

BYU COLLEGE OF

LIFE SCIENCES

A Magazine For Friends & Alumni | FALL 2010

FINDING THE RIGHT PLACE

How the College
of Life Sciences is
Blessing the Lives
of Students



Made for Each Other



When asked what they find most appealing about being faculty members at Brigham Young University, professors frequently mention the quality of their students. When asked the same question, students talk about the stature of the faculty and their dedication to students. This is an ideal combination – students and faculty both trying every day to meet the expectations of each other.

Though we say, “Some things never change,” many things do change. It is a never-ending goal to keep up with the students’ needs. The rapid rate of discovery in the disciplines within the College of Life Sciences makes it necessary to continually update teaching materials and research activities. In addition, the students who come to BYU are better prepared each year than they were the year before.

More activities outside the classroom are being added to the total experience that students have at BYU. This gives a “real world” perspective to what they learn in classes and gives them a big boost as they move on to employment, further education, or other experiences. It is now common for undergraduate students to work along side their professors, much as graduate students do. When they graduate, they leave with much more than a compilation of classes completed. They carry a rich collection of experiences with each other and with the faculty.

In a very real way, the students and faculty in the College of Life Sciences are “made for each other.”

In a very real way, the students and faculty in the College of Life Sciences are “made for each other.”

Rodney J. Brown

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“There is no other institution in the world that gives undergraduates as significant a research experience as they get here at BYU.” —Dr. Jeff G. Edwards, PDBio

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FINDING

THE RIGHT PLACE

Ask one hundred students why they chose Brigham Young University, and you will probably get a lot of different answers. Aside from the association with more than 30,000 other students on campus and the breathtaking setting in the foothills of the Rocky Mountains, students have very particular reasons for coming to BYU. Every student at the university has a story, a reason why BYU is the right place for him or her.

According to U.S. News and World Report in 2009, BYU was ranked 79th among the best universities in the nation and second in the number of accepted students who enroll. BYU has long been known for turning out well-prepared undergraduates. In a survey conducted for the National Science Foundation, the National Opinion Research Center at the University of Chicago reported in 2009 that Brigham Young University was tenth in the nation for graduates who go on to earn doctorate degrees.

BYU has often been among the top universities in the nation in number of National Merit Scholars. The university is committed to providing a premier undergraduate education. Incoming freshman students earned an average 3.8 GPA in high school, placing them in the 90th percentile nationally, and scored an average 28.2 on the ACT. Some companies and graduate schools look for BYU grads, knowing that they are academically,



Life Sciences majors: Top row (l-r): Traci Yeo, Kristi Jamison, Govinda Dhakal
Bottom Row (l-r): Stephanie Petterborg, Tu Tran, Eloho Ayoro

ethically and morally prepared. In recent years, the university has consistently earned the top spot in the “stone-cold sober” category by the Princeton Review and number one for students who “pray on a regular basis.”

BYU’s Honor Code sets the school apart from almost every other university in the nation. Initiated by students in 1949, the Honor Code emphasizes being honest, living a chaste and virtuous life, abstaining from alcohol and tobacco, dressing modestly, and abiding by strict grooming standards. What might seem like a repellent to young people is actually one of the things that draws students here.

The College of Life Sciences recently examined each of its programs carefully. Academic rigor and excellence in pedagogy are being reemphasized to challenge

Students work side by side with faculty in labs and often have their work published in notable journals—something much less common at other universities.

the intellect of exceptionally bright students. As a result, some programs have been discontinued, others created, and similar programs in multiple departments combined. Undergraduate student David Nichols plans to attend chiropractic school after graduation. He says, “The Exercise Science major is perfect for my choice of graduate school and subsequent career. After researching, I discovered that the program offers additional courses that other schools do not to prepare students for physical therapy or chiropractic careers.”

The College of Life Sciences is well equipped with faculty who can challenge such bright intellects. The college has been successful in attracting and hiring the best and brightest faculty for the best and brightest students. Faculty members have distinguished themselves academically and professionally, and are now giving to BYU.

Faculty are not only expected to teach, but must also be active in research to stay current in their fields. An extremely important aspect of undergraduate education is the emphasis placed on mentoring students by involving them in research projects. Students work side by side with faculty in labs, co-author papers, present posters at professional meetings and often have their work published in notable journals, something much less common at other universities.

Environment, academics, and mentored experiences all play a part in attracting premium students. Enrollments in the college have risen steadily since the College of Biology and Agriculture became the College of Life Sciences in 2007. In fact, the College of Life Sciences is now the largest college at BYU. Of the top ten undergraduate enrollments by program this fall, Life Sciences claimed two spots. Public Health in the Health Science Department came in tenth while the Exercise Science major ranked number one.

Other colleges within the university have also experienced increased enrollments. Dr. Jim Porter, Associate Dean of the College of Life Sciences explained one possible reason. “Students with undeclared majors seem to be making their decisions earlier.”

Another explanation for increased enrollments in the life sciences may be due to the current economic climate. “The college offers several degrees that are perceived as excellent choices for preparation for professional schools in health-related fields,” Porter suggests. “We have also

been quite successful in helping students get into graduate programs. Several of our degree programs prepare students for immediate employment in areas such as landscape management, dietetics, clinical laboratory science, public health, and athletic training, to name a few.”

Once in the College of Life Sciences, new and transferring students find an immediate ally in the Student Services Center. Focusing on five main areas — advisement, assessment, career advisement, college life and mentored experiences, — skilled and caring faculty and advisors work one-on-one with majors to assist in the transition. Critical-thinking skills are nurtured as students are directed toward their goal of graduation in the shortest time possible. Students also receive guidance about mentored experiences for hands-on laboratory knowledge. Dr. Shauna C. Anderson Young, Director of L.S. Student Services and an assistant dean in the college feels, “This combination gives students a leg up in seeking careers or going on to professional or graduate schools.”

A comparatively new course, Life Sciences 101, was created with these new students in mind. Young explained, “The course serves as a vital bridge for new and transferring students. It addresses the developmental issues of new students away from home for the first time, provides support, focuses on college and university resources, and at the same time, exposes the students to... all the majors in the college.”

So why do students flock to BYU? It is not difficult to recognize the numerous opportunities that BYU offers, reasons that BYU may attract the best students from across the nation, and even the world.

Even after undergraduate student Laci Brandley received her acceptance letter to BYU, she still planned to attend the University of Texas. But she soon experienced a change of heart and explains it this way: “The emphasis placed on giving back brought me to BYU. ‘Enter to Learn, Go Forth to Serve.’ I can think of no better way to put it. After I graduate from BYU, I will have the discipline, ethics, and resources to change the world, one day at a time.” LS

*Additional information is available at <http://yfacts.byu.edu/>

Academic rigor and excellence in pedagogy are being reemphasized to challenge the intellect of exceptionally bright students.



Making the Grade: More Than An “A”

BY ALEX AGGEN

“I TOOK A pretty killer biochemistry class, and ever since then I can’t get enough!” Chelsey Neeley’s biochemistry class wasn’t actually homicidal, but it was so exciting that her enthusiasm has not yet waned. Chelsey’s energy for learning would set her apart in any crowd. Once she decided that dietetics was her future, she began investigating programs. “I knew that I needed to be in a place with the perfect atmosphere,” Neeley explains. “I decided on BYU, and from that point

forward I’ve spent two years getting ready to get into the BYU Dietetics program.”

“I’ve always been fascinated with dietetics and how the things we eat turn us into who we are.

Learning about food and metabolism and its effect on the body has always interested me,” Neeley said. A portion of this interest sprang from growing up with family members who are diabetic, which first showed Neeley how carefully everyone should take care of themselves. “I began to have the desire to find out, wanting to learn more on my own. I learned how crucial it is to

learn to eat right,” Neeley said. BYU’s Dietetics program is a forerunner in the field and is known for producing leaders. Neeley’s background led her to dietetics, and when she learned about the BYU program she knew that it was the right place for her.

The BYU Dietetics program has a specific list of learning outcomes, which consist of the education in both knowledge and attitudes that a student should expect to obtain upon completing a program. One important point among the Dietetics learning outcomes is



Neeley and her group receive instruction from Professor Susan Fullmer (standing)

“...it’s more important to know the information and be able to apply it than just having a piece of paper with an “A” on it.”



Dietetics majors leave the program with applicable knowledge and skills. Neeley (l) with Dr. Nora Nyland, NDFS (r)

being able to establish and use leadership skills. “I know that within the major there is a leadership program set up that gives you an opportunity to be a leader right from the start, even among your peers,” Neeley said. “In the field of dietetics you need to learn to be both a leader and a follower, and through BYU I’ll have an opportunity to learn from both my professors and fellow students.”

Unique students help to create the distinctive atmosphere of the College of Life Sciences. Faculty members are aware of the different needs of each student, and want to help them succeed. “I am dyslexic, and school has always been a huge challenge for me,” revealed Neeley. “When I was reading through the mission and learning outcomes, I remember a letter from Dr. Nora Nyland, Dietetics Program Director, saying that the focus isn’t just on grades, but on really coming to know and retain the information and being able to apply it. I work really hard for good grades, but to me it’s more important to know the information and be able to apply it than just having a piece of paper with an A on it.”

While every student strives to earn the best grades possible, the dual vision required to learn the material and to be able to use it is one that BYU creates in students. Getting the cap and gown is a huge personal achievement, but as Chelsey Neeley put it, “I would love to use my knowledge and personal experience to help others who struggle. BYU gives me that kind of opportunity.” **LS**

Career Classification: Sorting Out the Future

More than 37,000 specimens of snakes, lizards, amphibians, crocodylians, and turtles populate the Herpetology Collection at the Monte L. Bean Life Science Museum at BYU, according to Doug Brown, a junior in BYU’s Biology Department—and he is in a position to know. In his role as an assistant to Dr. Jack W. Sites, Jr., Maeser Professor of Biology

and Assistant Director/Curator of Herpetology in the museum, Brown personally entered the 37,000th specimen this summer. “I sort of act like a librarian,” he says. But he not only organizes, preserves, and catalogues specimens, he also works with professors in the field—traveling and camping to collect information that BYU’s vast Herpetology Collection shares with its students as well as students and researchers across the region.

A few months ago, Brown had the opportunity to spend twelve days in the Appalachian Mountains in North Carolina with Frank Fontanella, a postdoctoral research associate with Dr. Sites. The goal of the trip was to collect samples of ring-necked snakes from specific

“I am hopeful that I can be as passionate about my career as my professors at BYU are about theirs.”

populations to see if groups that have come into contact with each other within the last 20,000 years now share genetic material. They spent each day searching beneath ground cover and rocks, where the snakes tend to lurk. Fontanella is still analyzing the abundant

data they collected, but already Brown can classify the trip as “life-changing.” “It gave me experience that I couldn’t have gotten anywhere else and has helped me to have a more accurate view of what a future career for me might hold,” he says. In fact, if there’s a common thread that runs through Brown’s experiences in the classroom, the museum, and the field, it is an appreciation for professors who enjoy what they do and inspire students to select careers in which they, too, can thrive.

BY MARY EYRING



Undergraduate Doug Brown personally entered the 37,000th specimen into BYU’s Herpetology collection

Dr. Sites is just such a professor. Brown currently has the opportunity to work with him in the museum and now in the molecular lab, but he also took two classes from Sites and participates in the herpetology research group he oversees. Dr. Sites is just one of many dedicated, passionate faculty in the college that are committed to seeing that students leave the university well prepared. “My goal is to get him published before he graduates, as this will give him additional career options” said Sites. “Because of his help,” Brown adds, “I have become more involved with things that I hope will prepare me for graduate school and my future career.”

Perhaps more importantly, Brown explains, “It is inspiring to see the passion he has for what he does—his passion is contagious—it gives me hope that I can have a career that I enjoy as much as he does.” Brown is still weighing various professional options, but he looks to his engaged and energetic professors at BYU as examples of people who love what they do. “Whatever my decision,” he says, “I am hopeful that I can be as passionate about my career as my professors at BYU are about theirs.” Thanks to supportive programs and teachers within the College of Life Sciences, Brown has already begun to enjoy that kind of professional satisfaction as an undergraduate. Working as an assistant curator at one of the largest herpetology collections in the Intermountain West, Brown says, “I’ve learned that it’s possible to have a job I enjoy.” **LS**



Dr. Jack W. Sites, Jr.

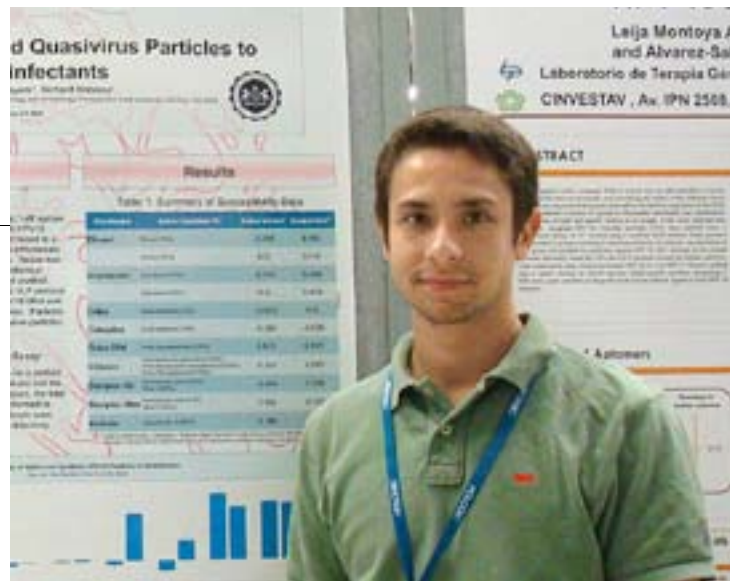
In His Father's Footsteps

Jordan Meyers, a recent graduate from BYU's Microbiology and Molecular Biology Department, is attending Harvard's Virology Ph.D. program this fall. Meyers grew up in Hershey, Pennsylvania, and from an early age he knew he was going to major in microbiology. "I was always interested in science growing up, specifically lab work," says Meyers. His father, who was a student in the Microbiology Department at BYU, kindled Meyers' interest in science. Jordan grew up hearing about his father's BYU experiences, including the classes he took and the professors he had at BYU. "I got really excited about being part of the program," continues Jordan. "So I started taking the classes and working in the lab. I have loved it ever since."

Jordan has been doing research on human papillomavirus (HPV) in Dr. Richard Robison's lab for the past three years. Interestingly, Dr. Robison was a TA for Meyers' father, Craig, who is now a professor at Pennsylvania State University and also performs research on HPV. "When I came to BYU," says Meyers, "Dr. Robison and I took the project off the shelf and we got it going." The project was somewhat stalled until Jordan started at BYU because Dr. Robison had not yet had a student solve the issue of a reliable quantitative assay for infectious HPV since this virus does not grow in normal cell culture.


Opportunities in the College of Life Sciences were enriching for Meyers. His experience in viral research has taken Jordan to various parts of the country and to Canada. "If you are motivated and interested in what you are doing," comments Meyers, "BYU has the resources to make you as good as you want to be." He has completed three summer internships at Pennsylvania State

University as well as an internship at NIAID at the National Institute of Health in Bethesda, MD. Last year Meyers had the opportunity to do an oral presentation at the American Society for Microbiology (ASM) branch



Meyers presented posters at ASM branch and general meetings and at the International Papillomavirus Conference in Montreal, Canada.

meeting, and this year he did a poster presentation at the ASM general meeting in San Diego. Jordan's most recent opportunity took him to the International Papillomavirus Conference in Montreal where he presented a poster. "It was great being able to talk with researchers from all over the world," says Meyers. While awaiting the start of graduate school this fall, Jordan spent time preparing a manuscript for publication, which he hopes to have submitted for review before the end of this year.

In applying to graduate school, Meyers felt the Microbiology program in the College of Life Sciences had prepared him well. "I did not feel intimidated by other students at interviews and meetings," remarks Meyers. He realized his coursework was more extensive than what many of the other applicants had and comparable to those from Yale and Stanford. He continues, "I think it is evident that the teachers in the Microbiology Department have a wide range of experience and expertise and are willing to teach." Jordan also feels the independence in his research project and the one-on-one time he enjoyed with his mentor, Dr. Robison, are unique to BYU. Meyers looks forward to a future of oncogenic viral research, and he hopes to have teaching opportunities along the way. 

"BYU has the resources to make you as good as you want to be."

BY SHAELA AVERY WILLIE



Now a professor at Penn State University, Jordan Meyers' father, Craig Meyers, also received his B.S. and M.S. from BYU's Microbiology program



Amy Nagle's (l) field experience in Ghana set her apart from other graduate school applicants

BY MARY EYRING

Across Continents and Cultures

When Amy Nagle, a then undergraduate exercise science major

in the College of Life Sciences, traveled to Ghana to conduct a research project that she had conceived and designed, she did not just open her mind to new information—she opened a door to her future. "My experiences at BYU made me an excellent candidate for all the schools I applied to," she says. This fall, Nagle began a master's program in occupational therapy at the University of Utah.

Nagle developed a research project looking at body core strength of young women on opposite sides of the world and comparing the different kinds and intensities of their physical activities. Her field study, conducted with Dr. Wayne Johnson of the Department of Exercise Sciences, took her to Ghana where she was able to gather data. "How many students get the chance to travel to another continent to pursue research in their field of interest?" Nagle marveled.


This field study set her apart from other students when she applied to graduate school. Opportunities in the College of Life Sciences allowed Nagle to distinguish herself as she cultivated an interest she has long held. "Ever since I was little," she says, "I've always wanted to work in the health field helping and serving children." Choosing the College of Life Sciences helped Nagle to bring that dream a little closer. Although freshmen pre-med courses at Boston University dissuaded her from pursuing pediatrics, Nagle soon discovered a perfect field for someone with her desire to help children, young adults, and people with disabilities—occupational therapy. "I fell in love with it," she says. "I transferred to BYU the next fall, and I started [right] into learning more about the human body. I loved learning about a tangible object."

Over the summer, Amy finished analyzing data she collected over the course of her study. "I was looking to find an association between the types, durations, and intensities of physical activities and core stabil-

ity," Nagle explains. "I found no significant difference in core stability between the Ghanaian and American samples of girls." What she did find, Amy continues, "was that the Ghanaian girls seemed to report physical activities of higher intensities doing routine tasks or chores, whereas the American girls reported physical activities of higher intensities during periods of exercise and planned, organized activities."

As a convert to the Church of Jesus Christ of Latter-day Saints four years ago, Nagle was especially impressed when one of her BYU professors spoke of a "divine hand" present in scientific processes. Now, she says, "I know that life is more than just compounds and ions interacting with one another, and I feel safer knowing that I am in the hands of something greater than science."

Nagle credits influential professors in the College of Life Sciences for not only this rich perspective on science, but also her success and professional opportunities. She and Johnson have submitted an abstract covering a portion of the study to the World Congress of Physical Therapy. By doing so, Nagle may have opportunities to present her research to the health community. Dr. Johnson reports he now has two other students who are planning field studies for 2011 that will continue this line of research started by Amy.

Nagle stated, "Working closely with Dr. Johnson was probably one of the best things that could have happened to me as a student at BYU." Amy found in Dr. Johnson an enthusiastic and supportive mentor whose interest in her proposed study fueled her own creativity and ambition, and she is well prepared to succeed in graduate school. "BYU," she says, "trains students to be independent thinkers." Combining this training with her passion for helping others, Nagle will continue to influence lives across continents and cultures. 



Nagle with study participants

Finding Your Niche



Twining (r), with her mentor Stephanie Fugal, M.S., plans to develop programs for midwives in third-world countries

MANY STUDENTS

come to BYU hoping to find a program that fills them with a sense of purpose and belonging. For Leslie Twining, her niche was in the Department of Health Science. "I found something I was so passionate about that it was hard not to think about it all the time," Twining said. A true humanitarian, Leslie loves helping those less fortunate than herself and has discovered that for her, majoring in public health was a perfect fit. Twining explained, "Public health allows me to give others practical and useful knowledge to help them live healthier lives."

This past summer, Twining traveled to Maryland for a mentored research experience where she volunteered at a local hospital working with patients with type 2 diabetes. The Peninsula Regional Hospital serves three counties that have double the national rate of the disease: approximately 15 percent of the population

has diabetes, mostly type 2. Twining's own family history of the disease helped her relate to the patients as they worked to overcome their challenges. "Changing behaviors is the biggest challenge that people with diabetes face, and I still have to stress those concepts to myself on a daily basis in order to make healthy choices," Twining

said. "Health is a journey and not a means to an end."

Twining now has many tools to help others live healthier lives thanks to field experiences such as this and her coursework. Even though she has found every course within the public health major to be rewarding and enjoyable, Women's Health (Health 450) was particularly valuable. Through this class, she not only obtained her current job as a teaching assistant with Stephanie Fugal, M.S., but she also realized where she wants to concentrate her attention: on maternal and child health.

As a field experience for her Women's Health class, Twining helped to organize the first-annual Birthing Conference sponsored by BYU Women's Services and held in the Wilkinson Student Center last March.

BY JAIME MAYO

Twining participated in everything from writing supplemental materials about doulas and midwives to advertising and introducing speakers. The purpose of the Birthing Conference was to educate women and show them how to be their own advocates during childbirth. "My belief is that the only wrong way to deliver a baby is to go into the experience uneducated. Women need to know what is going to take place, and they need to know their options. That way they can choose to labor and give birth in the way that best suits them," said Twining. In September, Twining did some birthing of her own as she and her husband Brad welcomed their first baby.

To carry out her desire to improve the health of women and children, Twining plans to further her education by first becoming a Master of Public Health and then subsequently earning her nursing degree and becoming a certified nurse midwife. "A Public Health Nursing degree melds the prevention side of public health with the treatment side of nursing," Fugal explains. Twining plans to put these degrees and her passion for humanitarianism to good use by developing programs for midwives in third-world countries.

"Most times, a village's sole health care provider is a midwife with lots of experience but little formal training and a great lack of supplies," Twining said. "I would like to organize a nonprofit organization that deals with helping the advancement of these midwives in Africa." With Twining's training and compassionate heart, her dreams may well become reality. **LS**

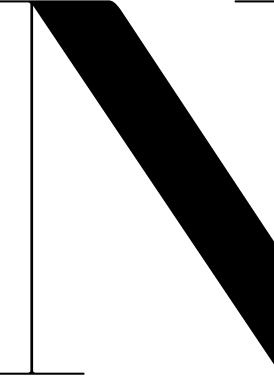
A new mother and Health Science undergraduate student, Leslie found public health was a perfect fit.



Going Forth to Serve



Ghimire's homeland of Nepal will reap the benefits of his BYU education



Nepal, nestled between China to the north and India to the south, attracts thousands of mountaineers every year to scale its majestic heights, some hoping to ascend Mount Everest by way of the relatively less challenging southeast ridge on the mountain's Nepali side. Born in Tandi, Chitwan, Sudeep Ghimire hails from the country's fertile southern plains. Agriculture in this region accounts for approximately 40 percent of Nepal's gross domestic product. This student of genetics and biotechnology at BYU grew up appreciating the region's importance to the Nepali economy and planning to study abroad in order to bring cutting-edge research on agricultural development back to his country.

The youngest of three children, Ghimire speaks fondly of the "healthy and caring environment" in which his parents and grandparents raised him. He thrived academically, so when a friend in Nepal told him about BYU, Ghimire began to learn about the university. "I found out that it would be the ideal place for my study," he says. Not only did he hear friends praise the safety of the campus, but he also learned that the Church of Jesus Christ of Latter-day Saints helps to make tuition affordable for "people like us from developing countries." Once at the university, Ghimire quickly found a place for himself in the College of Life Sciences. "I went to high school for two years majoring in biology," he says. "I knew I wanted to study something advanced and demanding in the field, so I chose genetics and biotechnology." He hasn't been at the university long—just over a year—but he's already deeply involved in research that could improve the lives of those who grow and subsist on Nepali crops.

"Even though Nepal is an agricultural country, there has been little advancement in agriculture," Ghimire explains. "People still depend on the traditional ways of farming." He continued, "Nepal has to depend on India to get the new breeds of plants and other biotechnological equipment, which is expensive." But he sees in this condition reason to be inspired, not discour-

aged. Thanks to his education and field experience at BYU, he says, "I could be one of the members of a team working for the advancement of agricultural aspects of the country with my own ideas on plant breeding and biotechnology." Someday soon, Ghimire hopes to work with other agencies researching agricultural solutions in the area, like the Biotechnology Society of Nepal, the Nepal Agricultural Research Council, or the Nepal Academy of Science and Technology. He is optimistic about where such efforts could lead. "Biotechnology has great potential for the development of our country and poverty alleviation," he says.

At BYU, Ghimire has found the perfect balance of classroom and hands-on experience. Currently, he is a research assistant in the Plant Genetics and Biotechnology Lab, where he works with Dr. Craig Coleman, professor in the Plant and Wildlife Sciences Department, and Dr. Susan Meyer of the USDA, also an adjunct professor in PWS. Ghimire says this experience has helped him to develop his capability to "think critically and to

resolve problems." Sudeep is gaining something more—a belief in his ability to make a real difference in the world. "I want to do research on plant breeding back in Nepal with my own lab generating high yield crop species and helping farmers to advance their methods," he says. "Working in the lab is raising my confidence about working and researching in the future." With the confidence and education he gains at BYU, Ghimire won't just produce better work and research—he'll change lives. **LS**

"Biotechnology has great potential for the development of our country and poverty alleviation"

BY MARY EYRING

NOTE WORTHY



BY LONNIE RIGGS

Bottom row (l-r) Joel Green, Melanie Gardner, Chris Doxey, Nozomi Ogawa, TA (standing) Top row (l-r) Malia Anderson, Todd Haskin

Coming Home

Directorship of the Neuroscience program returns to the College of Life Sciences at BYU.

For the Neuroscience program at BYU, home is where you hang your hat. The program's directorship recently returned to the College of Life Sciences from Family, Home and Social Sciences.

Established in 1999 under the former College of Biology and Agriculture, the Neuroscience Center provides an excellent interdisciplinary environment for students and faculty to study the workings of the human nervous system. These days, the program has more than one "home." It is administered equally

through the College of Life Sciences and the College of Family, Home and Social Sciences, rotating the center's directorship every five years. It includes 21 BYU faculty members from departments across campus, including Physiology and Developmental Biology, Psychology, the School of Family Life,

and Communications Disorders. Offering bachelor's, master's, and doctoral degree programs, the Neuroscience program has grown from 55 undergraduate majors in 1999 to the present-day number of 350.

Dr. Michael D. Brown, Professor of Physiology and Developmental Biology and Neuroscience, was

named as the new director. Brown replaces Dawson Hedges, Psychology Department, who served as director since August 2006. Scott C. Steffensen, Psychology Department, replaces Dixon J. Woodbury, Physiology and Developmental Biology, as associate director.

As an undergraduate student at BYU, Brown took an anatomy course and fell in love with the subject. Especially intrigued by how the brain controls the rest of the body, Brown applied to neuroscience-based graduate programs. He entered Colorado State University where he earned his master's and doctoral degrees in anatomy and neurobiology.

According to Dr. Brown, this sharing of program administration "ensures a well-balanced curriculum for students and encourages cross-disciplinary collaboration between faculty and students." An interdisciplinary approach is especially exciting for students. As neuroscience majors, students look at nervous system functions from many interesting angles: chemistry, physics, molecular biology, cellular biology, anatomy, development, psychology, perception, behavior, and cognition.


The Neuroscience program at BYU provides excellent training in the classroom and experience in the research lab. Students are mentored one-on-one in their projects by

neuroscience professors. Many also participate in off-campus internships. Students share their findings at local, national, and international scientific meetings and publish their results in reputable scientific journals. These experiences open a wide variety of doors for students as they prepare for their future.

As with many good things, the program still has room for growth. Brown has aspirations for the program. "Improving the curriculum and providing opportunities for quality-mentored experiences for students is always a top priority. The center has a strong physiology and

"It is our intention to build a curriculum on par with the best neuroscience programs in the country."

psychology representation among faculty members," Brown explained. The new directorship would like to see more faculty participating in the program from across campus. Brown continued, "We hope to reach out more to faculty members in related disciplines across campus. It is our intention to build a curriculum on par with the best neuroscience programs in the country. Students in BYU's neuroscience major tend to be noticed on applications for graduate school and professional schools."

For BYU neuroscience majors, having more than one place to call "home" definitely has advantages. 

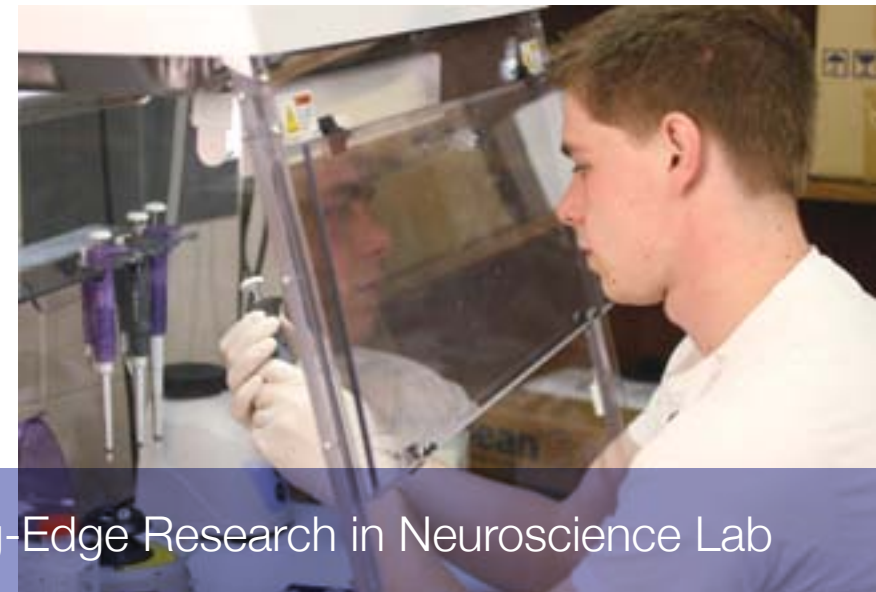


Newly named Neuroscience Program Director, Dr. Michael D. Brown

Making Memories Into Futures

BY MARY EYRING

Students Conduct Cutting-Edge Research in Neuroscience Lab



Three students who have probed the complex process of memory formation in Dr. Edwards' lab have not just studied memories—they have made their own. "I would bet there is no other institution in the world that gives undergraduates as significant a research experience as they get here at BYU because of our emphasis on undergraduate education," says Dr. Jeff Edwards, Professor of Physiology and Neuroscience. The advanced research opportunities enjoyed by two recent graduates, Curtis Walther and Jacob Blickenstaff, and one soon-to-be graduate, Michael McNeil, as students in the College of Life Sciences exemplify his remark. "Given this opportunity," says Edwards, "many undergraduates do publishable-quality research. Having a publication or an award from a presentation goes a long way to being accepted into graduate schools."

All three students confirm Edwards' assessment of the benefits of BYU's commitment to mentored research opportunities for undergraduates. Walther, who double-majored in neuroscience and exercise science, is already a medical student at the University of Washington. He says, "I am continually amazed by how well BYU prepared me for the rigors of medical school." Blickenstaff, who completed a degree in physiology and developmental biology in August, is currently applying to medical school. When McNeil, also a PDBio major, graduates next April, he will hone medical skills that he first exercised as a ten-year

old when he turned a scalpel from a children's biology kit onto his little brother's stuffed animals.

In Dr. Edwards' lab, Walther, Blickenstaff, and McNeil conducted in-depth research on the role of certain proteins in the processes of learning and remembering new information. "Every time a memory is formed," Walther explains, "physical changes occur in the brain, especially in an area called the hippocampus. In our lab, we simulate the formation of memories in rat brains and are able to observe this 'plasticity' (as the changes are called) to provide a better understanding of the pathways and mechanisms by which all this happens." Walther and Blickenstaff focused their attention particularly on the TRPV1 receptor, a protein nicknamed the "hot-pepper receptor" because, activated by a certain chemical compound, it creates the burning sensation that accompanies a bite into a chili pepper. For their success in clarifying the function of this receptor, Walther and Blickenstaff, along with McNeil (who studies related molecular processes involved in the formation of memory) were rewarded with opportunities to present their research at a prestigious and widely attended neuroscience conference in Chicago and at poster contests at BYU, where their posters have repeatedly received highest honors.


Such experiences and accolades are giving these students a head start as they enter the next stages of their education. Challenging classes prepared them, according to Blickenstaff, "to hit the books

in medical school," and mentored research opportunities have set them apart as applicants. Blickenstaff and Walther coauthored an article with Edwards and another researcher to be published in an upcoming issue of the peer-reviewed journal *Hippocampus*. Edwards calls this an "extremely beneficial opportunity to think and evaluate



Mike McNeil (r) with Dr. Jeff Edwards

"There is no attitude of competition—we all work together to help one another succeed."

their own and others' research critically, which can enhance their education and academic abilities." He encourages all students in his lab to similarly engage with their peers' work. In these collaborative interactions, McNeil says, "there is no attitude of competition—we all work together to help one another succeed." As the students trained in Dr. Edwards' lab have realized, these successes aren't just the makings of fond memories; they're the foundation of academic, professional, and personal achievement. 

Retirements

Gayle Conant

Gayle Conant, Life Sciences Student Services advisement counselor, retired from BYU on June 1, 2010.

An expert in changing paradigms, Conant has served in three different college advisement centers, all the while remaining in the same physical location. Gayle joined the university in August 1994, in what was then the College of Physical Education. Later, the name of the college was changed to Health and Human Performance. In 2009, the colleges of Health and Human Performance and

Life Sciences were merged and Conant found herself once again identified with a new college.

Gayle earned a bachelor's degree in fashion merchandising from BYU. For her dedicated and exemplary service to the college and university, Gayle was awarded a President's Appreciation Award in 2006.

Change can be a positive thing. These days, Conant's life is full of family history, with both the living and dead, as she spends time with her family and researches genealogy. She and her husband, Dean, are the parents of four children (three sons and one daughter) and



14 grandchildren, ages 5 to 17.

As Gayle looks forward to new opportunities, she sometimes reflects on her days at Brigham Young University. "I miss University Devotionals and working with students the most," she said. **LS**

BY LONNIE RIGGS

Steven W. Heiner

Professor Steven Heiner served the Health Science Department of the College of Life Sciences for 40 years. During this time he made numerous contributions to the department and the college. For more than 15 years, many students, including health science majors, received training experience by participating in health screenings at the Huntsman World Senior Games in St. George. Heiner directed the Annual Russell B. Clark Gerontology Conference hosted on BYU campus for more than 20 years. He also helped independently raise thousands of dollars in support of the Gerontology Conference and



the Huntsman Senior Games. Dr. Heiner successfully taught gerontology courses, oversaw gerontology internships, and managed the gerontology certificate and minor programs, helping hundreds of students achieve their goals. Pro-

fessor Heiner is known for being kind and flexible with students and his influence and assistance in their lives has been significant.

Besides the contributions he has made to the college and department for the past 40 years, Heiner has had many other meaningful achievements. In 2009, he coauthored an article appearing in JAMA, a highly cited peer-reviewed journal. In addition, he was the recipient of the Distinguished Services Honoree Award from the Utah Sports Hall of Fame in 2009. Dr. Heiner is the only Health Science faculty member to complete two postdoctoral experiences. **LS**

BY LACI BRANDLEY

Diana McGuire

Professor Diana McGuire is a great example of the experience and dedication seen in the faculty at BYU. A Teaching Professor of Dietetics, McGuire has been a full-time faculty member for 22 years. Dr. Nora Nyland, Director of the Dietetics Program at BYU says of McGuire, "She spends many hours behind the scenes organizing and preparing meaningful learning experiences for the students."

McGuire taught an array of classes, from Introduction to Dietetics to graduate level courses. Last year she was awarded the Outstanding Teaching Award by the

College of Life Sciences. Diana has served as the internship director for the past two years, and as such, has visited facilities from Provo to Ogden to do evaluations and work with the interns' preceptors.

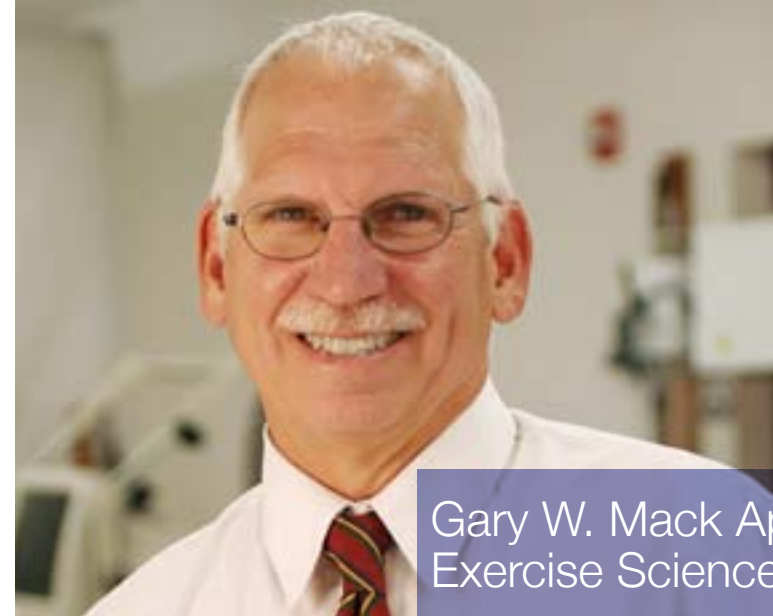
For McGuire, one of the most rewarding aspects of teaching at BYU is her interaction with the students. McGuire states, "They are such bright, highly motivated, and capable students. Almost every year we have a 100% pass rate on the national dietetic examination, and we have an excellent placement rate into internships on national levels."

In addition to her full-time workload, Dr. McGuire has served as the Advisor to the Student



Dietetic Association for many years. Dr. Nyland says McGuire is "a most dedicated student club leader. She puts a lot of time into it, and the students love it." **LS**

BY SHAELA AVERY WILLIE



Gary W. Mack Appointed as Exercise Sciences Chair

Effective August 1, 2010, Gary W. Mack assumed responsibilities as department chair in the Exercise Sciences Department.

Mack received his Bachelor of Science degree in animal physiology and his master's degree in physical education from the University of California, Davis, and his doctorate in physiology from the John A. Burns School of Medicine at the University of Hawaii, Manoa. Prior to joining the BYU faculty in

2003, Mack completed a successful postdoctoral fellowship and was a successful research scientist at John B. Pierce Laboratory at the Yale University School of Medicine.

Dr. Mack's research focuses in the area of body fluid regulation (i.e., dehydration and blood volume regulation) and its impact on cardiovascular and thermoregulation during exercise.

Professor Mack and his wife, Kathy, are the parents of six

children, four girls (two married) and two boys. His oldest son is serving as a full-time missionary for the Church of Jesus Christ of Latter-Day Saints in the Kennewick Washington Mission.

Dr. Mack replaces Larry T. Hall, who served as chair of the department from July 1, 2005, to July 31, 2010. **LS**

<http://exercisesciences.byu.edu/Home/FacultyStaffDirectory/FacultyStaff/tabid/1730/ctl/FacultyProfile/mid/2393/FacultyID/378/Default.aspx>

College Honored Alumni Award—Val C. Sheffield, Ph.D., M.D.

If you have ever gotten more questions wrong on a test than you got right, you are in good company—Dr. Val C. Sheffield, the College of Life Sciences' honored alumnus, has been there too. "I remember I once got 29 points out of 100 on an exam, and it was the second highest grade in the class," Sheffield recalled of his BYU undergraduate experi-

ence. "Some of the professors were really tough, but they challenged you to learn." Sheffield went on to graduate with a B.S. in zoology and an M.S. in developmental biology at BYU. He earned his M.D. and Ph.D. in developmental biology from the University of Iowa College of Medicine as well as Director of the Division of Medical Genetics at the University. His laboratory—one of the top in the world—identifies genes that are involved in human genetic diseases. Dr. Sheffield has authored or coauthored over 250 peer reviewed scientific papers in highly respected journals. While

"I was introduced to scientific research and was greatly influenced in my career choice by outstanding teachers"

an undergraduate at BYU, Sheffield said he learned that faith and science "are not only compatible, but also synergistic." He continued, "I was introduced to scientific research and was greatly influenced in my career choice by outstanding teachers." One such teacher was

Robert Seegmiller, a PDBio professor with whom Sheffield engaged in a research project on the genetic causes of improper limb development. This passion for research

continues today. "The broad goal of my laboratory is to understand what leads to inherited diseases," Sheffield said. "We work specifically on hereditary blindness, particularly forms of blindness where initially there is normal vision, but then the retina of the eye degenerates."

"I hope to impact lives for the better," said Sheffield. "I help train students at all levels, from undergrads to medical fellows. I hope they go on and have careers that contribute to scientific knowledge to benefit mankind. That's the good thing about being in academic medicine; it goes on after you." **LS**



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Never underestimate what a student can do with a donation to the college.

When 19-year-old Miguel Teixeira informed one of Europe's premier medical schools that he was planning to serve an LDS mission, his dean told him, "You will not be allowed to return." Devastated, Miguel decided to leave. Two years later, he enrolled at Brigham Young University.

"I was astonished at what was available to undergraduates," he says. "At my college in Europe I saw Nobel Prize laureates on campus, but BYU enabled me to experience what a Nobel Prize laureate actually does."

What Miguel did with his mentored learning opportunities at BYU might someday be worthy of a Nobel Prize. He is hopeful that his breakthrough cell-division discovery will lead to more effective cancer treatments. The Huntsman Cancer Institute was so impressed, it hired Miguel to continue his work while he attends medical school.

We invite you to support mentored-student learning and other priorities by giving to the College of Life Sciences Annual Fund. To donate online, go to www.byu.edu/giving/lifesciences.

EVERY GIFT MATTERS

To discuss helping the college with a special gift, contact Rich Kotter at 801-422-1282 or Rich_Kotter@byu.edu

