My active participation as the 2010-2011 K-12 Minority Outreach Fellow began by attending the Experimental Biology meeting in Anaheim, CA, on April 24-28, 2011, which was only achievable by the travel support provided by the American Physiological Society (APS) and the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) of the National Institute of Health (NIH). More importantly the trip was possible with the administrative support of the members of the Educational Office of the APS.

I do have to stop to mention that weeks prior to the meeting, the Educational Office walked me through all the steps necessary to plan the trip, register for events, and get involved with not only Physiology Understanding (PhUn) Week Training, but with APS was an invaluable factor in my successful with EB.

During my time at EB 2010, I attended the following events:
- APS Minority Travel Fellows Orientation and Porter Reception
- PhUn Week Training
- K-12 Outreach Fellow Meeting
- Travel Fellow Networking Breakfast
- Physiology for Life Science Teachers and Students
- APS Business Meeting
- APS Minority Travel Fellows Luncheon

Throughout these events, I met outstanding students, researchers, physiologists, and educators at all stages of career/education, including staff members of the APS. My days were filled with rich and unforgettable experiences. I was privileged to hear talks by experts in their field, participate in networking functions, career development seminars, PhUn week training events, and having a meeting mentor. I was paired up with Dr. James Bassingthwaigte from the University of Washington, an excellent mentor and EB meeting tour guide. Dr. Bassingthwaigte kindly introduced me to his colleagues, shared his insight on scheduled events on the program not to be missed, and provided me with valuable information on navigating my way through such a large scientific meeting, as this was my first attendance at any EB meeting. He was a wonderful
meeting mentor.

The highlight of my time at EB 2010 was participating with all the outreach activities provided by the Education Office and the PhUn week training. I met and interacted with so many inspirational and dedication people. Annie Whitaker, the other 2010-2011 APS K-12 Minority Outreach Fellow, and I were paired up to get the visiting high school students and teachers going with some physiology activities. This was a great time to meet Annie and engage with local students and their teachers. It was a terrific time. The students/teachers were very enthusiastic and enjoyed every minute of their time at EB 2010. I also met and worked alongside wonderful teachers that participated in the Frontiers in Physiology group. They provided me with incredible insight into the approaches and methodology behind reaching out to students in the K-12 range that I was not aware of. I learned so much from the teachers and was able to take those skills with me to use during my local outreach activities.

After leaving EB 2010, I was so motivated, equipped, and ready to take all the excitement and energy from EB 2010 to the local schools in San Antonio, TX. Unfortunately, I had to patiently wait until the school year began planning with the teachers. It was worth the wait, since I used my time to develop an outreach strategy and seek out partnering opportunities.

Participating in the Annual Biomedical Research Conference for Minority Students (ABRCMS) for their 10th Anniversary meeting on November 10-13, 2010 in Charlotte, NC was an amazing experience. I teamed up with Brooke Bruthers, APS Minority Programs Coordinator, to represent the APS in an exhibition booth. It was a great opportunity to highlight APS programs to so many talented and outstanding undergraduate minority students. The response was overwhelming. The students were so responsive the receive information about APS programs available for professional development. Through this opportunity, I was able to interact the students and discuss career and educational options, interest them in the fields of research that fall under the
umbrella of physiology, inform them on APS fellowships, meet program
directors and educators involved in minority programs, network with other
professionals, and be inspired by the outstanding program delivered by
ABRCMS. I was very fortunate to have attended ABRCMS during their 10th
anniversary celebration. Ten years prior, I attended the first ABRCMS as an
undergraduate student trainee and this time I participated in the meeting
representing APS and a real person that navigated through graduate school to
earn a doctorate degree, it was a real honor. The conference was filled with the
most amazing scientists and great speakers that changed my life. Just to name a
few, I heard about the wonders of the universe from Dr. Neil deGrasse Tyson of
the Hayden Planetarium, the learning and behavior of gray parrots from Dr.
Irene Pepperberg of Harvard University, science behind targeting the glycome
for imaging cancer by Dr. Carolyn Bertozzi of UC Berkley, the state and mission
of the country’s health and research goals from Dr. Francis Collins the director of
the NIH, and about life from Maya Angelo, poet/educator/author. Equally as
inspiring was the conversations I had with the undergraduate students, up-and-
coming scientists of the future. It was marvelous to hear about their work and
their motivation to succeed. During the professional development sessions I met
many scientists that paved the way for early professionals like myself and shared
with the group their journey. It was also a great privilege and an honor to meet
the program directors and research coordinators from various schools from
around the country that run undergraduate research programs and believe
whole-heartedly in the investing in the futures of these bright students. It was
truly an inspirational and life-changing event for me.

OBJECTIVE
In line with the vision of the APS to increase student awareness of physiology in
their lives and to foster communication between the science community and K-12
minority science student I set out on a personal mission to reach out to as many
students as possible. As a native of San Antonio, I knew exactly the schools and
student populations that I wanted to target. I felt a deep sense to reach out to
students in school districts and areas of the city with the greatest need for an
interest in physiology, health, exercise, higher education, and careers in science.
I grew up in the same schools and educational environment of the students I
visited and knew first-hand that a program like PhUn week had the potential to
stimulate, excite, and reach students hungry for inspiration, information, and an
interest in physiology. True to my original mission, I am honored to report to
you that with the support of the APS, I shared PhUn week with over 1,1000 K-12
students in six schools in San Antonio, TX and established contacts with numerous K-12 educators, schools, and school districts. Thank you APS!

PLANNING
My participation during PhUn Week spanned October 22 - November 9, 2010 (plus one date on February 7, 2011) based on the availability of the host teacher/school.

In San Antonio, PhUn week landed during an important testing period in the public school, however the teachers were willing to sponsor a visit after hearing of the amazing program offered by PhUn week. Some of the schools coordinated the visit with Red Ribbon Week; a week that promotes “Say No to Drugs,” in which my visit provided the health and exercise component, as well as the push for higher education. Other schools used my visit to promote career awareness and I participated as speaker during Career Day (scientist/physiologist). The rest of the schools invited me for 1-2 days to share PhUn Week with their students.

PARTICIPANTS
Students participating were from schools throughout the city of San Antonio, TX. From the demographic data collected, the students impacted by PhUn Week were predominantly Hispanics. Without the support of APS and a program like PhUn Week these student would have never otherwise seen the potential in careers in physiology, a college education, learned about health and exercise, and met a real-life “physiologist” that grew up in the same city, lived in the same neighborhoods, and attended the same schools as they did. The experience was a true honor in which I was privilege to celebrate my own educational/professional achievements with the students and teachers in my community.

ACTIVITIES
The activities described below were incorporated at all the visits. The students engaged in multiple hands-on activities, and a presentation from a “physiologist.”

Draw-A-Scientist (DAST)
Students were asked to draw a scientist (or their idea of what a scientist is) and give a brief description. As you might expect they all drew MALES, CRAZY MAD SCIENTISTS. I have a large
collection of these drawings.

So You Think You Can Text
Students were introduced to heart anatomy and physiology using the toy heart. The toy heart is constructed in true anatomical fashion making it easy to discuss with the students the structures of the heart. Also, the toy heart has the texture or squishy feeling of a real heart. Finally, the heart is a great teaching tool for demonstrating muscle physiology, especially the concept of fatigue. In this activity students are reminded that the heart is a special muscle. Similar to the muscles in their body, the heart muscle can also feel tired or experience pain as with a heart attack. The students told now it is time to test their own muscles to see how strong they are. I ask the students to hold the toy heart in their dominant hand (the hand they write with) and then I ask them to switch the heart to the other hand. With the heart in their non-dominant hand, we practice one contraction (squeeze and release; contraction and relaxation). After a few practice contractions, the students are told to squeeze the heart as many times as they can, while counting, for a period of one minute. At the end of the minute I compare their answers to see which student obtained the most contractions. A few seconds after starting, the students experience muscle fatigue, and they can’t continue further. Even those that make it to a minute are stressing, in pain, and their faces turn red. They struggle and at the end I asked them what to describe to me what they felt and why. At this time, I explain to them concept of muscle fatigue. It is a simple, yet powerful teaching activity and the students love the toy hearts. It worked for students of all ages.

High Fat Diet
Students use their classroom microscopes to examine the large arteries of the heart that have been occluded with plaque and stained with Oil-Red-O as a method to visualize/stain fat deposits on histological sections of the heart. These microscopic slides allow the students to experience their microscopes in a new way and see an actual experiment.

Be a Physiologist
Students took turns pipetting into blue
dye into gels to simulate a real laboratory technique. In addition into giving students a glimpse into the work conducted in a laboratory, this activity provided students with an understanding of the importance of taking accurate measurements and tools scientists use. They had so much fun pipetting and pretending to be real scientists. For younger students I let them use disposable transfer pipettes.

**Learn like a Physiologist**
Students had the opportunity to explore and touch a real cow heart specimen to understand that specimens and models are used as learning aids used by scientists. For some students it was the best part of the visit. Initially all students appear apprehensive, but that quickly fades as they become excited and thrilled to be touching and exploring a real heart. This activity really turns on the kids to science and physiology.

**The Pressure is on**
Students learned how to measure blood pressure is used as a measure of their cardiovascular health. In this activity I realized how many students had never heard the sound of their hearts beating. I demonstrated to them how to use the blood pressure cuff and the stethoscopes. They were able to take their own blood pressure or the pressure of their partner. It turned out to be a great activity and the students were fascinated to hold real clinical instruments.

**Meet the Physiologist**
In this activity students met a real physiologist. This is the part of the day that I used introduced myself. Through a slide presentation (attached below), I covered science, physiology, my research, health, exercise, and higher education. It was an opportunity for the students to hear about my road to becoming a physiologist, the relevance of my research to members of my family, and the importance of health and exercise. It was also a time for students to ask me questions. In most settings this was a group activity but I also sat down with the students in small groups.
2nd DAST
As a measure of the impact of the visit, I asked the students to draw another picture. As a testament to the transformed lives of students participating in PhUn week, the second time around they most often drew themselves as the scientist in the picture!

THE SCHOOLS
Friday, October 22, 2010
Career Day
Mary Lou Fisher Elementary
Northside Independent School District
55 students (3rd grade)

I had the pleasure of kicking off PhUn week at Mary Lou Fisher Elementary. I presented to three 3rd grade bilingual (English/Spanish classes). Two of the presentations were done in Spanish. I have to admit, I was a little nervous, as this was my first PhUn week event, but that didn’t last long. The kids were amazing and took in all the information. Prior to my visit, the teachers help me collect Draw-A-Scientist drawings and then during my 45-minute time in each class, I showed them a presentation covering health, exercise, physiology, and a little bit about myself. I showed them how to listen to their hearts with a stethoscope, explained the parts of the body on a human torso model, and at the end we did the activity with the toy hearts. The kids were so excited and they were gracious enough to send me thank you cards. It was a great day.

Thursday, October 28, 2010
Red Ribbon Week
San Antonio Independent School District
Woodlawn Hills Elementary
413 students (PK-5th grades)

The real testament to PhUn week was at Woodlawn Hills Elementary. I was the special guest of the week in honor of Red Ribbon Week, a time to remind students of the importance of health, exercise, and the dangers of drugs. It is an opportunity to remind students to, “Say No to Drug!” The teachers brought the students into the cafeteria one school grade level at a time. Once there, I introduced myself and shared with them my physiology presentation. Immediately after, the students were divided into groups to participate in various hands-on activities
To accommodate such a large crowd, I recruited undergraduate students from the University of the Incarnate Word and a few graduate students from University of Texas Health Science Center. It was a great day! The students were very excited, my volunteers did an outstanding job with the students, the teachers were wowed, and I was so happy to bring such a wonderful program to so many students. We rotated the students through all the activities. The students ranged from Pre-kindergarten to 5th grade and also included the Special Education Students. This PhUn week event was a true collaboration between the school and the science community. My students were so inspired by the students and grew from the experience. The students were so amazed and wanted me to return the next day for more. The teachers expressed their appreciation for the outreach effort and were very grateful for the experience. I was moved to tears seeing the children’s faces when they got to keep the toy heart and their backpacks. I made sure to remind the students to share with their families the importance of heart health, exercise, and good food choices. At the end of the day I packed up the supplies, I overheard many students explaining to their siblings and parents (at the parent pick-up) all they learned about health and exercise. It was an awesome experience.

Tuesday, November 2, 2010
Palm Heights Baptist School
Private school located within the San Antonio Independent School District
30 students (5th-8th grades)

During the designated days set aside for PhUn Week I started my school visits with Palm Heights Baptist School. I committed to speaking to all the students across the 5th – 8th grade in one large group. I knew most of the students in this small, predominantly Hispanic school since my son used to attend this school. The students knew me as a mom, but the for the first time they got to see and experience what I do as a career. I shared with them my presentation and assisted them with all the activities. The students were very response, they asked lots of questions, and every single one of them was engaged in the activities. I had a great time at this visit. They were most impressed with the cow heart specimen and thoroughly enjoyed their gifts.

Thursday-Friday, November 4-5, 2010
Driscoll Middle School
Northeast Independent School District
300+ students (7th grade only)

My visit to Driscoll Middle School was a special one. I partnered with Anne Joy, a 7th grade teacher and a former Frontier in Physiology fellow. It was Anne that inspired me to take my outreach efforts to the school and she introduced me to the wonderful educational programs offered by the APS. Through the Frontiers in Physiology program she conducted basic science research in the same lab that I did my graduate studies. She and I worked in Dr. Merry Lindsey’s laboratory the summer prior. At the EB 2010 meeting, I participated in the same training events with Anne and learned even more about planning a successful PhUn Week. The year prior to my visit, Anne had done her own PhUn planning and executed an excellent experience for her students. This time around, we partnered together and brought her students great PhUn Week. We coordinated the activities and I visited her school as the “physiologist.” We had a great time working together and bringing PhUn week to her students. We will continue to partner for future PhUn week events and her students are expecting it as a traditional event for 7th graders at Driscoll Middle School. Anne is an excellent teacher and I learned so much from her and she exposed me to wonders of teaching middle school students. I am already looking forward to planning next year’s PhUn week activities and event.

Monday-Tuesday, November 8-9, 2010
ET Wrenn Middle School (EISD)
Edgewood Independent School District
230 students (8th grade only)

Although PhUn week was officially over, the outreach efforts were far from over. I spent two days at ET Wrenn Middle School with a good friend of mine, Ms. Cynthia Ritz, a 7th grade teacher. Ms. Ritz and I were middle school classmates and also played softball together for many years. I had the honor of visiting her school and taking PhUn week to all of the 7th graders. Prior to my visit I had been warned of the behavior of the students, their negative attitudes, and possible their disinterest in the planned activities. This was far from true. The students did have a rough appearance and looked a bit intimidating. I was told that their grandparents were raising most of the students since one or two of their parents were incarcerated. It was indeed a tough crowd on the outside, but on the inside they were the brightest, most interested, and excited group I had encountered. The students took full
advantage of the hands-on activities, they asked many questions, and they shared with me their desire to become doctors, nurses, forensic scientists, and investigators. The toughest kid there was grossed out by the cow heart but soon got interested and very excited about the experience. Other students quickly picked up the pipetting skills and saw the parallel of the activity to what they see on crime shows on TV. They loved their cow hearts and especially the bright yellow backpacks they received from the APS. The students are not allowed to carry a backpack or bag of any kind in school, but the principal made a special exception for the students that participated in PhUn Week. Unknowingly, the yellow bags provided an avenue by which the remaining students of the school ask the participants and teachers lots of questions about the event. The students without hesitation talked about the importance of eating healthy and exercise. Prior to my visit, few understood the dangers of a diet based on high-fat foods and filled with junk food. The students were used to eating pizza, fries, hot cheetos, and unhealthy snacks as their primary foods, but after my visit that changed. The students had a new found appreciation for the cafeteria food and for all the advice they had been hearing from their athletic coaches, teachers, and administration about healthy food choices. Overwhelmingly, the students wanted to learn more, do more, and strive for more in their lives. I can’t wait for next year.

Monday, February 7, 2011
Cornerstone Christian School
Private school located within the Northeast Independent School District
80 students (7th grade and HS A&P classes)

Three months after the official PhUn week ended I paid a visit to my son’s school, Cornerstone Christian School. After all my school visits, I gathered all the extra toy hearts and backpacks and visited the students of Cornerstone’s 7th grade. I had been in communication with the science teacher but I told that the deadline for participation and ordering the gifts from the students was long over. I promised her that if I had some extra hearts from the visits, then I would go visit at least my son’s classroom. Well at the end of my visits, I had enough gifts for the full 7th grade and also for her two high school classes of Anatomy and Physiology students. It was a great visit. The students were surprised by the visit and really enjoyed the hands-on activities. I plan on working with Ms. Meyer’s to plan on brining PhUn week to the students in 2011.

IMPACT
Although it is difficult to measure the short-term and long-term impact of this experience, I can tell you that I was showered with thank you letters and cards from the students and teachers that participated during PhUn week. I received the most precious words of thanks from the students. The teachers were so thankful for spending time in their classrooms and taking such an amazing program to their schools. After PhUn week the word spread and I received more invitations for classroom visits, career day presentations, career fair participation, and all the schools that I visited are excited about planning next year’s PhUn week. In addition, I was featured in the news of our campus publication (included below). After reading that article I received many invitations to participate in career fairs and college fairs at local middle schools. The student run media team at ET Wrenn Middle School interviewed me about PhUn Week. One of the parent’s of a student from Palm Heights Baptist School personally called me to explain what PhUn week was all about. She said her son came home so excited and he couldn’t stop talking about the experience. More recently, she nominated me to be featured in the community college newsletter. I received an invitation to lead a training session for the Voelker Biosciences Teacher Academy at their annual conference. I partnered with Anne Joy, a former Frontiers in Physiology teacher, to share with over 100 local teachers the educational programs of the APS, specifically PhUn Week and the Frontiers program. I was also invited to speak to the students at the Biology Club of the University of the Incarnate Word.

From a professional standpoint, my teaching and speaking skills improved. I have always had the confident ability to speak to large crowds; however the experiences I gained with PhUn Week gave me even more confidence speaking about my career, education, and about physiology. I also developed multiple networking relationships in education and research.

ACKNOWLEDGEMENTS

My participation with the APS and PhUn week would not have been possible without the support of my postdoctoral mentor, Dr. Seema S. Ahuja. She provided ongoing support, gave me flexibility to visit all the schools, and take this program to so many students. Also, Dr. Christy MacKinnon, Biology Chair at the University of the Incarnate Word, so kindly to let me borrow the supplies (BP cuffs, stethoscopes, pipettes) for the activities and helped me obtain the heart specimen for my visits. On the school visits with large numbers of students, I invited my undergraduate students from the University of the Incarnate Word and a few graduate students from the University of Texas Health Science Center San Antonio. These students were a tremendous help and I could not have done the outreach efforts without them. All the teachers and counselors were great in assisting me coordinate the event and site visits. Lastly, I thank my family for
their support during PhUn week and all the planning. Thank you.

**EXPERIMENTAL BIOLOGY 2011**

While my time as the APS K-12 Minority Outreach Fellow has ended, my outreach efforts are far from over. My next stop is the EB 2011 meeting in Washington, DC on April 9-13, 2011. I am looking forward to participating in great events sponsored by the Education Office of the APS, the inaugural poster session for PhUn week, volunteering as a tour guide, judging the Bruce Awards, and participating as a panelist during for local high school students and their teachers. I will have multiple opportunities to share with everyone the exciting things that happened during PhUn Week, meet new students, scientists and educators. I am looking forward to continuing my professional growth and outreach efforts. Thank you APS and your supporters.

**PhUn WEEK PHOTOS, NEWS, PRESENTATION, AND MORE**
Jessica Ibarra, Ph.D., to attend national Experimental Biology meeting

Jessica Ibarra, Ph.D., has received a K-12 Outreach Fellowship from the American Physiological Society and a minority travel fellowship award to attend the Experimental Biology meeting to be held April 24-28 in Anaheim, Calif.

The award is funded through a grant from the National Institute of Diabetes and Digestive and Kidney Diseases of the National Institutes of Health.

Dr. Ibarra is a postdoctoral fellow in the laboratory of Seema S. Ahuja, M.D., professor in the Department of Medicine’s Division of Nephrology. Dr. Ibarra studies the role of T-cell-produced cytokines in autoimmune processes such as arthritis, with support from a research supplement to promote Diversity in Health-Related Research.
Dear Teacher:

The APS Physiology Understanding (PhUn) Week has been established to increase student awareness of physiology in their lives. PhUn Week also aims to foster communication between the science community and middle/high school minority life science students and to enhance student interest in physiology as a possible career.

As the current APS 2010 K-12 Minority Outreach Fellow, I am honored to be available to you for K-12 classroom visits and for conducting teacher professional development workshops in your school. Additionally, I am planning school visits for San Antonio area schools interested in participating in PhUn week (November 2010). The theme for this year's PhUn Week is the physiology of EXERCISE & HEALTH. As a host, you can plan PhUn week activities to be integrated into your existing curriculum and/or use our Teacher Resources (see link below) to plan an activity. As a team, we will plan a classroom visit to engage students in interactive, hands-on physiology activities. You choose the level of involvement (one-day class visit or week-long visit) and I will provide the resources for these activities.

It is my desire to reach out to the next generation of minority students through conducting a real-life face-to-face encounter with practicing biomedical researchers where students will learn about how their bodies function and develop an understanding of how scientific discovery is made. Finally, I desire that physiology becomes real in the lives of minority students in San Antonio, TX.

Thank you for considering teaming up with me to plan a visit(s) for PhUn week. If you are interested in bringing PhUn week to your students, please reply to this email. If you have any questions, please feel free to contact me at the University of Texas Health Science Center at (210) 567-0102 or via email at ibarraj@uthscsa.edu.

Sincerely,

Jessica Ibarra

Jessica M. Ibarra, PhD
K-12 Minority Outreach Fellow
American Physiological Society
http://www.phunweek.org/

TEACHER RESOURCES:
To plan a lesson visit → http://www.phunweek.org/pages/phun02a.shtml
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Post-doctoral fellow turns youngsters on to science

Posted: Tuesday, January 25, 2011 · Volume: XLIV · Issue: 3

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By Rosanne Fohn

Before Jessica Ibarra, Ph.D., visited with more than a thousand San Antonio school children last fall as part of the American Physiology Society’s (APS) Physiology Understanding (PhUn) Week 2010, many of them thought that only men were scientists.

The children also had other preconceived notions. “In a pre-visit activity, the students drew pictures of a scientist or their idea of what a scientist is. Most drew pictures of ‘crazy, mad scientists,’” Dr. Ibarra said.

But by the end of her presentations at five minority-serving elementary and middle schools, her mission was accomplished. “The students drew pictures of themselves as scientists!” she said.

National presentation

Dr. Ibarra’s school visits touched 1,000 school children, accounting for 11 percent of the 9,000 students who participated in the PhUn Week activities nationwide. She will give a presentation about her project to participants of the APS’ K-12 Education Program during the annual meeting of the Federation of American Societies for Experimental Biology Experimental Biology to be held April 9-13 in Washington, D.C.

The APS 2010 K-12 minority outreach fellow is studying in the UT Health Science Center San Antonio’s Division of Nephrology under the mentorship of medical professor Seema S. Ahuja, M.D. Dr. Ibarra is researching the immune response in experimental models of rheumatoid arthritis, an autoimmune disease that causes persistent pain and stiffness, progressive joint destruction and functional disability in people.

PhUn Week

Physiology is the study of how molecules, cells, tissues and organs function in good health and disease. Held the week of Nov. 1-5, 2010, PhUn Week gave students in kindergarten through 12th grade the chance to meet research scientists, learn about physiology in their daily lives and explore physiology as a possible career. It also built local partnerships between science teachers and scientists to provide new materials for teachers and give researchers a chance to reach out to the next generation.
Graduate student Ann Chiao demonstrates how to use a pipette.

“My participation during PhUn Week actually spanned Oct. 22-Nov. 9, based on the availability of the teachers and schools,” Dr. Ibarra said. “Some of the schools coordinated the visit with Red Ribbon Week and my visit provided the health and exercise component, as well as the push for higher education. Other schools used my visit to promote career awareness and I participated as a speaker during career day as a scientist/physiologist.”

Five schools
Dr. Ibarra visited Mary Lou Fisher Elementary School, Woodlawn Hills Elementary, Palm Heights Baptist School, Driscoll Middle School and E.T. Wrenn Middle School.

“The student visits involved hands-on and interactive activities that required assistance, so I recruited volunteers from the Health Science Center and the University of the Incarnate Word (UIW), where I am an adjunct biology instructor,” Dr. Ibarra said.

Other Health Science Center volunteers were Ann Chiao, a graduate student in the laboratory of Merry Lindsey, Ph.D., associate professor of medicine; Ashley Lynn Rodriguez, a master’s degree student in the laboratory of Luzhe Sun, Ph.D., professor of cellular and structural biology; and Kassandra Clark, a senior research assistant in Dr. Ahuja’s lab.

Chiao and Rodriguez assisted at Woodlawn Hills where Chiao demonstrated her laboratory skills and Rodriguez shared her anatomy expertise with students. Clark assisted Dr. Ibarra at Wrenn Middle School.

PhUn Week curriculum
The topics presented at the various schools included:

- “Meet the Physiologist,” a presentation of science and physiology, including Dr. Ibarra’s area of research, and encouragement to explore opportunities in higher education
- “Be a Scientist,” where students used pipettes to add blue dye to gels, simulating a real laboratory technique, with the goal of better understanding the importance of accurate measurements and the tools scientists use
- “The Pressure is On,” where students learned how to take each other’s blood pressure to learn how scientists and clinicians measure health
- “Heart to Heart,” which gave students the opportunity to explore and touch a real cow heart specimen to see learning aids used by scientists
- “So You Think You Can Text,” where students used a “squeezy toy heart” provided by the APS for the students to simulate as many heart contractions as they could in one minute to model muscle physiology

After the presentations, the students were asked to draw a new picture of a scientist. Dr. Ibarra was happy to see that many drew a picture of themselves.

“My involvement in this national program and my participation as an APS minority research fellow would not have been possible without the support of my mentor, Dr. Ahuja. Her letter of support helped me obtain the position and her ongoing support gave me the flexibility to visit all of these schools and take this program to so many students. Dr. Ahuja is an expert in the development, maintenance and characterization of mouse models of rheumatoid arthritis. She also is an amazing mentor committed to providing young students an enriching research experience they would otherwise never encounter,” Dr. Ibarra said.

“I’d also like to thank Dr. Christy MacKinnon, professor and chair of biology at UIW and a former UT Health Science Center postdoctoral student, who was so kind to let me borrow supplies for these activities,” she added.
TOP STORIES THIS WEEK

- Reduced diet in early pregnancy stunts fetal brains
- Biochemistry's Paul Fitzpatrick, Ph.D., named AAAS fellow
- New interim dean appointed for School of Health Professions
- Blood pressure control system found in kidney’s nephrons
- Post-doctoral fellow turns youngsters on to science
- Signaling molecules point way to new targeted therapies
- Register for the UT System education conference on campus
- Deadline Feb. 1 for medical school early admissions program
- Genomic medicine’s challenge: to add value in clinical care
What is a Physiologist?

Physiologists are scientists. They study:
- how living things work
- how we adapt to different environments
- how our bodies respond to diseases and illness

What is it Like to Work as a Physiologist?

Physiologists...
- explore questions that they are interested in
- decide what they want to work on each day
- do many different things, not the same thing each day
- work hard, but their schedule is flexible

Where Do Physiologists Work?

- Universities and colleges
- Medical, dental, and veterinary schools
- Drug and biotech companies
- Government and military labs

Meet a Physiologist
How did I get started?

Middle School
High School
College

ATHRITIS

ATHEROSCLEROSIS

Normal Coronary Artery
Artery with Severe Atherosclerosis
Oil Red O histological stain (red) (A) and microCT-based virtual histology scan (B) of the same atherosclerotic lesion from an ApoE null mouse.

Left and right, Renderings of the same ApoE null mouse heart from different angles, demonstrating atherosclerotic plaques (red) that were segmented by image analysis and their volumes quantified.

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**HEALTHY LIFE**

Will you be the next physiologist?

- Have you ever...
- Wondered how animals live in the environments they do?
- Wanted to help people and animals live longer and better lives?
- Enjoyed solving problems?
- Explained how things work to other people?
- If so, YOU might like to become a physiologist.

Questions?
Physiology Understanding (PhUn) Week: A K-12 Minority Outreach Fellow’s Perspective on Working with Local Teachers
Jessica M. Ibarra, Ph.D and Seema Ahuja

Outreach efforts of the American Physiology Society in 2010 included sponsoring the annual Physiology Understanding (PhUn) Week that reached K-12 teachers, students, and their community for the purpose of enhancing their understanding of health, exercise, education, and careers in physiology. PhUn week provided students engagement in hands-on physiology activities including a face-to-face-encounter with a physiologist. More importantly, PhUn week fostered local connections between the physiologists and the K-12 teachers, who would otherwise not be reached by national science outreach efforts. Interestingly, the outreach began by working with a local K-12 teacher. Here we describe how outreach directed: (1) community links between schools and research institutions, (2) dissemination of information on who physiologist are and what they do, (3) professional development, and (4) future opportunities for outreach teaching, partnerships, and resources. Although no formal study was conducted, anecdotal evidence (drawings/letters from educators/students) was collected as a measure of success. Other forms of success included the number of requests/invitations to participate in different classrooms, grades, schools, and types of events (career days, health awareness week, and teacher workshops).

During PhUn week, students and teachers alike were motivated by the enriched learning environment, developed a wider view of physiology, increased their understanding of real-world science issues, and broadened their interest in health, exercise, and physiology. Without a doubt, PhUn week provided a win-win for teachers and physiologist.
RE: PhUn Week Training Session, EB2011

March 3, 2011

Dear Dr. Ibarra,

Thank you submitting an abstract to the PhUn Week Training Session to be held at Experimental Biology 2011 in Washington D.C. The session will take place on Sunday, April 10 from 7:00-8:30 a.m. in the Washington Convention Center, West Salon I. This letter is to serve as an acknowledgement that your abstract has been received and accepted for presentation. The K-12 Education Programs Coordinator for the American Physiological Society, Dr. Mel Limson, will contact you with additional details related to the presentations. Thank you again for participating in the PhUn Week Training Session.

Best Regards,

Michael J. Ryan, Ph.D.
Associate Professor