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Trust and Open Communication: Successful Mentoring Strategies That Transcend Differences in Language, Culture, or Style

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Mentoring requires trust, time, and patience. Helping the next generation of scientists to succeed no matter their background is vital if we are to address the ongoing disparities in science. Successful mentoring relationships depend on good communication and an acceptance and understanding for each other's differences in language, culture, and style. To each relationship, we bring an amalgamation of background experiences that shape our interactions and contributions to our scientific endeavors. Although one size does not fit all, clear expectations, criteria, and timelines can help guarantee a successful training experience. Accountability through both formal and informal mentoring ensures that mentees reach their goals.

What is a mentor? According to Webster's dictionary, being a mentor is defined as "a wise and trusted counselor or teacher" (10), more recently, "a trusted counselor or guide" (5), or on google "an experienced and trusted adviser." The common theme here appears to be trust, which holds up to my own perception and experience that, as a mentor, you are privileged by the fact that someone has *chosen* to place their trust in you and believes that you have his or her best interests at heart in your efforts to guide that person. When I was asked to write an article based on my experiences and insights on mentorship for underrepresented minorities, I really had to think about what mentoring means to me and try to articulate how *I* mentor. For the last 20 years, I have been on faculty at a Hispanic-serving institution located in the south of Puerto Rico and have been fortunate to mentor over 100 underrepresented minority students (undergraduate, Master's, and doctoral) either within my laboratory or through our graduate training program. Each of these experiences has been unique, and often both rewarding and challenging.

My Introduction to Mentoring

My own awareness of having a "mentor" vs. a laboratory principal investigator during my scientific training didn't really become apparent until I started my postdoctoral training in the early 1990s and heard of mentoring programs under various professional societies. Although the word's origins date back to the mid-18th century, the popularity of the concept of mentoring appears to have blossomed during the last 20 years, perhaps in part by an increased understanding of the importance of role models to achieving equity in science for both women and underrepresented populations (3). Although I am not considered an underrepresented minority (by ethnicity), it is notable that throughout my undergraduate, graduate, and postgraduate education in Britain, Canada, and the U.S., there was one common denominator: a lack of female role models. I have *never* been taught by

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APS News

Meet New APS Executive Director Scott Steen

Scott Steen

Scott Steen, CAE, FASAE, will join APS as the new executive director on July 16, 2018. He comes to APS after leading two legacy science-focused organizations: the American Ceramic Society and, most recently, American Forests.

"We are delighted that Scott has accepted the position at APS and are looking forward to his start in July," said APS President Jeff Sands. "Scott has a proven record of leading innovation and growth, building and nurturing exceptional staff teams, developing highly valued member benefits, promoting strategic planning, and positioning organizations to inspire and engage members, partners, and the public. The APS Council and staff are looking forward to his fresh take and ideas for the organization as we move into our next phase."

Look for more from Scott in the next issue of *The Physiologist* and learn more about him on the APS website (*www.the-aps.org/mm/hp/Audiences/Public-Press/2018/17.html*). ●

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a woman. Furthermore, it was very obvious that the vast majority of the professors, and later colleagues, were both male and white. Although slowly changing, it is unfortunate that the numbers of underrepresented groups in academia and the sciences still remain low (6).

During my postdoctoral studies in Canada and South Dakota, I first became aware of the hardships faced by Native Americans in science. One of my prior mentees I remember best was a young girl pursuing summer research in the lab at the University of South Dakota. She told me that it was completely expected for her to get pregnant and leave high school like the rest of her family and that the summer program opened her eyes to a whole range of other possibilities. It was at that time that I became aware of the potential impact of STEM outreach. Dr. Barb Goodman [long-time APS member and Physiology Understanding (PhUn) week advocate] was already very involved in going into the local schools in Vermillion, South Dakota, to expose the kids to science. She told us about her experiences, and this was illuminating for me since I had received very little information during my schooling as to what a career in science might entail, aside from the pharmaceutical industry. I began to appreciate that, for many students, the path toward a successful career in science should depend on things other than luck, such as guidance toward opportunities and how to make the most of these opportunities. This has become readily apparent as we appreciate the difference that successful targeted research mentoring can make in an effort to overcome inequities in retention of minorities in the sciences (4). When I was asked to become the Graduate Student Association Advisor, I became aware that the students within our graduate program were asking for additional training and had an interest in improving their competitiveness for life after graduate school. I also noticed that there were issues that were hindering the students' progress so that many times they were underperforming due not to lack of ability but rather to a lack of mentoring.

Mentoring Styles: How Does Mine Fit?

As I started my own lab, I "mentored" my own students in a way I would have liked to have been mentored, trying to set guidelines, expectations, milestones, and deadlines. I learnt that what worked for some (strict deadlines and constant follow up) would not work for others. We are all individuals and respond to stress and obligations in different ways. It has always been very important to me to stress to my trainees that what they want to achieve in life is a very personal decision and that I see success in all forms. I have had to adapt my own way of "balancing" things, as someone who completed graduate school and had a family later in life, to help provide advice to students in my laboratory who have been through all stages of family life while completing their studies (single, engaged, married, pregnant, children, divorce). I have tried to provide an open space encouraging my mentees to identify their own passions and what interests them. It is important for them to realize that there is no "right way" and that our depth and amalgamation of background experiences help to shape our research and our contributions to our scientific endeavors. However, I strongly believe that it is also extremely important that, when one enters a mentoring situation, there is a realization that a commitment is being made on both sides, which must be upheld for the outcomes to be successful. Each side of the equation is trusting the other to follow through on their promises. Although this does not always need to be formalized with written documents, in my own experience, written expectations and timelines have always proven very useful for helping to ensure that mentoring relationships stay on track.

The single biggest failing I see that causes a multitude of problems in different laboratories and mentoring relationships is simply poor communication. This inevitably leads to not clearly outlining and understanding expectations from both the mentor and the trainee. The risk for this can be even higher when mentoring an underrepresented minority where there can be great differences in language, culture, and accepted social norms on top of differences in communication style and personality, and even implicit bias.

Working in a predominantly Spanish-speaking U.S. territory, I very quickly realized that all sorts of miscommunications can occur when rapidly giving instructions with an apparently "strong" Scottish accent. In person, a nodded head often did NOT equal understanding. It is important to realize your mentees

might be hesitant to ask you to explain what you mean or to slow down. A helpful solution is to ask the trainee to reiterate what you agreed on, and this can also be followed up by e-mailing a summary of the decided plans after the meeting with follow-up deadlines (also a good way of tracking for both mentees and mentors). Likewise, my "to the point" requests have sometimes been misconstrued as being "brusque" in a culture where there are commonly many more niceties first. This can be especially true when communicating by e-mail, where you lose the ability to interpret facial expressions. Ask trusted colleagues and staff, or more senior students, for feedback. It was a revelation to learn that when trainees sometimes didn't do something as quickly as I was expecting, this was in large part due to my tendency to preface requests with "when you have time" when, really, I wanted it as soon as possible (and apparently when I say "as soon as possible," it means I wanted it yesterday!).

How I Implemented Vision Across the Graduate Program From My Own Lab

There are many levels of mentoring, ranging from those relationships that take place both formally and informally within the single research lab (undergraduates, graduates, postdocs), through to mentoring those students at a programmatic level, and then to junior faculty who are colleagues. In general, I have found very useful a "team mentoring" approach and setting realistic milestones within a supportive but accountable environment. This has been one of the cornerstones for the success of students in our NIH-NIGMS-funded Ponce Health Sciences University (PHSU) RISE Graduate Training Program (8), which has helped increase the competitiveness and retention of underrepresented Hispanic students participating in biomedical research in our interdisciplinary PhD program. Novel initiatives we put in place to help our students succeed better include team mentoring programs and "pairing" of trainees with peer mentors chosen to help provide advice and direction matched according to the student's family and personal circumstances. We have a unique situation in Puerto Rico in terms of language and also culturally with many first-generation graduate students. Taking into consideration the individual as a whole, not just their research or career goals, aims to provide a more solid support system. We have also implemented various workshops targeted specifically toward handling stressful situations and focusing on building our trainees' self-esteem and confidence by working on their oral and written communication skills, goal setting, and time management.

Mentoring Models

There are many different formalized mentoring models which are outside the scope of this column however those which I have encountered and found to be useful include:

Peer Mentoring, in which a mentee is paired with another trainee or professional who is in a similar situation or stage of their career to share experiences. This can be very valuable both within a research laboratory, where the common situation is most likely the research topic and PI but can also take place between labs. In many ways, this is the type of mentoring I have most utilized for my own personal needs, alternately using colleagues as a sounding board for gathering insights and information to deal with every-day situations (akin to a "buddy" support system) to asking for advice and guidance from those just a little ahead of me. This latter situation we have found extremely beneficial for our PHSU RISE Graduate Training Program, where we pair trainees with a "successful" student a couple of years ahead of them, the idea being that they can share their insights and give tips and pointers as to how best navigate the graduate school process.

Team Mentoring matches a trainee with multiple mentors. These can be selected by the mentee or by the institution. The team has a common goal directed toward helping the trainee succeed. In my own institution, under our PHSU RISE Graduate Training Program, we have used this approach very successfully to provide a variety of input and guidance to the mentee. The "team" comprises the mentee, their research mentor, a faculty advisor from the program's internal advisory committee, and their peer mentor.

Network Mentoring recognizes that it is hard for one mentor to provide all the support that a trainee needs, especially as the requirements change over time. A

network of mentors each provides their own unique expertise and experience on different aspects of the mentee's career and research.

E-Mentoring allows trainees to access a mentor online without any geographical limitations. This can be particularly useful for those who are training in a smaller institution where they might not have such a broad range of expertise readily available on campus. I have mentored students as an APS member through MentorNet and am now part of the National Research Mentoring Network (NRMN), which we actively encourage all our students and faculty to join. My experience with this type of mentoring has generally been positive, but I think it depends largely on what trainees' expectations are and what kind of resources/help they are looking for. An extension of this kind of mentoring model is the more formalized hybrid versions whereby there is an in-person "kick-off" followed by a year-long follow-up with several formal meetings. Examples of these, which our own underrepresented doctoral students have participated in, include the Yale Ciencia Academy (11) and the Academy for Future Science Faculty (9). Both aim to provide graduate students with opportunities for mentoring, peer support, and networking to help develop important skills for their career. The latter developed a randomized controlled trial and is testing a coaching-based model to complement more traditional mentoring scenarios.

Nuances to Mentoring Underrepresented Groups

Although I strongly believe in treating everyone fairly, this does not equate to treating everyone the same, particularly when it comes to mentoring underrepresented groups. It is crucial to remember the old saying "one size does not fit all." Language, culture, and personality differences all play a role. Having lived in several countries with different languages, accents, and cultures, I have often been the outsider in the room and can perhaps understand to some extent the feeling of "being the only one" that underrepresented minorities can experience in science. For many students at our institution, their primary language is not English, and also for many, they are the first in their family to attend graduate school. In addition to facing the regular academic challenges, they are often balancing conflicting family demands and expectations. In my opinion, it is important to help the trainee identify their weaknesses and strengths to set realistic expectations and timelines. In our program, one of the more useful tools is having all students assemble and constantly update a professional portfolio (1). This highlights their professional and community service activities and provides documentation of their achievement of goals. Not only does this provide a great way for the students to visually organize all their materials and provide them with evidence of their accomplishments, but it also helps the mentor to be aware of which areas need strengthening and what skills the trainee has that even they might not be aware of.

Related to the point above, it is important to take time to celebrate successes. I think mentors need to promote their mentees so they can believe in themselves and help to overcome the well-recognized "imposter syndrome." The feeling that one does not belong, cannot succeed or continually doubts one's capability is common at all levels of higher education (and even as we advance further in our careers) but has been identified as a particularly relevant issue affecting participation in STEM by underrepresented minorities (2, 7).

Recognizing that a common weakness in our students is their English communication skills, it is important to appreciate that more time is needed for review and refinement of written assignments. As a mentor, I try to focus on the point that the trainee is trying to get across and provide as many opportunities as possible for the trainee to develop their communication skills. This has been combined with encouraging our students to become involved in outreach activities within our local elementary and high schools, such as the APS PhUn week, where they become more proficient at speaking in public. This also helps them to explain better to their families what graduate school involves and communicate their science to their family and friends.

It is vital to be open to new ideas and honest feedback. Over the years, my own mentoring style and activities under our graduate training program have evolved through input from colleagues, but more importantly from my mentees. It is important to get to know your mentees outside the lab so you can build trust and encourage further open communication. They are

the ones who often come up with requests, ideas, and suggestions for addressing their needs. A phenomenal example of this is our annual RISE program Philosophy of Science Retreats. These offsite, 2-day activities enhance team building and increase interactions between faculty and trainees in a less-formal atmosphere, enabling the students to recognize how the program staff can be of help to them and how their interactions with other people in the program are a valuable source of research, academic, and personal support. This activity was implemented in response to specific requests by trainees. Themes are varied, ranging from ethics and scientific philosophy to science policy and more general aspects of scientific life. Most recently we focused on "Science and Wellness," encouraging trainees to self-reflect about their current practices for self-care and stress management, with an aim to provide trainees with healthier life tools to help them succeed in their academic, personal, and professional lives.

Final Closing Thoughts

To be a successful mentor takes time (a lot!) and patience. There has to be follow through on both parts, and for many successful academics who are juggling already busy schedules with grant writing, research, and teaching, the time required can be hard to prioritize. However, passing along our knowledge and helping the next generation of scientists to succeed can be immensely rewarding and are vital if we are to address the ongoing disparities in science. Some relationships may end as soon as the formal agreement or training is complete, but others continue for years. In addition to the many requests for recommendation letters (where warranted) or advice, I continue to send announcements for opportunities that I feel a former mentee could benefit from and try to track their progress. The sense of pride felt when a former mentee wins an award, gains a faculty promotion, or even finds their own path in an unexpected direction is enormously rewarding. Last, one cannot underestimate the fact that from each mentee we also learn something. They can push our research and thoughts in new directions, and sometimes force us outside our comfort zone. ●

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Caroline B. Appleyard Biography

Caroline B. Appleyard (PhD) is Program Director for the RISE Graduate Training program at Ponce Health Sciences University. She is a Professor in the Department of Basic Sciences, Physiology Division, with an active research program directed toward elucidating the neuro-immune mechanisms and consequences of inflammation within the gastrointestinal tract with a view to developing complementary therapies. She has personally mentored over 100 underrepresented students at all levels in her laboratory. The RISE program is supported by NIH-NIGMS (GM082406) and provides professional development and career skills training for graduate students pursuing a PhD in Biomedical Sciences to strengthen their future competitiveness. Caroline has served on the APS Women in Physiology Committee and the Career Opportunities in Physiology Committee. In 2017, she was the inaugural recipient of the APS A. Clifford Barger Underrepresented Minority Mentorship Award.

Annual Surveys

Association of Chairs of Departments of Physiology 2017 Survey Results

Elsa I. Mangiarua (Secretary-Treasurer, Marshall University), Melinda E. Lowy (Executive Assistant, ACDP), and Janice H. Urban (President, Rosalind Franklin University of Medicine & Science/Chicago Medical School)

The Association of Chairs of Departments of Physiology (ACDP) annual survey was sent electronically to 201 physiology or physiology-related departments throughout the U.S., Canada, Mexico, and Puerto Rico. A total of 60 partial or complete surveys were returned, for a response rate of 29%. This rate is higher than last year's response rate of 25%. Of the 60 surveys received, there were 14 private and 44 public medical schools, and 1 private and 1 public non-medical school. We continue to encourage more of our colleagues to respond so that we can have more robust data that will benefit all.

These data provide the reader with general trends of faculty demographics and distribution, overall departmental budgets, and space available for research. As a reminder, beginning in 2004, ACDP decided not to include faculty salary information in this report. American Association of Medical Colleges (AAMC) salary data is more generally used, so the ACDP Council decided to no longer collect or report these data.

Data were collected on title, years in position, tenure status, gender, and ethnicity/race of faculty members (Table 1). Table 2 contains information on the average number of student contact hours for faculty in the lab, classroom, and small discussion groups and the type of teaching interactions for the department (MD/DO, DVM, allied health, etc.). Also included is information on the type of medical physiology course being taught (note that departments teach multiple class types, accounting for the fact that the numbers do not add up to the total respondents).

Table 3 focuses on student/trainee information. Information is included on the gender and number of U.S. citizen/resident alien vs. foreign pre- and postdoctoral students, gender and ethnicity of the U.S. citizen/resident alien pre- and postdoctoral fellows, and gender and country of origin of the foreign pre- and postdoctoral fellows. Also shown are the number of predoctoral trainee completions by gender, the number of U.S. citizen/resident alien postdoctoral completions by gender and ethnicity, and the number of foreign postdoctoral completions by gender and country of

Table 1a.

Faculty Summary Based on Position (*n*=945)							
	Male		Female				
	No.	Average No. Years in Position	No.	Average No. Years in Position	Gender Not Given	Total Number	Total Average No. Years in Position
Chair	39	14.4	9	8.4	1	49	13.1
Professor	319	15.2	93	11.5		412	14.4
Assistant Professor	125	5.4	60	4.1		185	5
Associate Professor	171	8.2	68	6.7		239	7.8
Instructor	27	6	27	7		54	6.5
Rank not given	4	9.8	2	4.5		6	8
Total	**685**		**259**		**1**	**945**	

origin. The type of support that is used for foreign pre- and postdoctoral students is included, as are the average stipends paid to all pre- and postdoctoral students by the departments. For faculty reported (n = 49), an average of 54% (SD = 22%) of the faculty had either graduate students or postdoctoral fellows in their laboratories.

Institutional information is provided in Table 4 in terms of the type of institution (public or private) and the average square footage of space occupied by the departments for research, teaching, administration, and other purposes.

Departmental budget information (Table 5) shows average dollar amounts for type of support (institutional hard money, research grants, training grants, endowments, indirect cost recovery). Numbers for all departments are reported, as are the data broken out by public medical and private medical schools. Because only two non-medical departments reported, those data were not reported separately but are included in the combined data. Financial information is also given, including fringe benefit rate, federally negotiated indirect cost rates for both on and off campus, allocated salary dollars from grants directly returned to the departments, percentage of indirect costs returned to the departments, percentage of total faculty salaries derived from research grants, and percentage of faculty having extramural research funding greater than $100,000/year.

Table 6 ranks responding departments according to their total dollars (institutional hard money, research grants, etc.), research grant dollars (direct or direct plus indirect, as appropriate), research dollars per faculty member, departmental research space, and research dollars per research space. Total number of faculty in each department is also shown.

For an update of AAMC salary data, please see the accompanying article "AAMC Medical School Faculty Compensation Survey" (p. 181). ●

Table 1b.

Faculty Summary Based on Race and Ethnicity (n=945)			
	Male	Female	Total
Asian/Pacific Islander	111	43	154
Black (not Hispanic)	8	1	9
Hispanic	32	16	48
Native American	0	1	1
White (not Hispanic)	499	189	688
Foreign National	35	10	45
Total	**685**	**260**	**945**

Table 1c.

Tenure Status in Each Department by Degree (n=945)									
	Tenured		Not Tenured But Eligible		Not Eligible		Not identified		Total
	No.	Yrs in position	No.	Yrs in position	No.	Yrs in position	No.	Yrs in position	
MD	9	10.3	9	4.9	9	17.3	1	1	28
PhD	553	13.1	150	3.7	129	7.5	7	3.8	839
2 Doctorates	43	9.9	7	2.6	21	9.3			71
Other	1	4			6	9.3			7
Total	**606**		**166**		**165**		**8**		**945**

Table 2a.

Medical Physiology Course Type			
	Yes	No	Total Responded
Integrated Course (Systems based)	40	11	51
Traditional (Discipline-based)	26	26	52
Integrated Preclinical Curriculum	39	13	52

Table 2b.

Student Contact Hours for Faculty per Year			
	Student Type	Average (hours)	No. of Depts.
Lab Hours	Graduate	231	34
	Medical	55	28
	Other	261	15
Lectures	Graduate	70	48
	Medical	47	46
	Other	119	29
Small Group	Graduate	45	31
	Medical	25	39
	Other	54	18

Table 2c.

Teaching Interactions with Students in Fields of Study (*n*=60 departments)		
	No. of Depts.	%
M.D./D.O	49	82
D.D.S	17	28
D.V.M.	8	13
Allied Health	27	45
Pharmacy	10	17
Other Biomedical	41	68
Life Science	33	55
Bioengineering	31	52
Other	11	18
Other includes pre-professional and graduate students (both MS and PhD)		

Table 3a.

Student/Trainee Summary (*n*=50 departments)				
	Pre-doctoral		Postdoctoral	
	Male	Female	Male	Female
US Citizen/Resident Alien	307	309	151	119
Foreign	86	98	182	127
Total	**393**	**407**	**333**	**246**

Table 3b.

Race/Ethnicity of U.S. Citizen/Resident Alien Pre- and Postdoctoral Students/Trainees (*n*=50 departments)				
	Pre-doctoral		Postdoctoral	
	Male	Female	Male	Female
Native American	1	1	1	1
Asian/Pacific Islander	32	35	33	30
Black (not Hispanic)	20	25	4	6
Hispanic	21	27	14	15
White (not Hispanic)	233	221	99	67
Total	**307**	**309**	**151**	**119**

Table 3c.

U.S. Citizen/Resident Alien Predoctoral Trainee Completions (as of June 30, 2017) (*n*=50 depts.)		
	Male	Female
Native American		
Asian/Pacific Islander	6	11
Black (not Hispanic)	2	7
Hispanic	3	3
White (not Hispanic)	51	42
Total	**62**	**63**

Table 3d.

Number of Foreign Pre- and Postdoctoral Students/Trainees				
	Predoctoral (n=50 depts.)		Postdoctoral (n=44 depts.)	
	Male	Female	Male	Female
African	2	3	2	0
Asian/Pacific Islander	44	54	99	53
Central/South American	6	3	16	16
European/Canadian, etc.	12	9	29	40
Middle Eastern	19	28	24	11
Other	3	1	12	7
Total	**86**	**98**	**182**	**127**

Table 3e.

Foreign National Predoctoral Trainee Completions (as of June 30, 2017) (*n*=26 depts.)		
	Male	Female
African	0	0
Asian/Pacific Islander	16	19
Central/South American	2	3
European/Canadian, etc.	0	1
Middle Eastern	1	7
Other	1	0
Total	**20**	**30**

Table 3g.

Primary Source of Support for Foreign Pre- and Postdoctoral Trainees (*n*=40 depts.)		
	Pre-doctoral	Postdoctoral
Institutional	105	28
Research Grants	135	257
Private Foundations	7	16
Home (foreign) Government	18	14
Other	5	9
Total	**270**	**324**

Table 4a.

Type of Institution		
	Medical	Non-medical
Private	14	1
Public	44	1
Total	**58**	**2**

Table 3f.

Total Predoctoral Trainee Completions During the Year Ending June 30, 2017 (*n*=50 depts.)	
	Total
Female	93
Male	82
Total	**175**

Table 3h.

Average Annual Stipend (U.S. $)		
	Average	No. of Institutions
Postdoctoral	$45,362	46
Pre-doctoral	$26,434	48

Table 4b.

Space Controlled by Department		
	Average Space (sq. ft.)	No. of Depts
Research Space	21,251	51
Administrative Space	3,335	50
Teaching Space	2,374	28
Other Space	2,736	30
Total	**27,434**	**51**
Other includes common space, prep room, storage, core facilities, offices		

Table 5a.

Budget by Institution									
	All institutions	No. of Depts.	Mean No. of Faculty	Private Medical	No. of Depts.	Mean No. of Faculty	Public Medical	No. of Depts.	Mean No. of Faculty
Institutional (Hard money, e.g, operating costs, state allocations)	2,325,116	51	19	1,902,965	14	16	2,428,872	36	20
Outside Research Grants and Contracts (direct costs only)	4,203,727	49	19	5,158,253	12	18	3,992,798	36	20
Training Grants (direct costs only)	277,839	19	19	326,236	6	20	255,581	13	19
Endowments	591,107	35	19	827,213	10	17	514,359	24	20
Indirect Cost Recovery (amount returned to your department)	386,493	35	20	1,053,973	6	21	248,394	29	20
Other Budget Support	721,143	32	19	1,308,683	7	17	556,632	25	20
Average Departmental Budget	7,590,904	51		8,161,050	14		7,443,514	36	
SD	4,974,031			4,914,878			4,410,629		
Total faculty			945			224			703
Non-medical: only 2 depts. responded so those numbers are not presented separately but are included in All Insititutions									

Table 5b.

Financial Information		
	Average %	No. of Depts.
Current fringe benefit rate most frequently used for primary faculty	31	51
Federally negotiated indirect cost rate for FY 16-17 off campus	28	46
Federally negotiated indirect cost rate for FY 16-17 on campus	52	49
Percentage of allocated salary dollars from grants directly returned to your department	64	28
Percentage of indirect costs returned to your department	15	33
Percentage of total faculty salaries derived from research grants (does not include fringe benefits costs)	34	47
Percentage of faculty having extramural research funding greater than $100,000/year	57	49

Table 6

Complete Ranking According to Total Dollars										
Rank Total Dollars	Total Dollars	Rank Research Grant Dollars	Research Grant Dollars	Rank Research Dollars/ Faculty	Research Dollars/ Faculty	Rank Research Space	Research Space	Rank Research Dollars/ sqft	Research Dollars/ sqft	No. of Faculty
1	23,820,179	1	15,150,897	3	459,118	8	34,591	2	438	33
2	23,373,892	2	10,161,685	5	441,812	3	49,195	28	207	23
3	17,360,792	8	7,283,353	6	404,631	7	36,042	29	202	18
4	14,728,306	11	6,222,893	20	239,342	22	19,877	8	313	26
5	14,087,764	3	9,678,702	1	537,706	12	29,133	7	332	18
6	13,780,358	5	8,904,468	15	278,265	5	38,298	15	233	32
7	13,273,261	7	7,296,000	8	384,000	19	21,913	6	333	19
8	12,414,835	6	8,610,377	4	453,178	4	48,939	31	176	19
9	12,385,791	4	9,032,008	7	392,696	6	36,048	12	251	23
10	11,247,222	12	6,013,734	25	193,991	13	26,020	16	231	31
11	11,209,309	9	6,800,000	26	188,889	46	10,414	1	653	36
12	10,349,779	27	3,535,299	24	196,406	28	16,975	27	208	18
13	10,165,779	22	3,984,335	9	362,212	44	11,100	5	359	11
14	9,307,081	17	4,620,780	27	184,831	14	25,358	30	182	25
15	8,976,711	16	4,644,385	22	221,161	9	32,658	35	142	21
16	8,513,890	23	3,975,695	21	233,864	23	19,053	26	209	17
17	8,059,822	14	4,836,891	2	483,689	29	16,729	9	289	10
18	8,009,257	13	5,013,060	10	358,076	18	22,095	17	227	14
19	7,643,743	10	6,790,464	13	282,936	11	31,313	22	217	24
20	7,385,226	21	4,012,806	16	267,520	31	15,916	11	252	15
21	7,271,654	15	4,739,132	11	296,196	17	22,395	24	212	16
22	7,173,116	30	2,915,409	41	107,978	24	18,715	33	156	27
23	7,139,113	26	3,724,738	28	177,368	20	21,450	32	174	21
24	6,282,000	18	4,300,000	12	286,667	43	11,427	4	376	15
25	6,011,771	24	3,859,819	17	257,321	27	17,096	18	226	15
26	6,006,594	28	3,197,136	36	127,885	35	14,492	20	221	25
27	5,878,750	35	2,317,766	37	121,988	10	31,563	43	73	19
28	5,861,539	19	4,241,204	14	282,747	33	15,065	10	282	15

29	5,763,687	25	3,789,066	18	252,604	32	15,399	13	246	15
30	5,755,976	37	1,947,991	30	162,333	26	18,355	38	106	12
31	5,411,774	31	2,728,793	29	170,550	39	12,484	21	219	16
32	5,310,356	29	2,929,267	32	154,172	40	12,475	14	235	19
33	5,288,500	44	1,350,000	46	48,214	16	24,166	46	56	28
34	5,263,393	40	1,475,309	47	47,591	2	49,427	47	30	31
35	4,978,006	20	4,100,000	33	151,852	48	10,100	3	406	27
36	4,914,878	49	342,878	49	16,328	25	18,500	48	19	21
37	4,487,681	34	2,571,231	34	151,249	15	25,000	39	103	17
38	4,156,364	33	2,629,853	23	202,296	37	12,507	25	210	13
39	3,989,680	43	1,402,260	43	93,484	36	12,914	37	109	15
40	3,902,091	32	2,663,824	31	156,696	41	12,048	19	221	17
41	3,877,456	45	1,278,047	44	91,289	34	14,774	41	87	14
42	3,797,659	46	1,146,133	48	45,845	45	10,555	36	109	25
43	3,753,201	39	1,628,871	35	135,739	21	21,368	42	76	12
44	3,742,119	38	1,780,495	40	111,281	42	11,623	34	153	16
45	3,292,341	36	2,188,521	19	243,169	47	10,334	23	212	9
46	2,891,389	41	1,422,702	42	101,622					14
47	2,824,693	42	1,406,877	39	117,240	30	16,056	40	88	12
48	2,033,309	47	827,485	38	118,212	38	12,500	44	66	7
49	1,642,388	48	510,000	45	56,667	49	8,289	45	62	9
50	1,320,000					51	2,975			
51	1,021,620					50	3,088			

AAMC Medical School Faculty Compensation Survey

Each year the American Association of Medical Colleges (AAMC) surveys all the U.S. medical schools as to faculty compensation. Because of this, the ACDP (see "Association of Chairs of Departments of Physiology 2017 Survey Results" on p. 175) no longer collects the same data from its members.

As a supplement to the ACDP survey, the AAMC has agreed to allow the APS to publish selected results from their survey.

Table 1 shows the regional distribution of medical schools responding to the AAMC survey in terms of public medical and private medical. Also shown is the number of physiology departments in those regions that responded (with either PhD or MD Chairs). For the fiscal year 2016–2017, 145 of 146 medical schools responded, and 71 physiology departments responded.

Summary statistics on faculty compensation in physiology departments for PhD and MD faculty are given in Table 2. For the purposes of this report, faculty who hold both an MD or equivalent degree and a PhD or other doctoral degree are included in the "MD or Equivalent Degree" tables, regardless of whether the degrees were earned simultaneously.

The total compensation equaled the fixed/contractual salary component (exclusive of fringe benefits) of total compensation plus the supplemental earnings components of total compensation (medical practice supplement, bonus/incentive pay, and known uncontrolled outside earnings) for the 12-month period spanning 2016–2017.

Shown are 25th percentile, median, 75th percentile, and mean salaries for the given number of faculty. For any group that has less than five faculty, data are not reported.

Table 3 shows the changes in salary that have occurred over the past 3 years for both PhD and MD faculty, with the percent change over the past 2 years.

Summary salary statistics for separate regions of the country for both PhD and MD faculty are given in Table 4. Once more, faculty who hold both an MD or equivalent degree and a PhD or other doctoral degree are included in the "MD or Equivalent Degree" tables. Given again are 25th percentile, median, 75th percentile, and mean salaries for the given number of faculty.

Table 5 shows the salary comparison between PhD and MD faculty in all basic science departments vs. those specifically in physiology departments.

Table 1. Distribution of Medical Schools Responding to AAMC Medical School Faculty Compensation Survey

		Northeast	Midwest	South	West	TOTAL
All	Private Medical	27	12	13	4	56
	Public Medical	13	22	38	16	89
Physiology	All Medical Schools	15	18	30	8	71

Table 2. Summary Statistics on Physiology Department PhD and MD Faculty Compensation

PhD Faculty						
		25th	Median	75th	Mean	No. of Faculty
Chair	All Schools	228,000	286,000	323,000	285,400	59
	Medical Public	228,000	281,000	307,000	269,300	41
	Medical Private	243,000	317,000	401,000	322,200	18
Chief	All Schools	160,000	177,000	289,000	214,600	5
	Medical Public					4
	Medical Private					1
Professor	All Schools	144,000	173,000	206,000	179,900	517
	Medical Public	144,000	170,000	198,000	178,400	350
	Medical Private	144,000	180,000	220,000	183,000	167
Assoc. Prof.	All Schools	107,000	120,000	135,000	122,700	314
	Medical Public	106,000	119,000	134,000	120,100	225
	Medical Private	110,000	120,000	141,000	129,200	89
Asst. Prof.	All Schools	75,000	93,000	105,000	91,200	330
	Medical Public	75,000	90,000	102,000	89,200	228
	Medical Private	77,000	97,000	112,000	95,800	102
Instructor	All Schools	53,000	60,000	66,000	59,800	88
	Medical Public	51,000	59,000	65,000	58,800	47
	Medical Private	55,000	60,000	70,000	61,000	41

MD Faculty						
		25th	Median	75th	Mean	No. of Faculty
Chair	All Schools	287,000	346,000	483,000	379,100	12
	Medical Public	261,000	295,000	401,000	326,800	9
	Medical Private					3
Chief	All Schools					1
	Medical Public					1
	Medical Private					0
Professor	All Schools	158,000	194,000	240,000	202,200	65
	Medical Public	164,000	192,000	239,000	206,700	37
	Medical Private	131,000	197,000	247,000	196,300	28
Assoc. Prof.	All Schools	107,000	122,000	138,000	124,600	25
	Medical Public	102,000	118,000	122,000	113,400	11
	Medical Private	113,000	129,000	145,000	133,400	14
Asst. Prof.	All Schools	68,000	89,000	102,000	88,800	24
	Medical Public	63,000	83,000	98,000	83,800	16
	Medical Private	86,000	101,000	118,000	98,900	8
Instructor	All Schools					4
	Medical Public					2
	Medical Private					2

For less than 5 faculty, data are not reported

Table 3. Change in Total Compensation for Physiology Department PhD and MD Faculty

PhD Faculty							
2016 - 2017		2015 - 2016		2014 - 2015		% Change 2015 - 2016 to 2016 - 2017	
Mean	Median	Mean	Median	Mean	Median	Mean	Median
139,200	125,000	136,200	125,000	131,600	122,000	2.2	0
Mean and median values were combined for Assistant, Associate, and Professor							

MD Faculty							
2016 - 2017		2015 - 2016		2014 - 2015		% Change 2015 - 2016 to 2016 - 2017	
Mean	Median	Mean	Median	Mean	Median	Mean	Median
161,300	141,000	154,500	147,000	149,500	143,000	4.4	-4.1
Mean and median values were combined for Assistant, Associate, and Professor							

Table 4. Summary Statistics on Physiology Department PhD and MD Faculty Compensation by Region

PhD Faculty					
		Northeast	Midwest	South	West
Chair	25th	246,000	243,000	219,000	225,000
	Median	294,000	291,000	261,000	298,000
	75th	336,000	372,000	317,000	347,000
	Mean	306,900	301,700	265,400	285,100
	Total faculty	12	15	25	7
Chief	25th				
	Median				
	75th				
	Mean				
	Total faculty	0	2	3	0
Professor	25th	154,000	143,000	136,000	152,000
	Median	177,000	175,000	166,000	185,000
	75th	205,000	221,000	197,000	210,000
	Mean	176,800	183,800	171,100	195,400
	Total faculty	94	143	190	90
Assoc. Prof.	25th	115,000	106,000	104,000	109,000
	Median	125,000	117,000	117,000	119,000
	75th	140,000	136,000	135,000	128,000
	Mean	131,200	121,500	119,600	122,000
	Total faculty	61	97	125	31

Table 4. Summary Statistics on Physiology Department PhD and MD Faculty Compensation by Region continued

		Northeast	Midwest	South	West
Asst. Prof.	25th	75,000	75,000	71,000	78,000
	Median	99,000	95,000	89,000	97,000
	75th	115,000	104,000	102,000	116,000
	Mean	95,300	91,100	87,600	98,800
	Total faculty	67	98	135	30
Instructor	25th	53,000	44,000	54,000	56,000
	Median	63,000	51,000	58,000	62,000
	75th	73,000	62,000	64,000	71,000
	Mean	63,900	54,100	58,400	62,500
	Total faculty	17	14	35	22
MD Faculty					
		Northeast	Midwest	South	West
Chair	25th			293,000	
	Median			300,000	
	75th			401,000	
	Mean			337,400	
	Total faculty	3	3	5	1
Chief	25th				
	Median				
	75th				
	Mean				
	Total faculty	1	0	0	0
Professor	25th	178,000	135,000	135,000	166,000
	Median	230,000	160,000	188,000	175,000
	75th	275,000	217,000	226,000	232,000
	Mean	219,000	172,600	191,000	204,700
	Total faculty	23	5	24	13
Assoc. Prof.	25th		102,000	113,000	
	Median		125,000	121,000	
	75th		164,000	136,000	
	Mean		129,100	122,900	
	Total faculty	3	10	10	2
Asst. Prof.	25th		88,000	63,000	
	Median		98,000	78,000	
	75th		113,000	89,000	
	Mean		99,300	79,800	
	Total faculty	1	6	14	3
Instructor	25th				
	Median				
	75th				
	Mean				
	Total faculty	2	2	0	1

For less than 5 faculty, data are not reported

Table 5. Salary comparison between all basic science departments and physiology departments for both PhD and MD faculty

		All Basic Science Depts-PhDs	Physiology PhDs	All Basic Science Depts-MDs	Physiology MDs
Chair	25th	239,000	228,000	290,000	287,000
	Median	299,000	286,000	376,000	346,000
	75th	353,000	323,000	467,000	483,000
	Mean	303,900	285,400	394,700	379,100
	Total faculty	507	59	114	12
Chief	25th	165,000	160,000	251,000	
	Median	214,000	177,000	306,000	
	75th	301,000	289,000	377,000	
	Mean	248,800	214,600	318,500	
	Total faculty	55	5	20	1
Professor	25th	152,000	144,000	173,000	158,000
	Median	181,000	173,000	215,000	194,000
	75th	222,000	206,000	270,000	240,000
	Mean	193,300	179,900	232,400	202,200
	Total faculty	4,278	517	610	65
Assoc. Prof.	25th	108,000	107,000	118,000	107,000
	Median	124,000	120,000	138,000	122,000
	75th	143,000	135,000	176,000	138,000
	Mean	128,100	122,700	155,400	124,600
	Total faculty	3,432	314	345	25
Asst. Prof.	25th	81,000	75,000	85,000	68,000
	Median	98,000	93,000	111,000	89,000
	75th	115,000	105,000	146,000	102,000
	Mean	99,600	91,200	125,400	88,800
	Total faculty	4,117	330	392	24
Instructor	25th	55,000	53,000	64,000	
	Median	61,000	60,000	75,000	
	75th	73,000	66,000	113,000	
	Mean	68,200	59,800	92,400	
	Total faculty	660	88	70	4

Chair/Program Director Leadership Retreat Announced

Chairs or leaders of a department, division of physiology, or program of physiology in any form, in any type of school (medical, graduate, undergraduate, veterinary, osteopathic, dentistry, etc.) are cordially invited to attend the Association of Chairs of Departments of Physiology's (ACDP) annual Leadership Retreat. The meeting will be held on November 29 to December 2, 2018 at the Grand Fiesta Americana Coral Beach Resort in Cancún, Mexico.

Come connect with fellow leaders and hear about the latest in research, biomedical funding, and other issues of interest in a beautiful relaxing setting. ACDP President Janice H. Urban (Rosalind Franklin University of Medicine & Science, Chicago Medical School) has developed a quality program for attendees along with numerous opportunities for networking and discussion of relevant issues.

Urban has announced that the 2018 Distinguished Service Awardee is Celia D. Sladek (University of Colorado, Denver Anschutz Medical Center), and the 2018 Arthur Guyton Distinguished Lecturer is Frank W. Booth (University of Missouri College of Veterinary Medicine/Dalton Cardiovascular Research Center). Presentations will be made by both awardees.

For more information about the meeting, see *acdponline.org/Home/Meetings/2018-Leadership-Retreat*. Mark your calendars and plan to attend! ●

Grand Fiesta Americana Coral Beach

Grand Fiesta Americana Coral Beach

Education

Congratulations 2018 Undergraduate Summer Research Fellows!

APS is pleased to announce the recipients of the 2018 Undergraduate Summer Research Fellowships. These fellowship programs provide hands-on summer research for students interested in exploring physiological research careers. Some fellowships are geared toward providing research experiences to students from a wide range of backgrounds, including those from underrepresented racial and ethnic groups, from disadvantaged backgrounds, and persons with disabilities, to work with APS members in a specific area of physiological research.

2018 Hearst Undergraduate Summer Research (Hearst) Fellows and Research Hosts

Fellow/Institution	Host/Institution
Ayssa Bonillas Portland State University	**Virginia Brooks, PhD** Oregon Health & Science University
Morgan Harris Williams College	**Steve Swoap, PhD** Williams College

2018 Integrative Organismal Systems Physiology (IOSP) Fellows and Research Hosts

Fellow/Institution	Host/Institution
Jad Aboulhosn University of California, Merced	**Rudy Ortiz, PhD** University of California, Merced
Ethan Wold Brown University	**Monica Daley, PhD** Royal Veterinary College
Sarah York University of Nevada, Las Vegas	**Frank van Breukelen, PhD** University of Nevada, Las Vegas

2018 Short-Term Research Education Program to Increase Diversity in Health-Related Research (STRIDE) Fellows and Research Hosts

Fellow/Institution	Host/Institution
Jeffrey Aceves University of California, Merced	**David M. Pollock, PhD** University of Alabama at Birmingham
Ines Aguerre Tulane University	**Sarah Lindsey, PhD** Tulane University
Corbin Azucenas University of Cincinnati	**Bryan Mackenzie, PhD** University of Cincinnati
Rashi Bhatt Johns Hopkins University	**Irene Solomon, PhD** Stony Brook University
Brandon Cooley University of Iowa	**Donna Ann Santillan, PhD** University of Iowa Carver College of Medicine
Chelsy Cummings University of California, Merced	**Rudy Ortiz, PhD** University of California, Merced
Ugne Dinsmonaite Benedictine University	**Jayashree Sarathy, PhD** Benedictine University
Brian Freeman University of California, Merced	**Edward Inscho, PhD** University of Alabama at Birmingham
Krystal Glasford University of Florida	**Michelle Gumz, PhD** University of Florida
Makinzie Hamilton University of Colorado, Boulder	**Doug Seals, PhD** University of Colorado, Boulder

Carolyn Lo University of Iowa	**Mark Santillan, MD, PhD** University of Iowa Carver College of Medicine
Vanessa Lopez Occidental College	**Sean M. Wilson, PhD** Loma Linda University School of Medicine
Juliana O'Reilly West Virginia University	**Mark Olfert, PhD** West Virginia University
Marcelo Pena University of Texas at El Paso	**Alvaro Gurovich, PhD** University of Texas at El Paso
Abigail Russell Taylor University	**Steven J. Miller, PhD** Indiana University
Sydney Stone University of Cincinnati	**Bryan Mackenzie, PhD** University of Cincinnati
McKenzie Temperly Drake University	**Kimberly Huey, PhD** Drake University
Elizabeth Trujillo University of Texas at El Paso	**Alvaro Gurovich, PhD** University of Texas at El Paso
Alexandria Valdez University of South Florida	**Timo Rieg, MD and Jessica Dominguez Rieg, PhD** University of South Florida
Nicolas Villarraga Creighton University	**Thomas P. Olson, PhD** Mayo Clinic
Ashley Weaver Pennsylvania State University	**Patricia Silveyra, PhD** Penn State College of Medicine

2018 Undergraduate Research Excellence Fellows (UGREF) and Research Hosts

Fellow/Institution	Host/Institution
Winston Guo University of Minnesota–Twin Cities	**Michael Joyner, MD** Mayo Clinic
Samantha Marosis The Ohio State University	**Brenda Lilly, PhD** Nationwide Children's Hospital
Judie Shang University of Calgary	**Wallace MacNaughton, PhD** University of Calgary
Kayla Woodward University of Colorado Boulder	**Douglas R. Seals, PhD** University of Colorado Boulder
Shao Yang Zhang University of Iowa	**Justin L. Grobe, PhD** University of Iowa
Zhuldyz Zhanzak Nazarbayev University	**Eric Gross, MD, PhD** Stanford University

2018 Undergraduate Summer Research Fellows (UGSRF) and Research Hosts

Fellow/Institution	Host/Institution
Yasmine Abushukur University of Michigan	**Linda Samuelson, PhD** University of Michigan
Aaron Albuck Tulane University	**Prasad Katakam, PhD** Tulane University School of Medicine
Christy Anderson North Dakota State University	**Sathish Venkatachalem, PhD** North Dakota State University
John Bielanin University of Pittsburgh	**Bill J. Yates, PhD** University of Pittsburgh
Cameron Burkholder Pennsylvania State University	**R. Alberto Travagli, PhD** Penn State College of Medicine
Kevin Chen University of Iowa	**Justin L. Grobe, PhD** University of Iowa
Samantha Cohen Brown University	**Carlos Aizenman, PhD** Brown University

Susana del Carmen Castro Meza Universidad De Sonora	**Rudy Ortiz, PhD** University of California, Merced
Brianna Eassa Le Moyne College	**Lara DeRuisseau, PhD** Le Moyne College
Mohammed Haq Benedictine University	**Jayashree Sarathy, PhD** Benedictine University
Dain Jacob University of Missouri	**Jacqueline Limberg, PhD** University of Missouri
Hanna Kosnik East Carolina University	**Johanna Hannan, PhD** East Carolina University
Jordan Lee Rutgers University	**Debra Laskin, PhD** Rutgers University
Dengfeng Li University of North Carolina at Greensboro	**Snezana Petrovic, MD, PhD** Wake Forest School of Medicine
Josie Llanora University of Kentucky	**Julie Pendergast, PhD** University of Kentucky
Patrick McWhorter Youngstown State University	**Stanley Andrisse, PhD** Howard University College of Medicine
Erika Nemeth Stony Brook University	**Peter Brink, PhD** Stony Brook University
Gopika Punchhi Johns Hopkins University	**Sheng Wu, PhD** Johns Hopkins University School of Medicine
Caroline Ramous University of Utah	**John David Symons, PhD** University of Utah School of Medicine
Matthew Siegel Arizona State University	**Taben Mary Hale, PhD** University of Arizona College of Medicine
Eliza Skoler Carleton College	**Allyson Hindle, PhD** Massachusetts General Hospital
Rachel Steckbeck Messiah College	**Patricia Silveyra, PhD** Penn State College of Medicine
Luke Whitcomb Colorado State University	**Frank A. Dinenno, PhD** Colorado State University
Meeraal Zaheer Vassar College	**Benedict J. Kolber, PhD** Duquesne University

APS Undergraduate Summer Research Fellows complete not only 10 weeks of a summer research experience and professional development activities on their campus, but also interactive, online activities with students nationwide, exploring career options, responsible conduct of research, structuring research studies, developing abstracts, and presenting research posters. Fellows will also present their research at the APS annual meeting, Experimental Biology, where they are active participants in a professional community. These fellowship programs take fellows beyond a summer experience to become involved members of the APS community.

The Hearst program is supported by the APS and The Hearst Foundations (*www.the-aps.org/Hearst*).

The IOSP program is supported by a grant from the National Science Foundation (NSF) Integrative Organismal Systems (IOS) Award No. IOS-1238831 (*www.the-aps.org/IOSP*).

The STRIDE program is supported by the APS and a grant from the National Heart, Lung and Blood Institute (NHLBI; 1 R25 HL115473-01) (*www.the-aps.org/STRIDE*).

The UGREF and UGSRF programs are supported fully by APS (*www.the-aps.org/UGREF* and *www.the-aps.org/UGSRF*).

For more information, visit the program websites (listed above) or contact the APS Education Office (*education@the-aps.org*). ●

Teachers Complete 2017 Frontiers in Physiology Fellowship

Frontiers in Physiology Research Community Leader (RCL) Teacher Fellows were honored at an award ceremony at Experimental Biology (EB) 2018 to recognize the completion of their 2-year fellowship. Five middle and high school teachers from across the nation began the final year of their fellowship in April 2017. The 2-year program consisted of 1 year of intensive online professional development lessons, including production of Bench-to-Bedside Primers. These primers feature information on a disorder or disease, basic research that has been done on the body system affected, and current clinical trials that are being conducted with patients afflicted with the disorder. After successfully completing their lessons, the fellows conducted research in an APS member's lab during their summer breaks last year. Three of the teachers presented their research findings at an EB poster session. As they progressed through the year, they completed online professional development lessons for the remaining months. Lead Mentor Instructor Georgia Everett (Western High School, Russiaville, IN) was assisted by Mentor Instructor Shannon Seidl (Salpointe Catholic High School, Tucson, AZ) in leading the online forum of modeling inquiry methods for use in the classroom. The teachers learned the best ways to help their students learn science via the scientific method. In the final project of their fellowship year, teacher fellows presented their workshop at the Teacher Workshop for San Diego-area high school teachers at EB 2018 in San Diego, CA. RCL fellows share program impact statements with fellow teachers and council members describing how their science teaching methods were transformed following their summer research experience. Some of their comments:

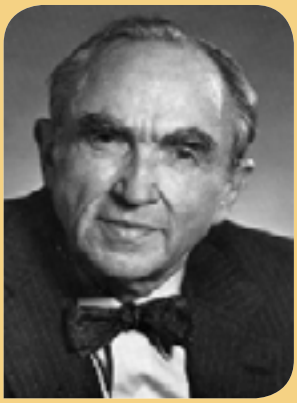
> *"This is an excellent opportunity to bring research experience into your classroom for your students."*
>
> *"A great opportunity that will change the way you view your science classroom and how you deliver materials. Being able to participate in real medical research is invaluable to understanding the scientific process."*
>
> *"I think the networking opportunities and the inquiry learning are some of the best PD that I have received. In addition, the research experience really fuses what we're trying to do with where our kids need to go. The approach and technical skills that are emphasized really shift the focus of what I want my classroom to look like."*

The Frontiers in Physiology Program was made available by generous support from APS and an NIH Science Partnership Award (SEPA).

The teachers participating in the program include:

Research Teacher/School	Research Host/Institution
Regina Cowan Mojave High School North Las Vegas, NV	**Barbara St. Pierre Schneider, PhD, RN, CNE** University of Nevada, Las Vegas
Robin Cowen Army and Navy Academy Carlsbad, CA	**Alan Hargens, PhD** University of California, San Diego Medical Center
Kristen LaRue University of Kentucky/STEAM Academy Lexington, KY	**Jeff Osborn, PhD** University of Kentucky
Takisha Reece Sandy Spring Friends School Sandy Spring, MD	**Mark Knepper, MD, PhD** NIH/NHLBI
Julie Smith Greenhills School Ann Arbor, MI	**Linda Samuelson, PhD** University of Michigan

A. Clifford Barger Underrepresented Minority Mentorship Award


A. Clifford Barger


Patricia Molina, 2018
Barger Awardee

the-aps.org/barger

Award: $1,000 + up to $1,500 in travel expenses for EB 2019 meeting

Deadline: September 15, 2018

The Porter Physiology Development and Minority Affairs Committee invites you to nominate an APS member who is judged to be both a superb mentor to persons from underrepresented backgrounds and an outstanding scientist for the 2019 Barger Award. Visit the website above for details on the nomination packet requirements and for the online application link.

Bodil M. Schmidt-Nielsen Distinguished Mentor and Scientist Award


Bodil Schmidt-Nielsen


Merry Lindsey, 2018
Schmidt-Nielsen Awardee

the-aps.org/schmidtnielsen

Award: $1,000 + up to $1,500 in travel expenses for EB 2019 meeting

Deadline: September 15, 2018

The Women in Physiology Committee invites you to nominate an APS member (male or female) who is judged to be both a superb mentor and an outstanding scientist for the 2019 Schmidt-Nielsen Award. Visit the website above for details on the nomination packet requirements and for the online application link.

Science Policy

APS Comments on Proposed NSF Harassment Policy

On February 28, 2018, the National Science Foundation (NSF) issued a request for information seeking input from the investigator community on a draft policy requiring institutions to report when NSF-funded investigators are found to have engaged in sexual harassment or are placed on leave pending the outcome of an investigation. APS submitted a letter expressing support for the development of such a policy. The letter also urged the agency to consider ways to support scientists who report harassment and to clarify how the policy will be implemented.

Background

The proposed NSF policy is a response to several cases of sexual harassment by prominent scientists that were widely reported in the press. According to NSF Director France Córdova, the agency only learned about these allegations against NSF-funded investigators through press reports instead of directly from grantee institutions. NSF proposes to address this by adding to its terms and conditions of award a requirement for grantee organizations to report any findings of sexual harassment, other forms of harassment, or sexual assault regarding an NSF-funded investigator. Grantee organizations will also be required to report when NSF-funded investigators are placed on administrative leave because of a harassment investigation. Responsibility for investigating and adjudicating reports of sexual harassment will remain with the grantee organization, but NSF will review each case and may suspend or terminate awards or require the replacement or removal of certain personnel if warranted. These new requirements are intended to improve the flow of information between the NSF and grantee organizations, which NSF considers a first step toward a more comprehensive plan to address sexual harassment in the sciences.

APS Letter

The APS comment letter focuses on four main recommendations:

- NSF should specify which institutional officials are responsible for providing it with information about harassment investigations involving NSF-funded investigators.
- NSF should clarify what actions might be taken against grantee institutions that fail to comply with the reporting requirements.
- NSF should consider ways to support scientists who report harassment, given that they may experience career setbacks as a result.
- NSF should establish a mechanism for possible reinstatement of awards in cases where the institutional investigation concludes that there was no wrongdoing on the part of a funded investigator.

To view the entire letter, go to *http://www.the-aps.org/NSF-Harassment-Reporting*.

Next Steps

In the coming weeks, NSF will consider the input received in response to the request for information and update the policy for inclusion in the terms and conditions of award. ●

ACE Offers EB 2018 Symposium on Preclinical Animal Research Design

The Animal Care and Experimentation (ACE) Committee sponsored a symposium at Experimental Biology 2018 on how to optimize the design of preclinical animal studies. This is a topic that has become increasingly important in light of concerns about ensuring that the findings of such studies are both reproducible and relevant to human medicine.

Symposium speakers addressed three aspects of preclinical experimental design. James Fox of the Massachusetts Institute of Technology discussed what factors to consider in selecting the appropriate animal model, including the species, age, genetic background, and pathogen status of the animals. Valerie Hamilton of Merck pointed out the FDA's requirements for moving new pharmaceuticals from the initial discovery stage to clinical testing. Tom Cheever of the National Institute of Arthritis and Musculoskeletal and Skin Diseases addressed biological variables to consider when writing an NIH grant.

The symposium was organized and chaired by Daniel Michele of the University of Michigan and Karen Uray of the University of Debrecen. The presentations are available online at *http://www.the-aps.org/ResearchDesignSymposium2018*.

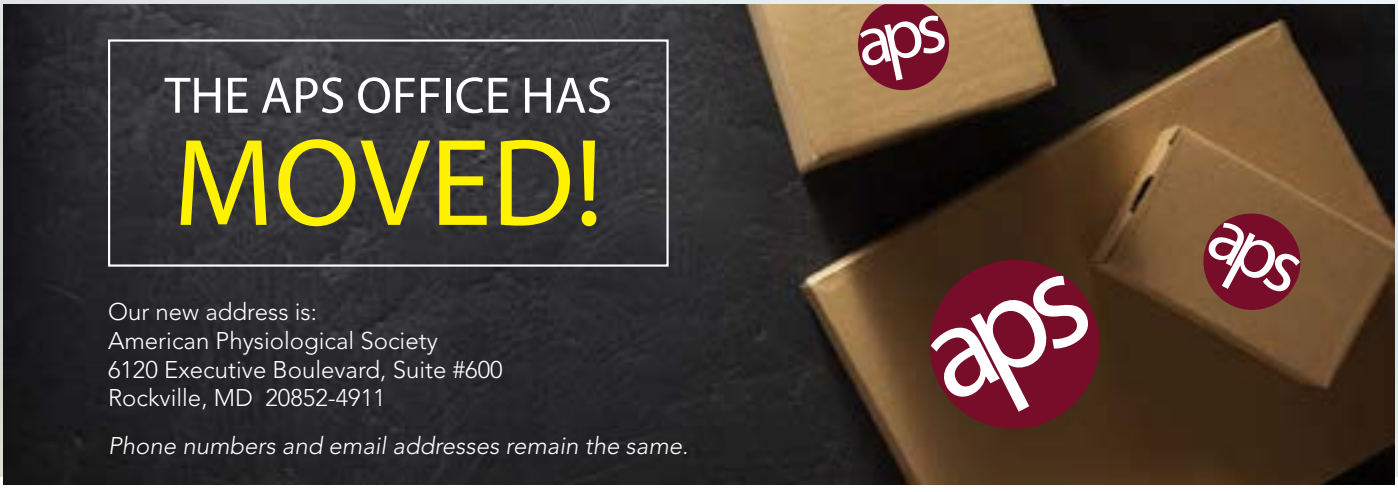
APS Recommends Budget Increases for Research Agencies

Each year as Congress considers funding levels for federal agencies and programs, outside organizations have the opportunity to provide input by submitting testimony for the record. APS submits testimony annually on behalf of the NIH, NSF, and NASA. Unsolicited testimony from outside groups is not accepted for VA programs.

APS requests the following funding levels:

Agency	FY 2018 level	APS FY 2019 recommendation
NIH	$37.08 billion	At least $39.3 billion
NSF	$7.8 billion	At least $8.45 billion
VA Medical and Prosthetic Research	$722 million	At least $787 million
NASA	$20.7 billion	Increased funding for life sciences research and the Human Research Program

Full testimony statements are available on the APS website (NIH: *http://www.the-aps.org/NIH-2019*; NSF and NASA: *http://www.the-aps.org/NSF-NASA-2019*).



Publications

Corrigendum

In the May 2018 issue of *The Physiologist* (p. 141), Calls for Nominations for the Editorships of *AJP-Regulatory, Integrative and Comparative Physiology* and *AJP-Renal Physiology* were published with a deadline of August 15, 2018. Both of these Calls have been delayed by 1 year, so the published Calls are no longer valid. New Calls for Nominations for these journals will go out in 2019.

Current Calls for Papers

Journal of Neurophysiology

- Model Systems of Synaptic Transmission
  Submission deadline: December 31, 2018
- Society for the Neural Control of Movement
  Submission deadline: December 31, 2018
- Advances in Vestibular Research: A Tribute to Bernard Cohen, MD
  Submission deadline: December 31, 2018

Advances in Physiology Education

- Historical Perspectives and Living Histories

Journal of Applied Physiology

- Passive Properties of Muscle
  Submission deadline: July 31, 2018

American Journal of Physiology – Endocrinology Physiology

- Role of Gut Microbiota, Gut-Brain and Gut Liver Axes in Physiological Regulation of Inflammation, Energy Balance, and Metabolism
  Submission deadline: December 31, 2018
- Browning and Beiging of Adipose Tissue: Its Role in the Regulation of Energy Homeostasis and as a Potential Target for Alleviating Metabolic Diseases
  Submission deadline: December 31, 2018
- Mitochondria Dysfunction in Aging and Metabolic Diseases
  Submission deadline: December 31, 2018
- Immunometabolic Cross-Talk and Regulation of Endocrine and Metabolic Functions
  Submission deadline: December 31, 2018

American Journal of Physiology – Heart and Circulatory Physiology

- Many Avenues to Cardiac Cell Death
  Submission deadline: January 31, 2019

American Journal of Physiology – Lung Cellular and Molecular Physiology

- Electronic Cigarettes: Not All Good News?
  Submission deadline: December 31, 2018

American Journal of Physiology – Renal Physiology

- Sex and Gender in Renal Health and Function
  Submission deadline: December 31, 2018

For a complete list of current Calls for Papers, visit the APS website.

Membership

New Regular Members

***transferred from student membership**

Kashif Adil Ahmad
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Claude Alain
Rotman Res. Inst., Toronto, ON, Canada

Elinette Albino
Med. Sci. Campus, UPR, Rio Piedras, PR

Lisa A. Appeddu
SWOSU, Weatherford, OK

Xianghong Arakaki
Huntington Med. Res. Inst., Pasadena, CA

Sergey Arkhipov
Henry Ford Hlth. System, Detroit, MI

Suleiman Wakim Bahouth
The Univ. of Tennessee-Hlth. Sci. Ctr., Memphis, TN

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Hosp. for Special Surgery at Weill Cornell Med., New York, NY

John D. Bukowy
MCW, Milwaukee, WI

James Campbell
Navy Experimental Dive Unit, Panama City Beach, FL

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UNMC, Omaha, NE

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Univ. of Cyprus, Nicosia, Cyprus

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Kyung Hee Univ., Seoul, Republic of Korea

Yuhei Makanae
National Defense Academy Yokosuka, Kanagawa, Japan

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Trine Univ., Fort Wayne, IN

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Jeffrey Howard Baybick
Capital Digestive Care, LLC, Bowie, MD

Zhiyong Cheng
Virginia Tech, Blacksburg, VA

Miguel Angel Lara Garcia
Univ. Veracruzana, Xalapa, Mexico

Gerald M. McGraw
Univ. of South Dakota, Rapid City, SD

Berislav V. Zlokovic
Keck Sch. of Med. of the Univ. of Southern California, Los Angeles, CA

Positions Available

Assistant Professor: An assistant professor appointment (grant-supported, term track) is available for a talented scientist to be part of ongoing exciting projects directed by faculty within the Pauley Heart Center and the Department of Physiology & Biophysics, Virginia Commonwealth University School of Medicine, in Richmond, VA. The selected individual will work with a multidisciplinary team including clinical cardiologists, electrophysiologists, and cellular and molecular cardiologists. Individuals who develop appropriate independence and a track record of funding and publications can be considered for transfer to the tenure track. Our laboratory's translational studies integrate molecular, cellular, and whole organ system function to understanding chronic effects of ventricular ectopy and how premature ventricular contraction (PVC) induce cardiomyopathy. By characterizing underlying mechanism(s), we hope to identify strategies to prevent and reverse PVC-induced cardiomyopathy. We plan to expand studies involving RNA sequencing. *Applicant*: We seek a strong candidate with training in molecular cardiology, postdoctoral experience emphasizing proteomics and micro-RNA biology, and a strong publication record. Candidates must have a PhD and experience in physiology, biophysics, or other relevant fields. Knowledge in bioinformatics is preferred. Expertise with basic techniques utilizing DNA, RNA, proteins, tissue/cell culture, and immunostaining/histology are also desired. We require excellent communication, presentation, and writing skills to present findings at internal, national, and international meetings, and to submit original publications. The successful candidate's duties will include but are not limited to organizing and implementing research plans, the development of new methods, testing, data collection, analysis, interpretation of data, writing grant proposals, and preparing manuscripts for publication. The successful candidate will have the opportunity for mentoring graduate and undergraduate students and applying for career development awards. Interested candidates should apply at *https://www.vcujobs.com/postings/77868*. Submit a cover letter, curriculum vitae, and three reference letters. *Potential Start Date*: Summer 2018. Demonstrated experience working in and fostering a diverse faculty, staff, and student environment or commitment to do so as a faculty member at VCU is required. Virginia Commonwealth University is an equal opportunity, affirmative action employer. Women, minorities, veterans, and persons with disabilities are encouraged to apply.

Assistant/Associate Professor: The Division of Basic Biomedical Sciences at the University of South Dakota's Sanford School of Medicine invites applications for a tenure-track faculty position at the assistant or associate professor level. Applicants should have a PhD or MD/PhD in Neuroscience or a related discipline and at least 2 years of postdoctoral experience. We seek an energetic, interactive, and collaborative individual who employs genetic and/or neuroimaging expertise in human-subject and/or animal subject research to address questions in the areas of stress/trauma, substance abuse, or brain injury. Applicant's research areas should be able to interact with those of other members of the university-wide Center for Brain and Behavior Research (*usd.edu/cbbre*). Successful candidates will be expected to develop an independent, externally funded research program, participate in teaching graduate or medical students, and help grow USD's neurobehavioral research community. Excellent start-up funds, state-funded salary commensurate with experience, and state-of-the-art research facilities in the Lee Medical Science Building (Vermillion, SD) will be provided. Application should include curriculum vitae, a summary of past research and teaching experience, a statement of research interests and future plans highlighting the relevance to the current job description, as well as the names of three references. All materials should be sent to The University of South Dakota online employment website at *https://yourfuture.sdbor.edu/postings/8469*. Review of applications is ongoing and will continue until position is filled. Women and individuals from diverse ethnic, religious, cultural, and social backgrounds are especially encouraged to apply. AA/EOE.

Assistant/Associate Professor: The Department of Medical Education is seeking applicants for a 12-mo, full-time, tenure-track position at the level of assistant or associate professor for its Omaha, Nebraska campus. Individuals trained in physiology and interested in a career primarily devoted to teaching are encouraged to apply. Responsibilities of the position include the team-teaching of medical, graduate, and allied health profession students. Applicants must have a PhD or equivalent terminal degree. (ABD candidates will be considered if PhD completed by the start of the 2018 academic year.) Experience teaching different systems of physiology is desirable. Successful candidates will participate in lectures, small-group interactive sessions, and student assessments. The Department of Medical education is a

new department with in Creighton University School of Medicine serving as an academic home to those whose careers are devoted to teaching. The major focus of the department is excellence in teaching; however, scholarship is crucial to intellectual development in an academic community, and faculty are expected to maintain scholarly activity that promotes the advancement of medical science or the intellectual development of others. We seek candidates who demonstrate a team focus, a passion for student engagement, and a desire to advance the mission of the Department and School of Medicine. Salary and academic rank will be commensurate with education and experience. Review of applicants will begin immediately, with a desirable hire date by July 2018. *Creighton Campus*: Creighton University is a private Jesuit institution located on 139 acres near downtown Omaha. Creighton's beautiful Omaha campus houses nine undergraduate, graduate, and professional schools and colleges. Students of Creighton University are a diverse group of individuals who practice their respective professions in all 50 states. Faculty and staff are committed to pursuing excellence in education and developing students who are skilled clinicians, critical thinkers, culturally competent, and compassionate practitioners committed to service. *Surrounding area*: Omaha is located within rolling hills along the Missouri River, and the greater Omaha area is home to over 900,000 people. The low cost of living along with a stable healthy economy make Omaha a very pleasant and affordable place to live. Omaha has strong public and private schools. The many local attractions and activities include the world-renowned Henry Doorly Zoo and Aquarium. Cultural venues such as Joslyn Art Museum, Rose Theater, Holland Performing Arts Center, and the Bemis Center for Contemporary Art all provide high-quality entertainment. Omaha is home to the College World Series and has hosted several other major sporting events, including the U.S. Olympic Swim trials, NCAA Division I Wrestling Championships, Women's Volleyball Championship, Men's Basketball Tournament games, and the FEI World Cup. Travel around the metropolitan area is convenient, which makes participating in activities downtown or in the extensive park and trail system very accessible. A curriculum vitae and letter of application that includes a description of administrative and teaching experiences, current and future research activities, and the names and contact information of three references may be submitted by mail to: Chair, Search Committee, c/o Lurae McCloskey, Creighton University School of Medicine, 2500 California Plaza, Omaha, NE 68178; e-mail: *luraemccloskey@creighton.edu*; phone: 402-280-1135.

Assistant/Associate/Full Professor: The Department of Biomedical Sciences at the West Virginia School of Osteopathic Medicine (WVSOM) is seeking a 12-mo, full-time, tenure-track faculty position with emphasis in Endocrine and Reproductive Medical Physiology. The successful applicant must have a PhD, MD, or DO terminal degree. Completion of a postdoctoral fellowship is desirable. An equivalent combination of relevant and recent experience, education and/or training, which provides the required knowledge, skills, and abilities may be considered. A commitment to excellence in teaching is required, since this is the primary responsibility for the position. Additionally, the successful candidate is expected to actively engage in professional development and provide service to the Institution. WVSOM utilizes a Patient Presentation-Based Curriculum in which disciplines are integrated. A variety of formats and modalities are utilized, including lecture, lab, small group, and team-based learning. This position will be filled at the rank of assistant, associate, or full professor commensurate with experience and accomplishments in both teaching and research. Salary will be commensurate with experience and includes an excellent benefits package, including moving expenses. Research laboratory space and start-up funds can be provided to interested applicants. Teaching facilities at WVSOM include a cutting-edge lecture facility, multipurpose laboratory, and digital microscopy. Teaching duties will include delivery of lectures to medical students, as well as participation in, and design of, active learning sessions. In addition to teaching and service, the successful candidate will also be expected to conduct independent professional development activities. WVSOM has a rich diversity of faculty research interests and excellent facilities that accommodate laboratory animal research. WVSOM has been consistently recognized as A Great College to Work For by the Chronicle of Higher Education. WVSOM is a free-standing medical school nestled in the Allegheny Mountains. We are located in "America's Coolest Small Town" (*Budget Magazine*, 2011) just minutes from the famed Greenbrier Resort, a Five-Diamond hotel and spa and host of the PGA's annual Greenbrier Classic. WVSOM brings over 40 years of history serving the health and wellness needs of the Greenbrier Valley, the state of West Virginia, and beyond. The school's small-town, rural community cherishes its connection with the college, and

our students are actively engaged in service outreach and support for over 40 non-profit organizations in this area. Additionally, WVSOM faculty and staff enjoy a vibrant cultural community, which features one of only four operating Carnegie Halls in the world, as well as the state professional theatre of West Virginia. Throughout the year, employees enjoy live plays and musicals, a broad representation of visual artists, an annual chocolate festival, a flourishing literary series, and live music events within a historic preservation area featuring 19th century architecture, unique shops and dining, and limitless outdoor recreation. This one-of-a-kind environment brings together farmers and artists, lumbermen and world-renowned musicians, holistic physicians, and thrill-seeking whitewater rafters in a diverse melting pot that is truly unique! *Application:* Interested applicants should apply online by visiting *https://www.wvsom.edu/employment*. Applications received by July 15, 2018 will be given full consideration, and the search will remain open until the position is filled. Applications are considered confidential, and references will not be contacted without notification to the applicant. The West Virginia School of Osteopathic Medicine is an equal opportunity employer and is committed to enhancing diversity among its faculty and staff.

Assistant/Associate/Full Professor: The Department of Molecular Pharmacology and Physiology at the University of South Florida Morsani College of Medicine invites applications for tenure-track faculty positions at the assistant/associate/full professor levels. A doctoral degree in medical or biomedical sciences is required. Applicants must demonstrate a strong record of academic accomplishments with NIH-supported research programs. Expertise in neuroscience, cardiovascular, splanchnic organ system, metabolism, and inflammation/immunology research areas is preferred, with an emphasis on the study of molecular, cellular, and systemic mechanisms. Applicants must also demonstrate a history of medical school teaching excellence and are expected to have outstanding verbal communication skills. The department consists of 22 core faculty members with strong research expertise in circulation physiology, cardiorespiratory diseases, metabolic/renal disease, systems neurophysiology, and neurodegenerative disorders. Investigators have access to stateof-the-art core laboratories in microscopic and molecular imaging, electrophysiology, histology, animal facilities, genomics, and proteomics. Opportunities are available for interaction with USF Heart Institute, Byrd Institute, and Center for Drug Discovery and Innovation. Additional information about the department and faculty is available at *http://health.usf.edu/medicine/mpp/index.htm*. We offer generous laboratory space, substantial start-up packages, and competitive salaries. The Tampa metropolitan area is rapidly developing and provides a culturally diverse environment with a tropical climate. Candidates should send their curriculum vitae, which includes previous and current research funding, teaching experience, a statement of research plans, and the names/contact information of three references in a single PDF to Victoria Mothershed at *vmothershed@health.usf.edu*. USF Health is committed to increasing its diversity and will give individual consideration to qualified applicants for this position with experience in ethnically diverse settings, who possess varied language skills, or who have a record of experience that support/benefit diverse communities or teaching a diverse student population. The University of South Florida is an EO/EA/AA Employer. For disability accommodations, contact Bridget Shields at (813) 974-2543 a minimum of 5 working days in advance. According to FL law, applications and meetings regarding them are open to the public.

Instructor/Lecturer: The Division of Biology at Kansas State University is currently seeking two full-time instructors to teach human body lab, assist in cadaver dissection, and teach several laboratory sections in an undergraduate course focusing on human anatomy and physiology. One instructor will begin August 2018 for the Fall semester, and the other will begin January 2019 for the Spring semester. Opportunities for mentoring undergraduate research projects may also be available. Instructional responsibilities include classroom and laboratory instruction, laboratory preparation, updating and maintenance of syllabi and other class materials, integration of lab material with other portions of the Human Body course, evaluation of student competence, assessment of student mastery of unit and university learning objectives, and preparation of student progress and grade reports. Other responsibilities include participation in weekly staff meetings, academic advising and campus events such as open house, student award ceremonies and graduation ceremonies. The Division of Biology awards undergraduate degrees in three areas (Biology, Microbiology, and Fisheries, Wildlife & Conservation Biology) and currently serves over 800

majors. Kansas State University is located in the city of Manhattan (*http://www.ci.manhattan.ks.us*), a pleasant community of about 50,000 located in the scenic Flint Hills of northeastern Kansas, about 2 hours from Kansas City. Local recreational opportunities include a large lake/park system, diverse outdoor activities, athletic events, and a rich program in the performing arts. Manhattan also serves as the regional center for education, health care, commerce, entertainment and communications. Kansas State University embraces diversity and promotes inclusion in every sector of the institution. The university actively seeks individuals whose commitments and contributions will advance the university's dedication to the principles of community. *Minimum requirements:* Master's degree in biology or related field; 2 years of experience and demonstrated excellence in biological science instruction at the community college, college, or university level; qualifications and experience to teach anatomy and physiology at the undergraduate level; qualifications to teach other introductory and modern biology courses; demonstrated commitment to mentoring students and serving a diverse population; demonstrated self-motivation and ambition; ability to work on teams; evidence of interest in undergraduate teaching; ability to work in a collegial manner with students and colleagues in a large, modern and diverse university setting. *Preferred qualifications:* A doctorate (e.g., PhD, DVM, MD) in the biological sciences or related field; experience in human anatomy and specimen dissection. *Other requirements:* Applicants must be authorized to work in the U.S. at the time of employment. *How to apply:* To apply, please visit: *http://careers.k-state.edu/cw/en-us/job/503573/instructor-biology*. Please submit the following documents: *1)* cover letter, *2)* curriculum vitae, *3)* brief description of instructional interests, *4)* statement of teaching experience and philosophy, *5)* teaching evaluations or other demonstrated excellence in undergraduate instruction, *6)* representative reprints, *7)* transcripts, *8)* three letters of reference uploaded direct from the author. Screening of applicants will begin immediately and continue until position is filled. Salary will be competitive, depending on experience and other qualifications. Kansas State University is an Equal Opportunity Employer of individuals with disabilities and protected veterans, and actively seeks diversity among its employees. In connection with your application for employment, Kansas State University will procure a background screen on you as part of the process of considering your candidacy as an employee.

Instructor/Assistant Lecturer: The School of Exercise and Rehabilitation Sciences at MAPP (Microbiology, Anatomy, Physiology, and Pathophysiology) University of Toledo is looking for an assistant lecturer specializing in Anatomy and Physiology for a 9-month, non-tenure track opening. *Salary*: $45,000. *Starting date*: August 20, 2018. *Qualifications (required): 1)* Master's degree in Biology or closely related program, *2)* collegiate level instructional experience in Anatomy and Physiology. Qualifications (preferred): *1)* Terminal degree, earned doctorate in Biology or closely related program; *2)* collegiate level teaching experience, with innovative teaching technologies, including development of online or hybrid courses; *3)* previous experience working with graduate students. *Responsibilities*: *1)* Teach undergraduate courses in the following or related areas: Anatomy and Physiology (required), Human Pathophysiology (preferred); *2)* coordinate Anatomy and Physiology labs; *3)* collaborate with faculty and students in the School of Exercise and Rehabilitation Sciences, as well as other appropriate schools/departments across the college and university; *4)* participate in school, college, and university service. The School of Exercise and Rehabilitation Sciences is one of four schools in the College of Health and Human Services. Undergraduate students may choose to major in Exercise Science, Recreation Therapy, or Respiratory Care. Specializations include Human Performance and Fitness Promotion (HPFP) and Pre-Health Care (pre-PT, pre- OT, pre-PA, and pre-med). Many non-majors (pre-Nursing, Public Health, Health Care Administration) enroll in MAPP courses. Please see the website for additional information (*http://www.utoledo.edu/hhs/schools/*). *Application procedure*: To apply, go to *https://jobs.utoledo.edu/* and submit the following required items: *1)* letter of application, *2)* complete, current curriculum vitae, *3)* statement of teaching. Letters of recommendation to be provided upon request. Please direct questions to: Elyce Ervin, Search Committee Chair, School of Exercise and Rehabilitation Sciences, Mail Stop 119, College of Health and Human Services, 2801 West Bancroft St. University of Toledo Toledo, OH 43606; e-mail: *elyce.ervin@utoledo.edu*; pffice phone: (419) 530-2457; fax: (419) 530-2477. *Deadline*: Review of applicants will begin immediately and continue until the position has been filled. *Appointment date*: The position will begin August 20, 2018. The University of Toledo is an Equal Access, Equal Opportunity, Affirmative Action, Title IX Employer, committed to excellence through diversity.

Lecturer: The Department of Biological Sciences seeks an assistant lecturer to join our anatomy team in the delivery of high-quality anatomy and physiology labs to over 1,000 students per year. These courses are designed to allow students to examine prosection-based systemic anatomy, perform physiological experiments, and gain a basic understanding of normal physiological processes. The courses are a hybrid of on-site and virtual content delivery. *Key responsibilities*: The lecturer will coordinate and teach the laboratory component of human anatomy and physiology courses for undergraduate and pre-health professions students. The successful applicant will be expected to perform human cadaveric prosections, oversee graduate teaching assistants, maintain and ensure the quality of cadavers on the Pocatello campus, utilize the Anatomage table, and conduct outreach activities through demonstrations of the anatomy and physiology facilities for regional high school students. Additional teaching assignments are likely to include support of laboratory activities in graduate level anatomy courses. This is a non-tenure-track position. *Minimum qualifications*: Master's degree in a relevant discipline; experience in human cadaver dissection; experience in successful teaching, especially at the university level; clear written and spoken English. *Preferred qualifications*: PhD (or equivalent) in relevant discipline; proficiency in human cadaver dissection; involvement in outreach education activities; experience coordinating laboratory materials and resources. Apply online at *https://isu.csod.com/ats/careersite/JobDetails.aspx?id=626*. Please submit the following documents with your application: cover letter, which includes a statement of qualifications and experience relevant to the position; curriculum vitae, which provides a summary of teaching experience; additionally three letters of professional reference should be submitted to *mthomas@isu.edu*. The position will remain open until filled. Salary has been approved at $40,000–$42,000 annually, commensurate with education and experience. Includes a competitive benefits package. Offers of employment may be conditional pending successful completion of a background investigation. Idaho State University is an equal opportunity/affirmative action employer. We have an institution-wide commitment to inclusion and diversity and encourage all qualified individuals to apply. Veterans' preference. Upon request, reasonable accommodations in the application process will be provided to individuals with disabilities.

Postdoctoral Fellow: The John B. Pierce Laboratory/Yale School of Medicine is interested in recruiting a dedicated postdoctoral position under a Research Supplement to Promote Diversity in Health-Related Research. To take advantage of this opportunity, the applicant would have to qualify under NIH criteria. The appointment would be at The John B. Pierce Laboratory, with co-terminus appointment in the Yale School of Medicine, Department of Obstetrics, Gynecology and Reproductive Sciences. To earn this supplement, we would apply together to the NIH under the Funding Announcement *https://grants.nih.gov/grants/guide/pa-files/PA-15-322.html*. My project focuses on testosterone effects on the cardiovascular, renal, and nervous system mechanisms contributing to hormone-related blood pressure dysfunction in women with reproductive and metabolic disorders, including polycystic ovary syndrome. We use integrated techniques in human studies including pharmacological, lower body negative pressure, and microneurography strategies. In addition, this position provides a unique opportunity to collaborate within a multicenter grant that also includes animal models and molecular strategies. Individuals with a PhD or equivalent in a relevant discipline are encouraged to apply. Our program provides a rich environment with access to workshops, seminars, and all training and career mentoring programs available through the Pierce and the Yale University systems. We emphasize team and individualized mentoring to maximize our trainees' success toward an independent research career. The salary is commensurate with experience, according to the published NIH postdoctoral stipend levels. Applicants must be U.S. citizens or permanent residents eligible for NIH grant support. The postdoctoral associate will be expected to participate in experimental design, data collection, analysis and interpretation, and preparation of oral and written scientific reports. The successful candidate should have strong motivation, good communication skills, and the ability to work independently. Candidates with prior experience in human cardiovascular or exercise physiology research are encouraged to apply. Prior experience with microneurography in humans is desirable, but not necessary. To apply, interested candidates should submit a single PDF file including *1)* a cover letter with a brief statement of research experience and interests, and *2)* a curriculum vitae to Dr. Stachenfeld (*nstach@jbpierce.org*). For additional questions and/or information, please contact Nina Stachenfeld (*nstach@jbpierce.org*). The John B. Pierce Laboratory is a nonprofit, independent research institute that is formally affiliated

with Yale University. Founded in 1933 and housed in its own three-story Georgian-style building directly across the street from the Yale School of Medicine, the Pierce Laboratory affords a unique environment for interaction and collaboration among scientists within the laboratory and in the surrounding Yale community. The laboratory has a long and distinguished history as a leading center for the study of physiological regulatory systems, such as those that maintain body temperature, respiration, body fluids, and metabolism within healthy limits. We continue these studies in today's environment to address major public health concerns including obesity, Type 2 diabetes, and cardiovascular disease. The Pierce Laboratory seeks employees who support the research and public service mission of the laboratory. The John B. Pierce Laboratory is an equal employment opportunity employer that does not unlawfully discriminate in any of its programs or activities on the basis of race, color, religion, sex, national origin, age, disability, veteran status, sexual orientation, gender identity or expression, or on any other basis prohibited by applicable law.

Postdoctoral Fellow: The Neuromuscular Research Laboratory (NMRL)/Warrior Human Performance Research Laboratory (WHPRC) has multiple immediate openings for postdoctoral fellowship positions. This is an excellent opportunity to join a DoD-funded research team focused on the physiological mechanisms of physical training adaptations and cognitive or physiological resilience. Our multi-disciplinary group has expertise in exercise physiology, neuroendocrinology, neurobiology, biomechanics and motor control, nutrition, epidemiology, systems biology, and machine learning. The NMRL/WHPRC is a state-of-the-science 11,600-ft^2 facility with innovative techniques to study molecular, cellular, tissue, biomechanical, and physiological aspects of human performance optimization and injury prevention (NMRL/WHPRC). Current and future capabilities include enzyme immunoassay (EIA); multiparametric flow cytometry; motion capture and biomechanics; neurophysiology with transcranial magnetic stimulation (TMS), electroencephalogram (EEG), non-invasive motor unit array decomposition (dEMG); psychometrics; strength, sensorimotor, and fitness assessment; dual-energy X-ray absorptiometry (DEXA); and high-resolution peripheral quantitative computed tomography (HR- pQCT). Through collaborations with leading experts at Pitt, we are beginning to use transcriptomics, proteomics, and muscle IHC. We are seeking creative and highly motivated scientists with strong critical thinking and technical skills to pursue independent and collaborative research within the School and Health and Rehabilitation Sciences. Candidates must have *1)* PhD degree; *2)* strong publication record; *3)* excellent English verbal and written communication skills; *4)* a background in muscle/bone physiology, biomechanics/motor control, neurophysiology, or molecular/cellular biology; and *5)* willingness to work with human subjects/samples and animal models. The successful candidate is expected to work independently and as part of a team, and have a strong enthusiasm for learning and developing new experimental approaches. Applicants should send *1)* a cover letter with summary of research experience and interests; *2)* current contact information for three potential references; and *3)* curriculum vitae, including publications in PDF format to Dr. Bradley C. Nindl, Director and Professor (*bnindl@pitt.edu*), 3860 South Water St., Pittsburgh, PA 15203; phone: 412-246-0460; *www.nmrl.pitt.edu*.

Postdoctoral Fellow: Two (2) postdoctoral fellowships are available at The University of Illinois College of Medicine in Chicago for highly motivated applicants with experience in vascular biology, cell signaling, and lung biology. Projects will focus on endothelial biology, particularly signaling and molecular mechanisms of increased barrier permeability. Successful applicants will have expertise in one or more of the following areas: vascular endothelial barrier function, mechanisms of expression of endothelial adhesion molecules, and/or signaling in endothelial cells. The positions are located in the Department of Pharmacology, a department consistently leading the field in funding and home to a world-class graduate pharmacology program. In 2016, the department was ranked 7th in the nation in Pharmacology in NIH research funding and, in 2017, in the top 11 in the U.St. based on QS World University Rankings by Subject in Pharmacy and Pharmacology. The department's primary training emphasis is to train creative, independent researchers by providing both predoctoral students and postdoctoral fellows with a wide range of skills needed in this rapidly evolving and increasingly competitive scientific world. *Qualifications*: A PhD or MD/PhD or MD degree is required. Experience with biomedical research is highly desirable. Competitive candidates will have a publication record and excellent communication skills. *To apply*: For fullest consideration, qualified candidates should submit their curriculum vitae electronically no later than June 1, 2018 to *pharmjob@uic.edu*. The University

of Illinois at Chicago is an equal opportunity, affirmative action employer. Minorities, women, veterans, and individuals with disabilities are encouraged to apply. The University of Illinois may conduct background checks on all job candidates upon acceptance of a contingent offer. Background checks will be performed in compliance with the Fair Credit Reporting Act.

Postdoctoral Fellow: The Schwartzman lab at New York Medical College School of Medicine seeks a highly motivated postdoctoral researcher. The successful applicant will work on an NIH-funded research project to study the role of GPR75 and its ligand 20-HETE in the regulation of endothelial and smooth muscle function and the development of vascular dysfunction and remodeling in hypertension. This is primarily a research position requiring various types of laboratory work, including cell culture, measurement of intracellular signaling molecules, basic molecular biology and protein chemistry techniques, animal handling (genotyping and phenotyping), and other procedures as needed. The postdoctoral researcher will work primarily with GPR75 transgenic mice; he/she will also assist in experiment planning, data collection, and analysis. He/She should have the ability to work both independently and as part of our research team. Candidates should have strong English-language organizational, written, and verbal communication skills. The successful applicant will also train and supervise students, be responsible for publishing the results, and assist in grant preparation. A recent PhD in Pharmacology, Physiology, or a related field is required. Please submit a CV, letter, and statement of research interests to Ms. Gail Anderson at *gail_anderson@nymc.edu*. New York Medical College is committed to excellence through diversity and inclusion, and welcomes candidates of all backgrounds. New York Medical College is an equal opportunity employer. New York Medical College is a member of the Touro College and University System.

Postdoctoral Fellow: The Mayo Clinic has postdoctoral positions available that are integrated into the research programs of an established physician-investigator at Mayo Clinic, Rochester. The study focus of these positions is on primary sclerosing cholangitis (PSC), a chronic liver disease that has no cure, with projects centered on the genetics/epigenetics and immunobiology of PSC. Candidates should hold an MD, PhD, MD/PhD, or equivalent degree. The postdoctoral appointments are for a minimum of 2 years, with salary and benefits based on the candidate's experience. Candidates will work on translational studies of human biospecimens or wet bench projects with the goal of better understanding the pathogenesis of PSC and identifying promising therapeutic targets. Interested candidates should provide two letters of recommendation and an updated CV/bibliography to Dr. Nicholas LaRusso (*larusso.nicholas@mayo.edu*).

Research Scientist: Located in the historic community of Walla Walla in the scenic wine country of southeastern Washington, Whitman College's beautiful tree-lined campus is home to an intellectually dynamic, diverse, and supportive community of some 500 staff and faculty, and 1,450 students. Ranked by U.S. News & World Report among the top 50 liberal arts colleges in the country, Whitman is proud to count among its distinguished alumni the longest-serving Justice in U.S. Supreme Court history, a U.S. Ambassador, a nationally acclaimed poet, an astronaut, a former CEO of General Electric, and a Nobel Laureate in physics. With an endowment exceeding $500 million, fiercely loyal alumni, exceptional students, and an accomplished faculty and staff, Whitman College continues to build on its national reputation for academic excellence and leadership. *Position description*: The successful candidate will perform physiology laboratory research including animal studies, mitochondrial respiration analysis, and cell exposure experiments. The candidate will help maintain the lab and mouse colony, and will assist in training undergraduates in laboratory techniques. Duties will include, but are not limited to: *1)* deep track of supplies and reagents, and order new supplies as needed; *2)* design and implement physiology research projects as described above, and keep track of methods and results in an organized fashion; *3)* assist with animal care and maintenance as described above; *4)* assist with training of undergraduate students. *Qualifications*: Individuals must be able to explain and/or demonstrate that they possess the knowledge, skills, and abilities to safely perform the essential functions of the job, with or without reasonable accommodation. Applicants *1)* must have knowledge and working familiarity with chemicals and equipment routinely used in biology and biochemistry laboratories and must know basic safety procedures for working with and disposing of such chemicals; *2)* must have working knowledge of laboratory equipment such as autoclaves, centrifuges, gel electrophoresis, and chemical/cell culture hoods, and understand the safety issues of such items; *3)* must be self-motivated and have a positive attitude. Some direction and training will be

given; however, most work will be self-initiated. No heavy lifting is required. There will be periods of standing and sitting, depending on whether they are doing laboratory bench work or sitting at a cell culture hood—similar levels of activity to that of an office job. *To apply*: All application materials must be submitted electronically via the Whitman College HR website at *https://whitmanhr.simplehire.com/*. Candidates must provide a letter of application addressing qualifications for this position, a resume, and the names of three professional references with current phone numbers and e-mail addresses. Modest relocation support is available. Whitman College is building a diverse academic community and welcomes nominations of and applications from women, members of historically underrepresented minority groups, persons with disabilities, and others who would bring additional dimensions to the college's learning environment. Whitman is responsive to the needs of dual career couples. Whitman College is an EEO employer. ●

Meetings & Congresses

2018

July 3–6
SEB Florence 2018, Florence, Italy. *Information:* APS members receive discounted registration; e-mail: *admin@sebiology.org*; Internet: *http://www.sebiology.org/events/event/seb-florence-2018*

July 7–11
11th FENS Forum of Neuroscience, Berlin, Germany. *Information:* Internet: *https://forum2018.fens.org/*

September 3–6
XXXIII FeSBE's Annual Reunion, Campos do Jordiao, San Paulo, Brazil. *Information:* Internet: *https://www.facebook.com/pg/FeSBE-Federação-de-Sociedades-de-Biologia-Experimental-328745400486246/posts/*

September 5–8
2018 Integrative Physiology of Exercise Conference, San Diego, CA. *Information:* Internet: *https://members.acsm.org/ACSM/Events/Event_Display.aspx?EventKey=IPE2018*

September 5–8
8th International Congress of Pathophysiology, Bratislava, Slovakia. *Information:* internet: *http://www.icp2018.com*

September 9–13
11th World Congress for Microcirculation, Vancouver, Canada. *Information:* Internet: *https://www.wcm2018.org/QuickEventWebsitePortal/11th-world-congress-for-microcirculation/wcm2018*

September 14–16
Europhysiology 2018, London, England. *Information:* Internet: *https://www.europhysiology2018.org/programme*

September 22–24
International Conference on Spreading Depolarizations, Boca Raton, FL. *Information:* e-mail: *info@cosbid.org*; Internet: *http://www.cosbid.org/icsd*

September 30–October 3
Cardiovascular, Renal and Metabolic Diseases: Gender-Specific Implications for Physiology on Sex and Gender, Knoxville, TN. *Information:* internet: *http://www.the-aps.org/sexgender*

September 30–October 3
The 9th Santorini Conference: Systems Medicine and Personalised Health & Therapy, Santorini, Greece. *Information:* Internet: *http://santoriniconference.org/*

October
The 17th International Biochemistry of Exercise Conference (IEBC), Beijing, China. *Information:* Organized by the Chinese Association of Exercise Physiology and Biochemistry.

October 1–2
12th International Conference on Endocrinology, Diabetes and Metabolism, Osaka, Japan. *Information:* Internet: *https://endocrinology.conferenceseries.com/asiapacific/*

October 12–13
Fueling Innovation: Public Programs Driving Drug Discovery, Bethesda, MD. *Information:* Internet: *https://www.aspet.org/aspet/meetings-awards/other-meetings/past-meetings/2017-academic-drug-discovery-colloquium*

October 18–21
34th World Congress of Internal Medicine, Cape Town, South Africa. *Information:* internet: *http://www.wcim2018.com*

October 25–28
Intersociety Meeting. Comparative Physiology: Complexity and Integration, New Orleans, LA. *Information:* internet: *http://www.the-aps.org/comparative*

November 8–9
11th Edition of the International Conference: ICT for Language Learning, Florence, Italy. *Information:* Internet: *https://conference.pixel-online.net/ICT4LL/index.php*

2019

April 6–9
Experimental Biology, Orlando, FL.

June 10–13
14th FELASA Congress, Prague, Czech Republic. *Information:* Internet: *http://www.felasa2019.eu/*

June 23–29
2019 Control of Renal Function in Health and Disease, Charlottesville, VA.

September 2019
2019 The Interface of Mathematical Models and Experimental Physiology: Organ Function from the Microvascular Perspective, Scottsdale, AZ.

October 2–5
2019 9th Annual International Conference of Aldosterone and ENaC in Health and Disease: The Kidney and Beyond, Estes Park, CO.

aps® Meetings and Conferences

2018 Cardiovascular, Renal and Metabolic Diseases: Sex-Specific Implications for Physiology
September 30–October 3, 2018 • Knoxville, TN

2018 Intersociety Meeting, Comparative Physiology: Complexity and Integration
October 25–28, 2018 • New Orleans, LA

APS Annual Meeting at Experimental Biology 2019
April 6–9, 2019 • Orlando, FL

2019 Control of Renal Function in Health and Disease
June 23–29 • Charlottesville, VA

2019 The Interface of Mathematical Models and Experimental Physiology: Organ Function from the Microvascular Perspective
September 2019 • Scottsdale, AZ

2019 9th Annual International Conference of Aldosterone and ENaC in Health and Disease: The Kidney and Beyond
October 2–6, 2019 • Estes Park, CO

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the-aps.org/benefits

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