Greetings From Your President.........................................................2
William Perrotti

Electing the Leadership .................................................................3
Michael Glasgow

HAPS 2002 Conference .................................................................6

Educational Issues

Fostering a Sense of Self-efficacy in Students: .................................8
Teaching the Art of Learning
Theresa A. Dehne

What and How Much Should be Taught in Human A&P Courses? ....13
Dayton J. Ford and David E. Evans

Teaching Tips

Cells as Factories .................................................................15
Bill Lambert

AMATAP: A Mnemonic Approach to Anatomy/Physiology ............17
Roberta Meehan and Ken Saladin

HAPS Committee Reports

Human Dissection Project .........................................................20
Chad Eric Troller

Regional Conference Committee .................................................21
Mary Bracken

New York City HAPS Regional Meeting Report .........................22
Elizabeth Harper

HAPS 2002 Conference Pre-registration Form ...............................23
Editor ......................................................................................... Susan Baxley

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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: Human Anatomy and Physiology Society, 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 welcome. Articles may be submitted to the editor by e-mail attachment as Microsoft Word or Word Perfect file or on 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 Editorial Board 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: May 15 (Summer issue); September 1 (Fall issue); December 1 (Winter issue); March 1 (Spring issue).

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As is too often the case, it is much too late in the evening and once again I am looking at a deadline from the wrong side. One would think that after more than twenty-eight years in education I would have somehow broken my long ago undergraduate habit of trying to do far too much far too late at night. So many years of such work habits must qualify me as the intergalactic king of slow learners.

As I write, it is about three weeks from the end of our semester and only three days more than that from Christmas. The fall semester this year ends so late that it feels as if I can go directly from my final exam home to Christmas dinner. As I say that, I know there are others of you with longer, less conveniently scheduled academic calendars than the 15-1 (15 weeks of instruction, 1 week of final exams) in use at my institution here in upstate New York.

Every year at this time I am reminded how very tiring the fall semester is for teachers and students alike... this one being no exception. No doubt some of the fatigue and longing for the end-of-the-year holidays this year is intertwined with a whole flood of emotions surrounding the tragedy of September 11 and its aftermath. Even though you will all be reading this well after the holidays, I hope your holiday season was warm, peaceful, and shared with loved ones and friends.

Reading all the clever and informative messages from a long string of past presidents, I never appreciated until now how difficult it is to compose something topical for publication roughly two months into the future and not have it seem old news by the time you all read it. Well at the risk of having everything I say here be stale by the time it reaches you, let me try to follow up on several items I mentioned in my remarks in the previous issue. At the time of this writing I have good news and bad news...On the good side, Carl Shuster (Texas) and Murray Jensen (Minnesota) have agreed to split the duties of HAPS Web Page Editor. They bring expertise and interest in such things to the task and I, for one, am immensely grateful that they have agreed to help with this work. The bad news is we are still not at the point where we can implement the switch from the current site to the more dynamic site that was partly showcased in Maui. How we can complete the design of the new page and effect the changeover is one item for consideration at the mid-winter meeting of the Board and committee chairs in Fort Myers, Florida. Because the web page project has been running behind schedule, the initiative by Donna White (Texas) to incorporate an interactive member database into the web page operation has been delayed as well. My sincere hope is that by the time you are reading this (and certainly before the end of my term on June 30) the new web page will be up. And it will be more extensive, more informative, and running flawlessly with some interactive database capabilities operational for members as well.

Another individual who has stepped forward to work on an important area of the society's operation is Gail Jenkins (Maryland) who has assumed the role of Advertising Editor. Gail has done a tremendous amount of work contacting and surveying publishers and other vendors to better understand how we can all work in a more symbiotic fashion so that we all "win." I am hopeful (even confident) that her efforts will bear fruit this year with increased advertisements in the HAPS-Eduator and more vendor participation at HAPS 2002 in Phoenix and beyond.

Speaking of Phoenix, Phil Tate has done an incredible job dealing with all sorts of issues (big and small) as he prepares to welcome us to Arizona in May. From the sound of it, the Phoenix conference promises to be memorable...so do not miss it. At the same time, preparations for HAPS 2003 in Philadelphia are accelerating as Lakshmi Atchison works to bring HAPS back to the east coast and show us the City of Brotherly Love. I for one am salivating at the prospect of finally visiting the Mutter Museum (of anatomy) which I have read so much about. Then it is on to Calgary with Izak Paul for 2004, a conference definitely not to be missed. There must be someone out there who wants to show off their college and their city for HAPS 2005. So all you HAPSers, give hosting a national conference some serious thought. I am thankful, that in an organization like HAPS, there always seems to be someone willing to take on a new challenge.

Over the past few years, the leadership has made strides in trying to align HAPS more closely with other biological and scientific societies as part of an effort to exert some influence over national or regional public policy. While HAPS is an international organization, our individual influence on public policy and the political process is virtually nil. However, our membership in the American Institute of Biological Sciences (AIBS) incorporates us into an existing and effective vehicle representing the interests of science and education. Last year when I attended an AIBS Council meeting, I was struck by how knowledgeable and active the AIBS staff is in contacting and communicating with legislators in Washington. Adequate funding for various scientific endeavors, research, and
educational initiatives does not just happen... it is often only the fruit of hard work and many, often repeated, contacts with legislators and government officials. The point was made numerous times at the AIBS meeting that, unless an organization is extremely large and extremely persistent and extremely active, it has no impact on the national science and education agenda. That is why AIBS is so important. It is an amalgam of nearly 100 professional societies in the biological sciences that can pool their influence to become something more effective than the sum of their parts. The philosophy is basically that each society, although possessing its own generally narrow focus, band with other societies to support broader scientific priorities and in some instances the narrower needs of a specific member society or group of organizations. In effect, we lend our support to the positions of other member societies and expect in return the same sort of support should something HAPS holds dear be threatened by some as yet unforeseen legislative initiative. One possibility might be a national statute addressing lab safety or animal use in a way that takes too much control away from the scientist or the educator and negatively impacts either research or the learning process or both. We need to be able to participate in such discussions because they are meaningful to our mission.

Earlier this year, the Board of Directors voted to officially add HAPS’ support to a letter from AIBS opposing an amendment considered anti-evolution that was sponsored by Senator Santorum of Pennsylvania. It read “It is the sense of the Senate that (1) good science education should prepare students to distinguish the data or testable theories of science from philosophical or religious claims that are made in the name of science; and (2) where biological evolution is taught, the curriculum should help students to understand why the subject generates so much continuing controversy, and should prepare the students to be informed participants in public discussions regarding the subject.” AIBS noted it was significant that only evolution was singled out from all possible controversial issues. According to the AIBS position (which the HAPS Board voted to support), if the goal of the resolution was to encourage discussion of the social dimensions of scientific issues, or critical thinking, or some other secular purpose, the resolution would have been worded more generally as for instance, “When controversial issues are taught, the curriculum should help students to understand why the subjects generate controversy, and should prepare the students to be informed participants in public discussions regarding the subjects.” The vote by the Board was not unanimous but it was, I think, an important step for HAPS. Our ability to influence national or regional issues that can affect us in positive or negative ways only exists through alliances we form with similar professional societies. That is why our membership in AIBS and the cordial and cooperative relationships we enjoy with the National Association of Biology Teachers, the American Physiological Society, and the American Association of Anatomists are so important and have the potential to be so beneficial to us. Given the right issue, we are far more likely to be effective in protecting our discipline, our craft and in influencing the outcome if partnered with other societies (the more the better). Without question, evolution is a controversial issue that carries with it much emotion. However, for my money HAPS is wise to be aligned with the greater mainstream scientific community on this and other such issues even though there are surely all manner of opinions represented within our membership. We as an organization must accept the fact that public policy determined by politicians with entirely different priorities than HAPS can have monumental, even disastrous, influence on what happens in our classrooms and labs. We must therefore be vigilant.

Along the same line, at the invitation of AIBS and with input from the Board, some time ago I sent comment regarding the proposed Canadian Council on Animal Care guidelines. I also took the opportunity to share with AIBS the HAPS positions statements on Animal Use and on Cadaver Use. This communicates some of our focus to a potentially much larger and more varied audience. We hope that by sharing our commitment to such issues we can help to sensitize biologists in other areas of specialization to what is important to HAPS and perhaps to enlist allies we may need at some time if the public policy climate ever focuses on our issues. Our best avenue to influence a larger universe is by our involvement with organizations such as AIBS. I for one am very grateful to the vision shown by previous past presidents who recognized the value of HAPS becoming part of AIBS and whose efforts made our membership possible.

Before I close, remember that in HAPS, every year is an election year. As you read this message the deadline for self-nomination is likely past. To those of you who this year have expressed an interest in running for office, thanks. To those who by now have responded positively to the solicitations of Mike Glasgow’s Nominations Committee, thanks also. If you find yourself in neither of the above, please consider running for office in HAPS next year. There is always room to do and there is always room for someone interested in contributing to HAPS. Give it some thought.

There, I am done... and as you now look out your window, it is practically spring! How is that for being long-winded.

17th Annual National Conference
May 30-June 4, 2003
Philadelphia, Pennsylvania

HAPS-EDucator - Winter 2002 - page 3
ELECTING THE LEADERSHIP

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The annual process of identifying candidates for the 2002 HAPS Election is underway. Over the next few months, the Nominating Committee will be assembling a slate of top candidates to fill each of the offices that have terms ending on July 1, 2002. These are President-Elect, Treasurer, West Regional Director and Northeast Regional Director. The following operating principles will guide the Committee in their work:

• A maximum of two candidates will be nominated for the position of President-Elect. This will ensure that whoever is elected to that office will be supported by a majority of those members who vote. The maximum number of candidates for offices other than President-Elect has been set at three.

• Members of the Nominating Committee will solicit recommendations from other HAPS members, compile a list of possible candidates for each office and prioritize the lists according to an established list of criteria approved by the HAPS Board of Directors. The criteria include the following:
  1) years of HAPS membership,
  2) committee participation and/or leadership,
  3) current or previous elected or appointed positions,
  4) attendance at regional and/or national conferences,
  5) presentations made at regional and/or national conferences,
  6) other special work for HAPS,
  7) evidence of support from the home institution, and
  8) a willingness to serve.

• Only after this part of the process has been completed will potential candidates be approached individually to determine their willingness to run for specific offices.

• All discussions of potential candidates will remain confidential within the committee.

• In late March or early April, members of HAPS will receive brief biographies of all candidates along with ballots on which to indicate their choices. Write-in candidates are acceptable at the time of balloting. However, if you choose to enter a write-in vote for someone other than yourself, it is requested that you obtain the candidate’s approval before doing so. All ballots are to be submitted directly to the national office where they will be counted by one of the staff. It will be my pleasure to announce the results of the voting during the annual business meeting at the HAPS 2002 conference in Phoenix.

DESCRIPTION OF OFFICES TO BE FILLED IN THE 2002 ELECTIONS:

President-Elect: The office of President-Elect actually involves a three year commitment (first as President-Elect, then President, and finally Past President). The year-long training period of the President-Elect provides a spot on the Board of Directors and ensures a smooth transition to the presidency the following year. The President-Elect works closely with the President and is privy to all of the decision making and much of the correspondence in which the President engages. During the training year, the President-Elect is responsible for chairing the Nominating Committee for the next election.

Treasurer: The Treasurer is the chief financial officer of the Society. He/she oversees all financial transactions of the Society, keeps a complete set of financial records for all Society business and presents financial reports as required. The Treasurer is a voting member of the Board of Directors and works with the Board in preparing the annual budget and overseeing periodic accounting reviews. The term of office for the Treasurer is two years and consecutive terms may be served.

Regional Directors: The Regional Directors are elected by the entire membership and exist to ensure that there will be individuals from across the continent serving on the Board of Directors. Each Regional Director is responsible for communicating with his/her constituents via small group meetings and written communications. Regional Directors also serve as members of the Regional Conference Committee to promote local/regional conferences in their respective areas. They are also responsible for support and communication with various HAPS committees assigned to them. The term of office for this position is two years with the opportunity to be re-elected for one additional consecutive term. The regions up for election this year are the Northeast and the West.

When you receive your election package and begin to weigh the relative talents of this year’s candidates, please take some time to consider the many opportunities through which

ELECTING - continued on page 5
you might become more involved in the activities of HAPS yourself. The benefits we all derive from membership are only possible due to the labors of those who have volunteered their time to enrich our professional society. The progress and accomplishments of HAPS have been due not only to the efforts of elected officials, but also—and perhaps more important—
to the contributions of the many members who serve in a multitude of other ways. For examples, I urge you to check the brief committee descriptions included in this issue. Then, if you would like to learn more or to volunteer your services, you may contact any of the committee chairs or me for information.

MEMBERSHIP FORM

PLEASE CHECK ONE:

☐ NEW MEMBERSHIP
☐ RENEWAL
☐ CHANGE OF INFORMATION

NAME

Last Name
First Name
Middle Name or Initial
Preferred Title (Dr., Mr., Ms., Mrs.)

INSTITUTIONAL NAME

DEPARTMENT/DIVISION

MAILING/DIRECTORY ADDRESS

CITY
STATE/PROV.
ZIP/POSTAL CODE

COUNTRY

PHONE

FAX

E-MAIL

REFERRED BY

~ IN MEMORY ~

Martha DePecol Sanner

Martha DePecol Sanner, 49, of Hillcrest Drive, Old Saybrook, CT, died on Monday, January 7 at Connecticut Hospice in Branford, CT after a long illness. Professor Sanner was the wife of Dr. Mark Sanner.

She held faculty positions at Tomkins Cortland Community College, Adirondack Community College, and Middlesex Community Technical College. In May 2001, the annual college biology award recognizing an outstanding student was renamed the Martha DePecol Sanner Biology Prize. Prof. Sanner authored an interactive physiology CD, a laboratory manual using A.D.A.M. software and CD’s, and an interactive physiology instructor’s guide for A.D.A.M.

Memorial donations may be made to the Middlesex Community Technical College Foundation, 100 Training Hill Rd., Middletown, CT 06457.

Fred Dalske

Fred was an Associate Professor of Biology at the University of Central Arkansas. He was an avid runner and worked with students and with the Arkansas State Science Fair. Fred received the Teacher of the Year Award at UCA on several occasions.

Fred is survived by his wife, Marianna Dalske, 4965 Springwood Drive, Conway, AR 72032, who asks that any donations of blood or money, be made to the American Red Cross.

HAPS-EDucator- Winter 2002 - page 5
Downtown Phoenix is known as the Copper Square. Copper played a large role in the economic development of Arizona, which produced more copper in the last century than the other 49 states combined. Copper is also a traditional Southwestern color used in the architecture and décor of the Copper Square, which is approximately ten square blocks in size (http://www.21cc.org/pdf/ColorMap.pdf). Located in the center of the Copper Square is the Hyatt Regency Hotel (http://www.hyatt.com/usa/phoenix/hotels/photo_a_phxrep.html), your home for the HAPS 2002 Conference. The Hyatt Regency, best known for its revolving Compass Restaurant located on the 24th floor, serves American Regional Cuisine and a spectacular view of Phoenix.

Within a few blocks walk of the Hyatt Regency there are many food and entertainment venues. Eating opportunities range from the basic to the sophisticated, from American to the exotic. The Arizona Center (http://www.therousecompany.com/operation/travelmarketing/arizonacenter.html) features a food court that well represents the fast food chains of America, so everyone should feel at home. Restaurants featuring Mexican, Italian, Caribbean, Cuban, Irish, East Indian, Japanese, Chinese, Greek, Cajun, Barbeque, American, Soul Food, and Southwestern (Sam’s Café is worth a try) are all available. In addition, there are breakfast houses, coffeehouses, juice bars, delis, sandwich shops, sports grills (including the Front Row Sports Grill inside Bank One Ballpark), dessert shops (pastries, pies, and ice cream), and even a Victorian tea room.

Downtown entertainment centers around events, sports, bars, and a 24-screen movie theater. Unfortunately, what will be available will not be determined until a month or two before the conference. Art events include performances at the Herberger Theater Center, the Orpheum Theatre, and the Phoenix Symphony Hall (http://www.ci.phoenix.az.us/CIVPLAZA/stages.html). Bank One Ballpark (BOB) is the home of the World Series champions, the Arizona Diamondbacks (http://diamondbacks.mlb.com) and there may be a game in town during the conference. Lil’ Ditty’s features dueling pianists, classic sing-along songs, and dirty rhymes. Dancing is possible at Moon Doggies Retro Beach Bar (50’s music) and Decades (70’s and 80’s music).

Also found within the Copper Square are many sites of interest, so schedule a few hours on your day of arrival or departure so you can visit them. BOB is the largest retractable dome sports facility in the world and is worth a tour. Founded in 1881, St. Mary’s Basilica (http://www.azcentral.com/community/points/stmary.html) is the oldest Catholic church building in Phoenix. The basilica is noted for its carillon tower and for its magnificent stained glass windows. The Heritage and Science Park includes the Phoenix Museum of History (http://www.azcentral.com/community/points/phxhistory.shtml/), which chronicles the early days of Phoenix and her settlers, the Historic Heritage Square (http://www.ci.phoenix.az.us/PARKS/heritage.html), which showcases Victorian houses that date from the late 1800s (docent-guided tours are available), and the Arizona Science Center (http://www.azscience.org/), which features hands on exhibits and a planetarium. A special exhibit featuring the Titanic will be showing until June 2, 2002. Artifacts raised from the Titanic, as well as a piece of the hull, are on display. The Phoenix Police Museum (http://phoenix.gov/Police/museum1.html) has police memorabilia, including jail cells from the 1890s and 1930s and a 1910 Model-T police car. The Arizona Doll and Toy Museum (http://www.artcom.com/museums/nv/titanic.html) is a classroom full of dolls and toys of the antique variety.

The Downtown Area Shuttle (DASH) is a free transportation system for getting around within the Copper Square. It also can be used to reach the Hall of Fame Museum (http://www.dlapr.lib.az.us/museum/hof.htm), which is dedicated to the people of Arizona, the Arizona Mining and Mineral Museum (http://www.admnr.state.az.us), which has over 3000 minerals on exhibit, and the State Capitol (http://www.azleg.state.az.us/museum/museum.htm) complex. The Capitol Museum (http://www.dlapr.lib.az.us/museum/usaz.htm) showcases the ceremonial silver service and other memorabilia from the USS Arizona, which was sunk during the attack on Pearl Harbor. The State Capitol grounds is the site of 24 memorials commemorating Arizonans and their achievements, including the Desert Storm Memorial, Vietnam
Attention T-shirt Lovers

Anyone interested in swapping T-shirts or tank tops with logos of their home institution or program please bring them to the opening reception on Saturday evening. Swapping tees has proved to be an enjoyable activity at other conferences and promotes many great interactions. Needless to say, you should not be wearing the T-shirt even if it is a dry heat. Bring a new unused one, size large or extra large. Any questions e-mail:

Richard Faircloth
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Modeling t-shirts for the swap are back row left to right friends of HAPS, Karen Israel, Shree Iyengar, Sharon Horstman, and HAPS President-Elect Mike Glasgow; front row left to right are HAPS members Richard Faircloth, Javanika Mody, and Carol Vail.
Fostering a Sense of Self-efficacy in Students: Teaching the Art of Learning

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One of the first discussions in which I participated on the HAPS e-mail list, HAPP-L,1 occurred during early June 2001. My posting was in response to a question posted by Trevor Day regarding class averages and the ethics of “feeding the mean.” This topic is one I feel quite passionate about, and thus my reply was quick and rather lengthy. As a result of that posting I have been invited to share some of my thoughts, tips and ideas on this topic with you.

Few college educators debate the fact that the college student of today is very different from the college student of 50, 25, or even 10 years ago. This situation has arisen, not because the public education—and hence the higher education—system is failing, but rather because our American system of public education is succeeding and more high school students than ever are seeking to join the ranks of those who hold college degrees. Many of these students are underprepared for the rigors of college academia. That does not mean that they should not be there. I believe that one of the great things about our country today is that—in a much more meaningful way than existed 50, 25, or even 10 years ago—everyone who wants the opportunity to earn a college education can do so. What it means, however, is that the demographics of our colleges changes. The difficulty arises when educators dig-in and fail to adjust to the changing demographic. The success arises when we can make the necessary adjustments without compromising the quality of our courses. Our challenge comes in the moment we realize that a traditional, subject-centered, formal approach will not reach the majority of our students.

There are good arguments to be made about the value of keeping college curriculum “traditional,” but the truth is, if we allow this paradigm to remain the dominant one, we are becoming part of a new problem: the problem of leaving willing, motivated, and capable people out of reach of their goals. (Notice that I said “willing, motivated, and capable people.” Stop for a second and really consider exactly who your students are, not who you perceive them to be after grading an especially disappointing batch of exams or papers, but who they are when they sign the paper that puts them in your class.)

Since the events of September 11, 2001, there has been a tremendous rise of patriotism and an accompanying rise in Americans’ desire to do their “part” to help America stay strong. I believe that, as an indirect consequence of this, we may see many young people choosing careers in health care. We will see a rise in numbers. We will see in this cohort an accompanying rise in motivation, but we will not necessarily see an accompanying rise in student ability or preparedness.

I think all Americans sometimes fail to see how simply doing what they do best is patriotic. What we do is teach. That is our contribution. We are educators. We are all blessed to be engaged in sharing something we love with those who genuinely seek to understand what we have to offer. Think of the awesomeness of it: we teach the science of life—human anatomy and physiology. And we have an audience of people who all aspire at one level or another to better themselves and the world in which we live. As I see it, our blessing therefore renders us obligated to cultivate in our students the ability to not only see themselves as capable, but also to foster in them the skills they need to be artful, capable learners.

Educational Issues - continued on page 9
There is no question about it; biology in general and human anatomy and physiology in particular are difficult subjects to master. As is evidenced by the many discussions we all share on the HAPPLI listserve, we can all acknowledge that the more about our subject we know, the more we realize how little we know. Our students do not have that perspective yet. The majority of our students enter our classrooms with successes under their belt's that leave them believing they are capable of success—which is largely true. However, they also bring with them a belief that what has worked before in other classes will work for them now in our classes. They wait to read their textbook until the night before an exam. They take too few or too many notes during class. Even the most responsible students tend to set about learning the information they encounter with an approach that just will not work. They try to memorize just enough facts to get through each of the next tests. They detach themselves from the information they are encountering. They are not doing this “on purpose” nor is it out of disrespect for the complexity of the material. That is simply what has worked for them in the past. We know that this approach will not work. We make our recommendations. We badger. We cajole. We scold. And they fail.

The difficulty for us as educators is found in our understanding that the effort to learn must come from within the students, and they think they are trying. They are doing more of what they have done before, so they think that means they are trying harder. Our task begins the moment we meet and greet our students with syllabus in hand. We need to help them understand not only that they must do the work, but also what is entailed in the nature of the work they must do in order to be successful in our classes. We cannot accomplish that by abdicating our efforts to reach them. What we must do is acknowledge the difference we can make if we seek to draw our students into understanding that they can make a difference, that they can succeed, and that the study tools they brought with them to our classroom may need to be exploited in a new way in order to be maximally useful in learning complex subject matter like human anatomy and physiology.

What I have done to model a new approach is this. I tell my students “I do not care one bit about letter grades.” I tell them that the grade they get in my class will be the grade they EARN. I tell them that if they want an A they can EARN an A, and that if they are willing to do the work, I will do everything I can reasonably do to help them accomplish that goal. I continually remind them that it is up to them. I tell them that I cannot do it for them. (I oftentimes tease them saying that “I would if I could, because it would make my work so much easier.”) I focus my energy, off-topic comments, and teaching enthusiasm toward helping my students appreciate their own responsibility in their own learning processes. In so doing, I have found that they are coming to understand their own learning processes better, and they are thus coming to understand the distinction between a “grade” and “learning.” When they leave my class they do not discuss the “grade I gave” them, rather they leave fully aware of the fact that the grade posted to their transcript is the grade they earned. It is a tremendous boost to their sense of self-efficacy and a wake-up call to those who do not invest at the level they knew was necessary. In the end, students are doing better in my class than they thought they would, and if the rumbles are true, they are finding success in their nursing, respiratory therapy, and other health related programs, which my classes are a prerequisite to.

Some of the specific points I have found particularly useful are as follows:

1. I include on my syllabus a chart-like breakdown of the minimum number of hours they need to spend PER DAY studying for all three or four credit hour classes (e.g. “if you study seven days a week, you need to study X number of hours per day outside of class”). I include along with that information a reference to the recommended number of hours they should study if they want to do especially well.

2. With each exam, I include a cover sheet with numerous questions that I hope will cause them to reflect on their study habits and efforts (e.g. “I spent _____ hours studying the material for this exam,” and “I ____ (did or did not) study according to Ms. Dehne’s recommendations for this exam.”) Fig. 1.

3. I require them to keep a study-log for the semester, which I periodically check. In this log they are to keep track of when and what they studied. (Fig. 2.) (Certainly they can lie, but ultimately they know the truth, and that is the purpose of the log. And I remind them of that fact on a regular basis.)

4. I assign optional homework (which is corrected by scantron, but not “graded”). We discuss any difficulties they had with the homework at the beginning of class on the day it is due. Most of the students do the optional homework, and those who do, love it. (They always, yes ALWAYS, have questions and out of those discussions come some genuinely inspiring and meaningful exchanges.

5. They are given vocabulary exams almost daily, which ARE graded.

6. Finally, all of this optional homework and vocabulary work is assigned and due PRIOR to my lecture over the material which they have worked on. This forces them to be at least somewhat familiar with the material before I ever open my mouth (e.g. Tuesday’s lecture being chapter 13, they will be given a quiz over the relevant vocabulary first thing Tuesday AND have their optional homework due at the beginning of Tuesday’s class).

In the end, these steps give students an opportunity to reflect on their own learning process, and in so doing begin to...
build the skills of artful learning that the formerly "traditional" student brought with him or her when entering college. The beauty of this work for me has been watching my students find success in ways even they did not know they would. This process helps my best students understand the rewards of coming to lecture with a base of knowledge already in place, and it allows my less-than-optimally-motivated students to encounter their own lack of effort. Ultimately these additions to my syllabus have allowed me to meet the challenges of a changing college demographic in such a way that my students leave my class with some knowledge of human anatomy and physiology, and - perhaps even more importantly - better able to meet the challenges that lay before them in their future academic endeavors. Being part of that is the greatest perk this job offers!

My full-time job is teaching biology and chemistry at New Mexico Military Institute. I have also taught (and hope to continue teaching) Human Anatomy and Physiology as an adjunct at Eastern New Mexico University in Roswell, NM.

Figure 1.

Name: ____________________________ Date: ____________________________

Human Anatomy - Spring 2001
Exam 5 (Chapters 12, 13, and 14)

Write your name in the blank provided above. Feel free to mark on your exam as needed; however ONLY the answers on your scantron will be used to calculate your grade. Read all instructions. No allowances will be made for your failure to follow directions. Each test item is worth 1.5 points unless otherwise noted. If you have a question about the validity or wording of a question PLEASE quietly approach me and bring it to my attention. You will have 45 minutes to complete this exam.

Initial here ______________ if you understand the above instructions and exam guidelines.

Please indicate whether or not you did the optional homework assignment for this material by writing your initials in the blank next to the appropriate statement.

__________ I did all of the optional homework for this material and turned it in on time.

__________ I did all of the optional homework for this material, but decided not to turn it in, or did not get it done before the due date.

__________ I did some (but not all) of the optional homework for this material and turned what I had done in on time.

__________ I did not do any of the optional homework for this material.

Please indicate your level of preparation for this material by writing your initials in the blanks next to the statement that indicates preparation tactics in which you engaged. (Mark all that apply.)

__________ I thoroughly read each of the chapters, and studied them according to Ms. Dehne's recommendations.

__________ I thoroughly read each of the chapters, but did not study them according to Ms. Dehne's recommendations.

__________ I looked at each of the chapters, but did not "read" them.

__________ I just studied from my notes for this exam.

__________ Other tactic (please describe)

__________ I am (at least SOMEWHAT) comfortable with my level of preparation for this exam.

Educational Issues - continued on page 11
I spent __________ hours per week studying for this class.

Start time: ____________________  End time: ____________________

Exam Score __________
Extra Credit __________
Final Score __________
Letter Grade __________

Figure 2a.

Human Anatomy – Summer 2001
Biology 212 – Study Log

For the next six weeks, you will keep a diary of your study habits for this course (see example page on reverse).

1. Use a composition notebook – wide ruled.

2. Using one page for each day, hand-write the following information:

<table>
<thead>
<tr>
<th>Day of the Week</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter Title and Number</td>
<td></td>
</tr>
</tbody>
</table>

**Reading:**
- Start time
- Pages
- Summary or other information
- End time

Hours Invested: __________

**Vocabulary Work**
- Start time
- # of words studied
- End time

Hours Invested: __________

**Optional Homework**
- Problems completed
- Time started
- Time ended

Hours Invested: __________

**TOTAL HOURS INVESTED TODAY** __________

3. If your hours for any two of the above categories overlap – write both down but only use the hours for one category or the other in your total hours invested.

4. At the end of the week total your weekly investment on a separate page.
Figure 2b.

EXAMPLE DIARY ENTRY

Tuesday
May 30, 2001
Chapter 9 - Joints

**Reading:**
Start time: 2:00PM
Pages 241-253
BRIEFLY summarize information you read in a few lines, paragraph or ...
End time: 2:45PM

Hours Invested: 0.75

Start time: 4:30PM
Pages 242-262
BRIEFLY summarize information
End time: 6:00PM

Optional Homework
Problems completed
1-50
Start time: 6:00PM
End time: 6:45PM

Hours Invested: 1.5

Vocabulary Work
Start time: 8:30PM
# of words studied all
End time: 9:30

Hours Invested: 0.75

Total time invested today: 4.0

Do Not Forget...

Each month the American Association of Anatomists sends 50 copies of each of their publications, *The Anatomical Record, Developmental Dynamics,* and *The New Anatomist* to our headquarters in St. Louis. Due to mailing costs to HAPS, we can longer offer these free. Copies will be available at the HAPS National Conference in Phoenix, AZ, and at all local conferences.

This wonderful offer from AAA demonstrates the increasing cooperation between our societies. To date, HAPS members have not taken advantage of the offer. I assume that is because most of us have simply forgotten. There is so much enriching good material in these issues (human/non-human, research, pedagogy, etc.) that it would be a shame for these issues to lie unused.

PS. There are also numerous back issues. Ask for them as well. Don’t pass up this opportunity to feed your mind.
What And How Much Should Be Taught In Human A&P Courses?

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How much should a student learn in A & P?

How, as a professor, does one determine learning objectives for students? One way a beginning professor might approach this problem is to look at the current plethora of texts in the field of Anatomy and Physiology (A&P). Right now, A&P text authors tend to place an enormous amount of material in their books, thus inflating the size and scope of their texts. In the 1960’s a typical undergraduate A&P text may have had only around 400 pages in it. In contrast, the 1986 version of Hole’s “Human Anatomy and Physiology” ran to more than 900 pages. Currently, the major A&P texts on my shelf have been going over 1100 pages long (Saladin’s Anatomy & Physiology clocks in at a weighty 1115). There are many sound reasons for this trend, including the explosion in scientific discoveries over the past three decades and the need to appeal to a more diverse audience (a little marketing goes a long way). However, I believe that it is possible that the forest may be lost for the many trees obstructing the view. As Dr. Ford said, “less is more.” Therefore, how can an educator decide which information is suitable for elimination?

Keeping in mind that we here at Penn College have a very diverse A&P audience, here are some criteria that we use:

1. Does this fact serve the students? Specifically, is there any way the student is going to need this information in a real life patient-caregiver scenario, and will it help students pass a board exam. There are several books that help to prepare students for their nursing board exams so an A&P professor can readily get a better idea of the scope of the information required to be taught.

2. Do the students need this information to prepare themselves for a subsequent class? All of our professional programs have courses that use our two-semester anatomy and physiology as a prerequisite. This puts some pressure on us to make sure we lay an appropriate foundation for the next year’s work, but it also liberates us from having to make sure that every sub-topic is given adequate coverage. For example, the occupational therapy assistant students will take a neuroanatomy course later in our curriculum. This course covers dermatomes very extensively, which means that I do not have to go over the topic as deeply as I might like to.

Article continued on page 14, left column

HAPS-EDucator - Winer 2002 - page 13
3. Does this datum serve to illustrate overall biological, medical, or course paradigms? I think that every A&P instructor can agree that homeostasis is a major concept in human anatomy and physiology courses. Information that helps expand upon and helps to clarify that important concept is obviously of great benefit to all students.

4. Does a discussion of this event or experiment help to explain how science works? We believe that an effective health care provider is one who continues to educate him- or herself. If students believe that science is only a group of facts set in concrete, they will never be able to look at scientific findings with a critical eye, nor will they be able to understand the necessity of being a lifelong learner.

Do students need to know everything in those 1100 page books? Of course not! Which is why we (as the “experts”) are responsible for filtering the contents of those texts and making sure that what is most important for OUR students is covered in detail. This means that some material will not be covered in detail, but that's OK. Which type of nurse would you rather have, one that understands basic renal physiology, can evaluate your status based upon your clinical values and can give you the appropriate treatment, or one that has memorized every clinically important value for evaluating renal physiology, but cannot analyze that data and come to the proper decision as to your treatment?

References


Cells As Factories

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Did you ever have trouble understanding cells? In my experience, one of the more difficult and maddening concepts for many students to grasp when learning about the human body is encountered early in anatomy and physiology courses—cells. Students are told that cells are the building blocks of living things and number in the trillions in the human body. It follows that cells are ridiculously small, even invisible (well, practically—and even when seen through a microscope, what is really seen?). That is all fine (many things are tiny), until the next bit of information comes their way. Cells contain innumerable individual parts (organelles, molecules...). This is part of the problem. It seems impossible that thousands and thousands of things could fit inside a tiny cell without them being jammed in there like the stuff in your garage or hall closet and thereby rendered disorganized, hard to find and relatively useless. What is astonishing (and face it, a bit inconceivable) is that cells work at all, let alone as well as they apparently do.

The difficulty in grasping an understanding of cells can intimidate and discourage students and may portend a difficult and unproductive remainder of the semester. In contrast, students with an understanding of cells are provided the foundation on which to build new information and insights throughout the course. In my Anatomy and Physiology I and II classes, we use an analogy that has proven quite useful in increasing students’ understanding of cells and provides just such a foundation. However, for years I suffered from the same problems as many of my students until one fateful day in 1985.

While in the Department of Physiology and Biophysics at the University of Southern California School of Medicine, I happened to have the following conversation with a fellow graduate student:

Charles: “What is wrong with you?”
Me: “Nothing.”
Charles: “No really, what’s up?”
Me: “I hate cells. I can’t understand them.”
Charles: “Well, what do you think of when you think of cells?”
Me: “You really don’t want me to answer that. I think exactly what I am told to think about them. They are minuscule, might as well be invisible. They also have about a thousand different parts, each occupying a specific region in the cell, each performing its own specialized task and all orchestrated in such a way that the cell functions quite efficiently, thank you. Impossible.”
Charles: “Wrong.”
Me: “No, right. It’s what they are trying to hammer home in class.”
Charles: “OK. You are right, but you are thinking about it all wrong. Do not think of cells as being tiny, think of cells as huge, the size of the lab. You can easily organize a thousand different things in the lab....”

As usual, Charles was right. What I grasped in that remarkable instant in 1985 has remained integral and valuable ever since. I can honestly say that, what had been one of the most difficult conceptual hurdles between myself and an understanding of cells, was instantly and permanently cleared. I have never again been troubled by the size of cells and their contents. However, while thinking of cells as being large is useful in bridging the conceptual gap between size and contents,
Teaching Tips - continued from page 15

it does not help one to understand the many remarkable capabilities of cells, which can be a daunting task.

So, how do we help our students gain a fundamental understanding of cells? For many of my students and me, an answer lies in a simple comparison of a cell to a factory.

To begin, let us stipulate that the analogy has shortcomings, several of which will be discussed shortly. However, keep in mind that we are talking about the human body and given the enormous range of cell types and capabilities, there are exceptions to almost everything. Yet, the strength of the analogy can be found in the numerous fundamental similarities between cells and factories. Students may have never thought about the workings of a factory per se, but they have been exposed to the idea so frequently that they quickly understand many of the characteristics and requirements of one. In so doing, students understand many of the characteristics and requirements of cells.

The analogy goes something like this:

1. **Conceptual framework**: Factories are large and three-dimensional. Again, it is useful to think of cells as large; if we do, it becomes a trivial matter to include numerous parts, organize them, shuttle things from one area to another, etc. Further, while most textbooks contain illustrations of cells that attempt to reveal three dimensions, thinking of a cell as a factory gives it depth and makes this point obvious.

2. **Specialization**: Factories are specialized, producing a specific product or several related products. A factory typically does not produce tomato sauce and computer monitors. Likewise, cells are specialized, often highly so. Practically speaking, specialization allows factories and cells to become very good at producing a product/performing a task. Think of the structural and functional differences between a red blood cell and a neuron. However, a significant drawback of specialization is that cells are often horribly equipped to perform other important tasks. Thus, specialized cells constantly depend on the equally specialized abilities of other cell types to satisfy everyday needs (e.g., a neuron is supplied nutrients by the digestive system and protection by the skin).

3. **Physical borders**: Another useful aspect of this analogy is easily overlooked or brushed aside too quickly. Factories and cells have walls. Regardless of their composition, walls form both external boundaries and internal rooms, allowing compartmentalization (organelles). External walls are vital for a number of reasons, not the least of which is they provide a barrier for the passage of material. Given their core requirements, virtually all factories and cells allow certain items to pass (e.g., respiratory gases and various forms of information). However, in keeping with their specialized nature, each factory and cell selects specific substances that are allowed to pass through their walls while excluding others.

4. **Raw materials**: A subset of the list of substances allowed entry to a factory or cell is raw materials. While this is an extension of selective permeability, it is useful to highlight raw materials since it fits so well with the factory analogy. Thus, in order to make their product(s) or perform their function(s), factories and cells bring in a very specific array of raw materials. These materials can take the form of everyday (not unimportant) items and those items that become part of the actual product. In general, factories and cells limit the rate at which materials are incorporated and are capable of storing some, but not unlimited, quantities of product.

5. **Energy**: Factories and cells require energy to operate. When the supply of energy to a factory or cell is eliminated, the ability to function is lost. Of interest, the nature of energy delivery is an area where cells and factories are dissimilar. Thus, the majority of factories import energy (electricity) from outside sources, while each cell is required to generate its own energy (adenosine triphosphate, ATP). However, while cells do not import ATP, they must import organic molecules and oxygen in sufficient quantities to meet changing energy demands.

6. **Waste**: As part of their daily activities, factories and cells create waste. These byproducts take several different forms—gas, liquid or solid. While smoke or steam is discarded through a smokestack, carbon dioxide from cellular respiration is transported in the cardiovascular system for expulsion by the lungs. Similarly, while factory liquid waste is discarded with plumbing, cellular liquid waste is also transported in the cardiovascular system, this time to the kidneys. Neither factories nor cells can allow indefinite buildup of waste.

7. **Communication/Coordination**: Factories and cells respond to orders. A factory receives this information through the postal system or electronically, either via telephone or computer. Cells receive their orders through the body's version of the postal system (hormones, etc., delivered by the cardiovascular system) or electronically (action potentials delivered by the nervous system). Both organ systems use different modes of transport/access and both are efficient.

8. **Transportation**: As a factory relies on the highway system for shipping and delivery of substances, so a cell relies on its intracellular highway system, the cardiovascular system. There are many trucks on the road with an unlimited supply of materials. Likewise, there are thousands of different substances in extracellular fluids. It is the cell's/factory's job to pick and choose which substances it needs and in which quantity.

In Anatomy and Physiology I, this analogy is introduced when we begin to address cells. During the semester, we examine the integumentary, skeletal, muscular, nervous and cardiovascular systems. As stated previously, the analogy is helpful to many because it strips away a layer of intimidation that often confounds an understanding of cells.

In Anatomy and Physiology II, the analogy is particularly useful. During this semester, we cover the...
respiratory, digestive, urinary, endocrine and reproductive systems, most of which are responsible for acquiring (with the aid of the cardiovascular system) raw materials for and the removal of substances from cells. Typically, we begin the A&P II semester with a review of the first several chapters of our text. Thus, the comparison of a cell to a factory is introduced on the semester’s first day. Then, as we examine different organ systems, we examine in detail their respective contributions to the analogy.

There are many examples where the analogy can be extended. For example, the nucleus can be compared to a boss, cellular proteins can be compared to factory workers, and lysosomes can be compared to recycling stations. In addition, there are instances when the analogy comes up short (mature red blood cells do not have a nucleus). However, that red blood cells do not contain a nucleus allows one to highlight the amazing level of specialization that occurs throughout the human body. Whatever the case, these are all good concepts as they allow us to challenge our student to come up with additional similarities and dissimilarities between a cell and a factory. I encourage you to try it.

Do your students need a quick and easy way to memorize some of those fundamental facts of anatomy and physiology? May we suggest mnemonics?

Medical students and physicians for centuries, and probably many of us, have found mnemonics useful for recalling such information as the order of cranial nerves. Some may object that mnemonics encourage mere rote memorization at the expense of insight, but surely most of us have had to memorize sequences of terms for which mnemonics were useful or could have been. Anything that makes sheer memorization less time-consuming frees up more time and mental energy for attaining functional insight. Besides, mnemonics is just plain fun! Share them with your students, make up new ones, and invite your students to make up their own. (“Old Opie” below was the brainchild of one of Saladin’s students, Marti Haykin, MD)

Some time-honored mnemonics, such as the classic “On Old Olympus...” for the cranial nerves, have been rendered obsolete by changes in terminology. (Cranial nerves VIII and XI have changed names since this mnemonic was coined.) The mnemonics we suggest are based on the Terminologia Anatomica (Federative Committee 1998) unless we indicate otherwise.

Not every mnemonic suggested on HAPP-L is listed here, partly because of space limitations, partly because many were only slight variations, and partly because readers may regard some of them as being in questionable taste. Medical mnemonics are famous for their bawdiness (Marlow 1999), and some instructors on HAPP-L reported complaints of sexual harassment incurred by using more risqué ones. We would rather err on the side of caution than to suggest using mnemonics that some students may find offensive or that may invite trouble for the instructor.

The original source of a mnemonic is usually untraceable. We have not cited the persons who contributed old anonymous mnemonics to the HAPP-L discussion, but we have cited the sources of original mnemonics when known.

**Cranial nerve names**

The current names are olfactory, optic, oculomotor, trochlear, trigeminal, abducens, facial, vestibulocochlear, glossopharyngeal, vagus, accessory, and hypoglossal. (The vestibulocochlear nerve was formerly named “auditory,” and the accessory nerve was named “spinal accessory.”)

1. **Old Opie** occasionally *tries trigonometry*, and feels very *gloomy, vague, and hypoactive* (Saladin 2001). This mnemonic has the advantage of using two to four letters from the names of most of the nerves and helping to distinguish the three “o” nerves, the two “tr” nerves, and others.

2. Oh, once one takes the anatomy final, very good vacation ahead. (The “ah” in *ahead* serves for the last two nerves.)

3. Oh, oh, oh, to touch and feel very good velvet—ah! (“Ah” again serves for the last two nerves.)

4. On occasion, our trusty truck acts funny—very good vehicle anyhow (Marieb 2001).

5. Oscar’s ornyx ox tore through a fence, viciously goring Vince and Harry.

Teaching Tips - continued on page 18

HAPS-EDucator - Winter 2002 - page 17
Cranial nerve functions

Strictly speaking, only cranial nerves I and II (and C.N.0. if one wishes to include that) are strictly sensory and all the rest are mixed, thus hardly calling for a mnemonic. However, these mnemonics may help for the traditional, if less accurate, classification into sensory, motor, and both (mixed). That classification may persist for some time in board examinations and other places.

(1) Some say marry money, but my brother says bad boys marry money.
(2) Some say marry money, but my brother says big brains matter most.
(3) Some say Marilyn Monroe, but my brother says Brigit Bardot—mmmm-mmmmm!
(4) Some scientists make money, but my brother says beautiful blondes make more.

Carpal bones

From lateral to medial, in the proximal and then the distal row, the current names for these bones are scaphoid, lunate, triquetrum, pisiform, trapezium, trapezoid, capitate, and hamate. Mnemonics 1 and 2 below take the bones in this order. Mnemonic 3 goes in a circle, starting laterally in the proximal row and ending laterally in the distal row. Mnemonic 4 will help in remembering the locations of the similarly named trapezium and trapezoid:

(1) Sally left the party to take Charlie home.
(2) Some lovers try positions that they cannot handle.
(3) So long top part, here comes the thumb. (Remember that trapezium and thumb both contain “um.”)
(4) The trapezium is by the thumb; the trapezoid is by its side.

Tarsal bones

Progressing from posterior to anterior, then in the distal row from medial to lateral, the bones are the calcaneus, talus, navicular, medial cuneiform, intermediate cuneiform, lateral cuneiform, and cuboid. Mnemonic 1 uses multiple letters from the names of each bone.

(1) Can talented naval medics interest lazy cub scouts?
(2) Cal and Tal navigated through the cube and saw three cuneiforms.

Location of the radius

Make a fist with your thumb pointing up and say “Rad!” The thumb points in the direction of the radius.

Tibia and fibula

To remember which bone is lateral and which is the smaller of the two:

(1) The little fibula is lateral (note the repetition of the l sound).
(2) The fibula is lateral.

Bones of the orbit

The orbit is formed by parts of the palatine, sphenoid, ethmoid, zygomatic, frontal, maxillary, and lacrimal bones.

Vertebrae

To remember that there are normally 7 cervical, 12 thoracic, and 5 lumbar vertebrae, think of the hours of a typical workday:

Leave for work at 7, go to lunch at 12, and get off at 5.

Segments of the intestines

To remember duodenum, jejunum, ileum, appendix, colon, sigmoid, and rectum: Dow Jones industrial average closing stock report (www.medicalmnemonics.com).

Heart valves and lung lobes

The tricuspid valve and trilobed lung are both on the right; the bicuspide valve and bilobed lung are both on the left.

Rotator cuff muscles

These can be remembered as the SITS muscles: supraspinatus, infraspinatus, teres major, and subscapularis. From the lateral aspect, the muscles encircle the humeroscapular joint in this order going clockwise from the top.

External abdominal oblique muscle

To remember the direction of the muscle fibers, put your hands in your pockets. Your fingers now point in the direction of the fibers (downward and medially).

Subdivisions of the brachial nerve plexus

To remember roots, trunks, divisions, cords, branches:

(1) Randy Travis drinks cold beer.
(2) Real Texans drink Coors beer.

Autonomic control of male sexual function

Parasympathetic puts it up; sympathetic spurs it out.

Supination and pronation

(1) To remember which hand orientation is supination: You must supinate the hand to carry a bowl of soup. If you pronate the hand, you will be prone to spill the soup on the floor.
(2) If you put on a hand puppet while your hand is supinated, the puppet will be in the supine position.
(3) If you lie supine, you are on your spine.

Bronchi

Which bronchus is the more vertical? If you inhale a bite, it goes down the right.

Epidermis

To remember the epidermal layers, stratum basale, spinosum, granulosum, lucidum, and corneum:

(1) Barney sent gifts last Christmas. (from deep to superficial)
(2) Come, let's get sun burned! (from superficial to deep)

Teaching Tips - continued on page 19
Immunoglobulins
This mnemonic lists the immunoglobulins IgM, IgA, IgD, IgG, IgE, in order of decreasing numbers of monomers—5, 2, 1, 1, and 1: For help with the immunoglobulins, ask Mudge.

Leukocytes
These mnemonics refer to the leukocytes in order of decreasing abundance: neutrophils, lymphocytes, monocytes, eosinophils, and basophils.
(1) Never let Momma eat beans.
(2) Never let monkeys eat bananas.
(3) No (one) likes my educational background.

Cardiac conduction pathway
To remember SA node, bundle of His, and Purkinje fibers: If a man has a heart attack, it may sadden his kin.

Gastrointestinal innervation
Functions of the nerve plexuses:
(1) myenteric for motility
(2) submucosal for secretion and blood flow

The cell cycle and mitosis
These will help in remembering the order of interphase, prophase, metaphase, anaphase, and telophase. Some dictionaries and genetics textbooks include cytokinesis as a part of mitosis. This can be included by adding “Cool!” to mnemonic I or “crud,” “crimony,” or any other expletive e-word to mnemonic 2.
(1) I passed my anatomy test!
(2) It probably means another test.
(3) The pro met Ana at the telephone.

Oxidation and reduction
To distinguish oxidation (loss of electrons) from reduction (gain of electrons)
(1) Oil rig (oxidation is loss, reduction is gain)
(2) LEO the lion says GER (losing electrons = oxidation; gaining electrons = reduction)

Bands of the sarcomere
(1) To remember which of the major bands, A or I, is dark or light, remember dark and light.
(2) To remember the order of lines and bands in the sarcomere (Z line, I band, A band, H band, M line): Ziggy is a happy man.

Zones of adrenal cortex and his hormones
To remember the three zones of the adrenal cortex from superficial to deep (glomerulosa, fasciculata, reticularis) and the major hormones that they secrete, respectively (mineralocorticoids, glucocorticoids, sex steroids or gonadocorticoids):
(1) Go find Rex. Make good sex!
(2) Get your facts right: men are guided by their gonads.

Afferent and efferent
To remember the distinction between afferent and efferent arterioles or nerves: Afferent and approach begin with a; efferent and exit begin with e.

Diluting acids
For safely diluting acids: When you do what you oughter, you add acid to water.

Mnemonics themselves
Finally, so many misnomers and misspellings for mnemonic itself cropped up in the online discussion that perhaps we need a mnemonic for mnemonic. Maybe this will help: “Memorizing names erroneously means one never instills comprehension.”

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MedicalMnemonics.2001.
http://www.medicalmnemonics.com/


http://www.xs4all.nl/~jcdverha/ scijokes/11.6.html/subindex
Chad Troller was the 2001 HAPS Student Grant recipient. He was given the 2001 Call for Proposals by his Anatomy and Physiology teacher, HAPS member, Kevin Petti. His article tells us about the changes that a student experiences when given a chance to explore beyond the first level Anatomy and Physiology course and that student grants do make a difference in the academic careers of the recipients.

Now I am sure what I want to do with my life. I was once one of the many directionless undeclared, majors in higher education, but now you can remove my name from that list. In 1999, I graduated from the University of California, San Diego with a Bachelor’s of Science in Psychology and a minor in Economics. Unfortunately, I was enrolled in the University simply to graduate, and not necessarily to prepare for a career.

After some time and prompting by my mother, who recently earned her Radiology Technologist Certification, I became interested and excited about the field of medicine and health. Now my goal is to become a Physician’s Assistant or a Nurse Practitioner. After researching paths to obtaining my goal, I realized that I lacked experience in the allied health field, so I applied to a Registered Nursing Program for which, after a few prerequisites, I would qualify. I enrolled in Human Anatomy, Human Physiology, and Microbiology at Miramar College, in San Diego. This was a major turning point in my life.

I was fascinated by everything I learned, which made attending classes a pleasurable experience. Eighteen weeks later, I was offered a chance to participate in the community college’s Human Dissection course which included the opportunity to be part of a team dissecting a new cadaver. To me, this was the opportunity of a lifetime and I did everything I could to attend.

I was a member of a four-person team who had the honor of dissecting a human cadaver. My team wanted the maximum experience from this course so we decided that we needed updated resources on human dissection and quality instruments for our semester long project. Our professor, who is a member of the Human Anatomy and Physiology Society (HAPS), suggested we apply for a grant from HAPS.

I had applied for grants in the past, but my experience was sometimes unfavorable and often without even a response from the offering party. I had only one day before the deadline to write my application essay and to send the transcripts, but something within me decided to try it anyway. I easily obtained recommendations from HAPS members Dr. Dan Trubovitz, my Anatomy and Microbiology professor, and Kevin Petti, my Human Dissection professor.

Within the week, I received an e-mail response from Dr. Richard Faircloth welcoming me to the HAPS Scholarship process and requesting a detailed budget for my project proposal in the Human Dissection course. I created a budget including necessary supplies and instruments, and reference materials including books and computer software that would maximize our learning experience in this unique course. The enthusiasm and support I received from Dr. Faircloth reflected the support demonstrated by my professors, who are also HAPS members. E-mail communication with the HAPS Grants and Scholarships Committee Chairman was convenient, and Dr. Faircloth promptly responded to all of my questions and concerns. After the scholarship process was complete, I was awarded the maximum student grant of $750.00 to use for our Human Dissection project.

The support of HAPS and its committee chair enabled me to draw more out of the Human Dissection course than I might otherwise have gained. I obtained quality instruments and research materials essential for human dissection for my group’s use. The hands on exploration and discovery that my team experienced offered more practical knowledge about human anatomy and physiology than any single resource could offer on its own.

The class started the project with a cadaver that had already been thoroughly prospected by former laboratory technicians and professors. Fortunately, we were able to extract the heart from our specimen. We made incisions in the ascending and descending aortas and the pulmonary arteries and veins. It was interesting how the dried blood still filled many of the vessels and crumbled as we pried away the elastic walls of the heart. We traced the path that once directed blood flow from the extremities of the body into the heart, to the lungs, back to the heart and eventually to the rest of the body. It is amazing how a human body develops to allow this process. Textbooks tell how the body works. Our cadaver showed us how it works. The efficiency that the human body demonstrates surpasses any chemical, mechanical or electrical creation by man.
Our next project was to remove the brain. We made frontal and midsagittal incisions in the tissue of the scalp and gently retracted the layers of tissue. We identified the skin, cutaneous layer, aponeurosis, loose connective tissue, and periosteum as we investigated deeper toward the skull. The layers separated like layers of carpet with padding underneath. We were able to appreciate the protection that the layers of tissue provide on top of each of our heads. We were eager to remove the calvarium, which proved much more difficult than we initially anticipated. We used a bone saw to make a circumferential cut through the skull extending through the frontal bone posterior to the occipital bone. This procedure took nearly one full hour. We had to be forceful enough to penetrate the rigid structure of the skull, while continuing to be gentle enough not to penetrate too deep and create lesions in the meninges. This process proved to be the most difficult of any that we experienced in our project. The bone saw became extremely hot after so much sawing, and our safety goggles fogged up because we had to wear mouth covers to prevent inhaling any bone aerosol. This brain dissection project proved to be the most rewarding. We developed an appreciation of the protection provided to the brain by the scalp and skull. I will never forget my amazement when the whole brain was extracted and at seeing twelve cranial nerves, all the vessels supplying the brain with blood, and all of the brain structures that allow us all to be such amazing forms of life. It was equally exciting to perform a laminectomy and to dissect the arms down to the muscle structures, nerves and vasculature on another cadaver. The updated resources including CD-ROMs and dissection guides I was able to purchase with grant monies enabled my group to take full advantage of the experience. I can say without hesitation that I learned more from this Human Dissection course than any other course I had previously taken.

The experience I have gained through this project with the help of the Human Anatomy and Physiology Society has exponentially increased my appreciation for the human body and its workings. If ever I was hesitant about my goals in the health and medical field, this experience has extinguished any doubts. I look forward to the challenge of reaching my goals and appreciate the help of the valuable tools I have gained by using the grant generously supplied by the Human Anatomy and Physiology Society. I appreciate my association with HAPS and intend to maintain this relationship with the Human Anatomy and Physiology Society throughout my future career.

WOULD YOU LIKE $100?

Mary Bracken, Chair
Trinity Valley Community College
PO Box 668
Terrell, TX 75160
(972) 563-9573 phone
(972) 563-1667 fax
bracken@tvcc.cc.tx.us

How does FREE membership for one year + $50 off registration sound? Then consider hosting a regional conference in your area. HAPS will supply the mailing labels along with guidelines for you to put on a one or two-day conference in your area. Consider a Fall 2002 or Spring 2003 date and contact me at the address above or contact your regional director. There are a few simple steps to follow in beginning this process.

- Contact Mary Bracken for a copy of the guidelines and a proposal form.
- Talk to your administration to get their support. They will need to supply a letter of support as part of the proposal. You can get a sample letter from me. Sometimes they will provide other services as well, such as postage, copies, meeting room discounts, meal services, etc. Find out what they will do for you.
- Set a specific date for your conference. (It can be one or two days.)
- Contact some colleagues to help you with the conference. (These people will be your committee.)
- Set up a budget for your estimated expenses. (I can send you samples from past conferences. Then set your registration fee based on expected attendees. The idea is to break even or, better still, make money.)
- Complete the proposal form. (There is one on page 14 of this journal or I can send you one.)

This should get you started, so contact me today at bracken@tvcc.cc.tx.us or use the telephone number above.

We have some parts of the country considering a regional conference. Toronto, Texas, Illinois, Maryland, Minnesota, and California have people who have expressed interest in hosting a regional. If you would like to add your state to this list, contact your regional director or me.

HAPS NEEDS YOU!
New York City HAPS Regional Meeting Report

Elizabeth Harper
Department of Health Studies
Steinhardt School of Education
New York University
35 West 4th, 12th floor
New York, NY 10012
eh403@nyu.edu

On May 24-25, 2001, Elizabeth Harper and The Department of Health Studies at New York University's Steinhardt School of Education hosted a HAPS regional conference. This two-day conference, titled: An Introduction to Alternative/Complementary Medicine: Issues in Health, Research, and Education, brought together teachers and students from a variety of health professions and prominent individuals in the field of complementary and alternative medicine (CAM) in the NYC area. Morning update lectures gave participants a solid overview of the philosophy, history and current research in CAM, as well as some biological and biophysical evidence for reasons to pursue integrative medicine. Afternoon workshops provided experiential opportunities in disciplines such as yoga, Feldenkrais, qi gong, Traditional Chinese Medicine, meditation, nutrition, medicinal plants, Teiki and therapeutic massage. Participants were able to enjoy a variety of culturally diverse restaurants in the Greenwich Village area, and, as always, New York City provided a stimulating backdrop for such an event!

Comments about the conference were so successful that the Department of Health Studies may make this type of conference an annual event.

Response from HAPS members, however, was low. This could have been attributed to the time of year - conflicting perhaps with the annual HAPS conference and other regular meetings. Others suggested that people who live in and around the NYC area are more reluctant to visit the city than those who live further away. There may also have been a lack of interest in this specialized area. I was glad to have the opportunity, however, to implement this regional meeting. Perhaps there will be a time HAPS will want to do a National Conference here or I will live in some tranquil part of the world which will attract more members!

Mona Schreck using therapeutic massage techniques to relieve tension in an AP instructor's neck.

Off site visit to the New York Botanical Gardens to see Medicinal Plants.
Pre-registration Form

Your name as you want it to appear on name tag

Guest Name

Institution

Street Address

City/State/Prov/Zip

Country

Phone

Fax

Email

<table>
<thead>
<tr>
<th>Member</th>
<th>Non Member</th>
<th>Guest</th>
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<tr>
<td>Beginning 5/1</td>
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____ I have enclosed a check made payable to HAPS (USA funds only).

____ Charge my Master Card or Visa
Card #
Exp. Date
Name on Card

____ I am not registering at this time, but please send me the final registration packet when it is available.

____ I would like to join HAPS. Enclosed is my dues payment.

Send Pre-registration Form and Payment to:
HAPS, 8000 Bonhomme,
Suite 412, St. Louis, Missouri 63105
Phone: 800-448-4277 • Fax: 314-863-6457

Join HAPS
Join HAPS today, enjoy all the benefits of membership, and save money on conference fees. The one-year membership fee is $50 for full-time faculty and $35 for adjunct faculty and students.

Registrant Fees
Registrant fees for the Update Seminar Package include all update seminars, the welcome reception, banquet reception, two continental breakfasts, and all refreshment breaks.

Registrant fees for the Workshop Package include all workshops, two continental breakfasts, two box lunches, all refreshment breaks, and transportation between the Hyatt Regency and Phoenix College for the workshops.

Registrant fees for the Entire Conference Package include everything in the Update Seminar and Workshop Packages.

Guest Fees
Guest fees apply to all guests who are not registered as participants for the conference, regardless of age. They include the welcome reception, banquet reception, two continental breakfasts, and all refreshment breaks. The guest fees do not include update seminars or workshops. Only registered guests may attend vendor-sponsored special events.

Other Fees
The annual banquet fee and additional activities will be charged separately per individual registrant or guest.

Cancellation Policy
Registration fees are fully refundable until the end of the regular registration period (April 30, 2002) less a $15.00 handling fee. From May 1, 2002 through May 31, 2002, 75% of the registration fee will be refunded. There will be no refund after May 31, 2002.
HAPS COMMITTEES AND BOARDS

Have you ever wondered where you could obtain a standardized anatomy and physiology test? Or maybe you are thinking about an educational project and are looking for funding? Do you feel strongly about a particular issue and would appreciate an opportunity to discuss it with other HAPS members? The following committee chairs invite input from HAPS members and willingly provide information on the activities of their committees.

ANIMAL USE TASK FORCE
INACTIVE

A three-year plan included 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 COMMITTEE
David L. Parker, Chair
801 SW 2nd Court
Ft. Lauderdale, FL 3312-7109
(954) 527-4162
Dparkerbio@iol.com

The primary responsibilities of this committee are development of a standardized fees structure for the annual conference, formulation of guidelines and assistance for the conference coordinator, and generation of a calendar of conference sites.

CADAVER USE TASK FORCE
INACTIVE

The goal of this committee was to develop a set of guidelines for the use of cadavers in anatomy and physiology instruction.

COMPETENCY TESTING COMMITTEE
Sam Drogo, Chair
Mohawk Valley Community College
1101 Sherman Dr.
Utica, NY 13501
(315) 792-5409
sdrogo@mvcc.edu

This committee recently completed and tested an approved revised version of the HAPS Standardized Test for Human Anatomy and Physiology. Any HAPS member may obtain a copy of the test by writing to the Chair.

CORE CURRICULUM AND ASSESSMENT COMMITTEE
Dan Lemons, Chair
Dept. of Biology
City College of New York
Convent Ave. at 138th St., 1526
New York, NY 10031
(212) 650-8543
daniel@harold.sci.ccnyc.cuny.edu

This committee has developed a second, revised edition of the HAPS “Anatomy and Physiology Course Guidelines.” The second edition includes new guidelines relating specifically to the laboratory component of the course.

DISTANCE EDUCATION TASK FORCE
INACTIVE

Tom Lanraft, Chair
St. Petersburg Junior College
Natural Science
P.O. Box 13489
6605 Fifth Ave. N.
St. Petersburg, FL 33733
(813) 341-4797
lanraft@email.spjc.cc.fl.us

This task force was responsible for developing and distributing a HAPS position paper on distance learning.

GRANTS AND SCHOLARSHIP COMMITTEE
Richard Faircloth, Chair
Anne Arundel Community College
101 College Parkway
Department of Biology
Arnold, MD 21012-1895
(410) 777-2272
RFaircloth@mail.aacc.cc.md.us

This committee is responsible for advertising and reviewing all grant and scholarship proposals, selecting proposals to receive funding, and submitting its recommendations to the Board of Directors for approval.

HAPS-EDucator EDITORIAL ADVISORY PANEL
Colin Wheatley, Chair
1222 Saalsaa Rd.
Madison, WI 53711
Colin_Wheatley@mcrew-hill.com

Members of the HAPS-EDucator Editorial Advisory Board provide advisory and support services to the HAPS-EDucator editor such as reviewing articles and proofreading the final draft of the HAPS-EDucator before it goes to press.

MEMBERSHIP SERVICES COMMITTEE
Kevin Petti, Chair
Dept. of Science & Health
Miramar College
10440 Black Mountain Rd.
San Diego, CA 92126-2999
(619) 536-7231
kpetti@sdcscd.cc.ca.us

Committee members assist the Chair with recruiting members and compiling membership information.

NOMINATING COMMITTEE
Michael Glasgow, Chair
Anne Arundel Community College
Biology
101 College Parkway
Arnold, MD 21012-1895
(410) 777-2258
(410) 777-2525 Fax
MSGlasgow@mail.aacc.cc.md.us

The committee chair is always the current President-Elect. The committee is responsible for recruiting nominees for the elected offices and appointed positions of the HAPS organization.

REGIONAL CONFERENCE COMMITTEE
Mary Bracken, Chair
Trinity Valley Community College
Biology Department
1200 East Interstate 20
Terrell, TX 75160
(972) 563-9573
bracken@tvcc.cc.tx.us

The committee provides mentoring assistance to coordinators of regional conferences. Anyone interested in hosting a regional conference should contact the Chair.

SAFETY COMMITTEE
Karen McMahon, Co-Chair
University of Tulsa
Biological Science
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(918) 631-3129
(918) 631-2762 fax
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St. Mary’s University
Biological Science
One Camino Santa Maria
San Antonio, TX 78228-8511
(210) 431-4304
(210) 431-6746 fax
bionolan@stmarytx.edu

The Safety Committee is developing standards for safety in the laboratory.

TECHNOLOGY COMMITTEE
Tom Lanraft, Co-Chair
St. Petersburg Junior College
Natural Science
P.O. Box 13489
6605 Fifth Ave. N.
St. Petersburg, FL 33733
(813) 341-4797
lanraft@email.spjc.cc.fl.us

Jim Pendley, Co-Chair
Imperial Valley College
P.O. Box 158
Imperial, CA 92251
(619) 352-8320 x 303
pendley@imperial.cc.ca.us

The committee monitors and reports on technological changes influencing anatomy and physiology teaching, such as advances in instructional software and data acquisition equipment.
"It's a dry heat!"

16th Annual Human Anatomy & Physiology Society Conference
May 25-30, 2002