newly plowed farm field. There were two explosions (the gas line was ruptured). While firefighters got to the accident very quickly, there was nothing that could be done.
HAPS COMMITTEES AND BOARDS

ANIMAL USE
Melaney Cook, Co-Chair
Salt Lake Community College
4900 S. Redwood Rd.
Salt Lake City, UT 84130
(801) 957-4793
melaney.cook@slcc.edu

Donald Kelly, Co-Chair
Mohawk Valley Community College
1101 Sherman Drive
Utica, NY 13507-5394
(315) 369-6614
(315) 792-5363
dkelly@mvcc.edu

A three-year plan includes widely distributing the HAPS policy statement, developing animal use
Internet links on the HAPS Home Page, monitoring relevant legislation, and creating a resource packet
for HAPS members.

ANNUAL CONFERENCE
Izik Paul, Chair
Mount Royal College
4825 Mount Royal Gate SW
Calgary, AB T3E 6K6 Canada
(403) 440-6173
(403) 440-6095 fax
ipaul@mrroyal.ca

Formulates conference guidelines, assists the annual
conference coordinators, and generates a list of
conference sites.

CADAVEr USE
Paul Krieger, Chair
Grand Rapids C.C.
143 Bostwick Ave. NE
Grand Rapids, MI 49503
(616) 234-4250
(616) 234-3592 fax
pkrieger@ggrc.edu

Develops guidelines for the use of cadavers in
anatomy instruction.

CURRICULUM AND INSTRUCTION
Carol Veil, Chair
Anne Arundel Community College
101 College Parkway
Arnold, MD 21012-1895
(410) 777-2265 fax
jackson@aacccc.edu

Reviews and revises, as needed, the HAPS Course
Guidelines for Undergraduate Instruction of Human
Anatomy and Physiology.

EXECUTIVE
Ric Martini, Chair
University of Hawaii
5071 Hana Highway
Haiku, HI 96718
(808) 572-2113
(808) 572-2114 fax
martini@maui.net

Composed of the HAPS President, President-Elect,
Past President, and Treasurer

GRANTS AND SCHOLARSHIPS
Amy Way, Chair
Lock Haven University Clearfield Campus
201 University Drive
Clearfield, PA 16830
(814) 768-3431
away@lhup.edu

Reviews all grant and scholarship proposals,
selects proposals to receive funding, and submits
its recommendations to the Board of Directors for
approval.

HAPS-EDUCATOR
Nancy Kincaid, Chair
Troy University Montgomery Campus
231 Montgomery Street
Montgomery, AL 36104
(334) 241-5474
(334) 241-58665 fax
nkincaid@troy.edu

Provides advisory and support services to the
HAPS-EDucator Editor such as soliciting and
reviewing articles, and proofreading the final draft
of the HAPS-EDucator before it goes to press.

Susan Baxley, Editor
HAPS
8000 Bonhomme
Suite 412
St. Louis, MO 63105

MARKETING
Javni Mody, Chair
Anne Arundel Community College
101 College Parkway
Arnold, MD 21012-1895
(410) 777-2265
(410) 777-2525 fax
jmody@aaccc.edu

Promotes HAPS and functions as the liaison
between HAPS and A&P vendors.

MEMBERSHIP
Jon Jackson, Chair
University of North Dakota, School of Medicine
P.O. Box 9037
Grandforks, ND 58202-9037
(701) 777-2101
(701) 777-2477 fax
jackson@medicine.nodak.edu

Recruits new members, provides service to
members, focuses on membership retention, and
completes membership information.

NOMINATING
Joe Griswold, Chair
The Science Learning Workshop
222 Hagen Road
Brigantine, NJ 08203
(609) 264-7105
(609) 264-7278 fax
jgris@comcast.net

Recruits nominees for the elected offices of HAPS.

PARTNER ASSOCIATIONS
Joe Griswold, Chair
Troy University
Phoenix College
(see Nominating Committee for information)
Coordinates the pursuit of common goals,
information exchange, and sharing of resources
between HAPS and other professional societies.

SAFETY
Rema Suniga, Chair
Ohio Northern University
525 South Main
Ada, OH 45810
(419) 772-2323
(419) 772-2330 fax
r-suniga@onu.edu

Develops standards for safety in the laboratory.

STEERING
Thomas Lehman, Chair
(see HAPS Web site Committee for information)
The Steering Committee, consisting of all Committee
Chairs, coordinates activities between committees,
and represents collective committee activity to the
HAPS Board of Directors.

TESTING
Chris Farrell, Chair
Trevecca Nazarene University
333 Murfreesboro Rd.
Nashville, TN 37210
(615) 248-1631
(615) 248-1747 fax
cfarrell@trevecca.edu

Completed, tested, and approved the HAPS
Comprehensive Exam for Human Anatomy and
Physiology. Any HAPS member may obtain a copy
of the test by writing to the Chair.

WEB SITE
Thomas Lehman, Chair
Morgan Community College
17800 Country Rd. 20
Fort Morgan, CO 80701
(970) 542-3211
lomlehman@morganc.cc

Carlos Shuster, Web Editor
Madison Area Technical College
3550 Anderson St.
Madison, WI 53704
(608) 322-6282
(608) 246-6880 fax
ccshuster@matc.madison.edu

CONFERENCE COORDINATORS
2006 in Austin, Texas
Mary Lou Percy, Coordinator
Navarro College
3200 W. 7 Ave.
Corsicana, TX 75110
(903) 875-7519 x381
(903) 874-4636 fax
marylou.percy@navarrocollege.edu

2007 in San Diego, California
Kevin Petti, Coordinator
San Diego Miramar College
10440 Black Mountain Rd.
San Diego, CA 92126-2999
(619) 388-7491
(619) 469-8487 fax
kpetti@sdccd.edu

The committee chairs invite input from HAPS
members and willingly provide information on the activities of their committees.

HAPS-EDucator - Spring 2006 - page 20
LabTutor® software lets students conduct life science experiments while providing time-saving features for educators and students alike.

LabTutor saves time by integrating a suite of ready-to-use experiments with background information, protocols, real-time data acquisition, analysis, graphing, and reporting, in one easy-to-use software interface.

For students, LabTutor enables independent learning by guiding them through experiments and testing their understanding of the scientific principles.

Even better, LabTutor works with the data acquisition systems more life science educators prefer to use – PowerLab®.

To start saving time, log onto www.adinstruments.com/edu or email edu@adinstruments.com for more information – it will only take a second.
Research Quality Tools for Education

Engage your students with the Biopac Student Lab

Multi-level learning features let you control the material and method of each experiment from scientific fundamentals to graduate programs and advanced research—with no programming required!

GIVE YOUR STUDENTS A REAL ADVANTAGE…

- Develop critical thinking skills—students can easily adapt or create lessons for hypothesis-driven studies
- Reduce setup time by 90% and maximize lab time—more students collect excellent data & focus on scientific principles
- Use clinical recording techniques & industry standard equipment to develop real-world skills
- Choose from 60+ BIOPAC transducers or interface with all major amplifier and transducer manufacturers
- Optimize visual feedback for signal type: chart, scope, X/Y, clinical grids, overlapped segments, standard curve, FFT, histogram, bar graph, numeric values, filtered data, etc.
- Choose from major published Lab Manuals (Marieb, Wood, Pflanzer, or Fox) or incorporate your existing curriculum

MORE THAN 1.6 MILLION SUCCESSFUL LAB HOURS

Complete Solutions for Life Science Education

60+ Lesson Experiments
Data Acquisition & Analysis for Windows & Mac

Human A&P * Biology
* Exercise Phys. & Biomechanics
* Psychophysiology * Neurophysiology
* Bioengineering * Pharmacology & Toxicology * Nursing * More!
Customize or Create Your Own Lessons!

New! MP35 Hardware & 3.7 Software
Certified Human Safe (IEC60601-1)

New! Lessons & published Lab Manuals
New! Video Support & Sample Data

Request a new BSL Catalog today and join thousands of satisfied users.

- Call (805) 685-0066
- Click www.biopac.com

“Of the five major players in the market whose products we selected to examine…only one measured up. The Biopac Student Lab.”
— HAPS List Server comment