BIOLOGYCURRENTS

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A Celebration of the Career of Distinguished Professor Emerita Corinne A. Michels '63

By Drs. Corinna Singleman and Saima Cheema

Dr. Michels, distinguished professor emerita, thanking friends, family, and former colleagues for being part of the wonderful "career celebration."

Dr. Corinne Michels, distinguished professor emerita, is a formidable woman who has worn many hats during her long and productive career: researcher, teacher, mentor, and administrator, among others. This article highlights aspects of her career and life as they were revealed in a recent event hosted by the biology department.

Michels retired from her role as chair of the biology department at Queens College but remains involved with the department, particularly in her role as editor of *Biology Currents*. In recognition of her dedication, the department celebrated her career with a symposium honoring the woman behind the achievements. This career celebration included research talks from two of Michels' early doctoral students, impromptu sharing of stories, and fond memories from those who knew her over the years, and a luncheon where friends and colleagues could gather and reconnect. In attendance was Michels; her husband, Dr. Harold Michels; their daughter, Dr. Catherine Alonzo, and her husband Russell, a Queens College alumnus; Dr. Elizabeth Boylan, currently of the Sloan Foundation but formerly a Queens College Provost and member of the biology department, and a longtime friend of Dr. Michels; Dr. Robert Boylan, retired chair of Microbiology of NYU Dental School; and Professor Emeritus David Speidel of the Queens College SEES Department, who was dean of the Division of Math & Natural Sciences when Michels began her Queens College career.

Michels is a Queens College alumna (Class of '63) who went on to receive her masters and doctorate in biological sciences from Columbia University, where she was supported by a National Science Foundation (NSF) Pre-doctoral Fellowship Award. She held a National Research Service Fellowship from the National Institutes of Health (NIH) during her post-doctoral training at Columbia University and Albert Einstein College of Medicine. In 1972, Michels began her career at Queens College as an instructor and retired as a CUNY Distinguished Professor in 2011. Michels served as chair of the biology department at Queens College for the last ten years of her career, as well as other administrative positions at Queens College and CUNY. She received numerous National Institutes of Health (NIH) and National Science Foundation (NSF) research grants over her time at Queens College. As a doctoral mentor, she oversaw the thesis research for the dissertations of 18 doctoral students. Her mentees are working both in academia and industry and many attended the celebration including

Dr. Michels' lab studied the yeast genes involved in beer brewing. The lab group celebrates with a beer at a conference in the mid-1980s. (From the left: Robert Dubin, Maureen Charron, Corinne Michels, Yolanda Sylvestre, and Leanne Tanouye.)

Drs. Maureen Charron, Francis Cotty, Saima Cheema, Sara Danzi-Engoron, Robert Dubin, Nidhi Gadura, and Igor Mendintz. Dr. Sheryl Haut, MD, an epilepsy specialist and researcher, also attended the celebration. Haut began her research career as an undergraduate in Michels' laboratory. As an educator and researcher, Michels has spent a lifetime making a difference in her students' lives, and many of her previous graduate students shared fond memories of their time in Michels' yeast genetics lab.

Dr. Maureen Charron (Queens College BA '81, MA '83) sharing fond memories of her time in Michels' lab.

The day started off with research talks presented by Maureen Charron and Robert Dubin, previous PhD students of Michels, who have each gone on to their own unique and productive careers. The speakers began their talks sharing photos of their time working with Michels, while many attendees also shared their stories of Michels between talks.

The keynote speaker for the symposium was Maureen Charron, professor of Biochemistry, Medicine (Endocrinology), and Obstetrics & Gynecology and Women's Health at Albert Einstein College of Medicine. Charron was one of the first PhD students to graduate from the Michels' lab, and her talk was a nod to Michels' highly productive research and mentoring career. Charron spoke about her current research on epigenetic events leading to pathogenesis of obesity and metabolic disorders. Charron's lab developed a mouse

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Student Highlights 2018

We are pleased to report what some of the biology department's students have been doing and the honors earned.

BACHELOR OF ARTS

Graduation Scholarships • Honors • Awards

YASAMAN ALIBABAEE received a Renée Kroll Zarin Honors Scholarship and was awarded the Adele Gottschalk Memorial Scholarship, which is presented to a student with an excellent academic record who is pursuing a pre-med curriculum, and demonstrates an "exemplary character through volunteerism or assistance in care and nurturing others." She will be attending Jefferson Medical School in Philadelphia, PA.

SYDUL CHOUDHURY was awarded scholarships from both the Brownstein McDermott Scholarship Fund and the Ruth Rudovsky Memorial Scholarship Fund, which recognizes students with a "strong record of academic success and significant financial need." Sydul also received the Wilbur E. Gilman Scholarship from the Queens College Retirees Association. The Gilman Scholarship "is presented annually to a graduating senior who has maintained high academic standards, has shown promise of contributing to the community, and has plans for continued education." Sydul will begin studies at SUNY Downstate College of Medicine in 2019.

JOEL GRUNHUT received several of the college's scholarship awards designed to benefit academically outstanding students in need of financial assistance. Joel's awards came from the Joan Bluestone Foundation Scholarship; the John S. & Yorka C. Linakis Scholarship Fund that also looks for individuals with "a keen interest in the betterment of their communities;" the Mitarotonda Family Scholarship Endowment that focuses on students majoring in science or business; and the Dr. Jill A. Nord Endowed Scholarship Fund that recognizes students planning to attend medical school. In addition, Joel received a Pre-Med Support Award, a Renée Kroll Zarin Scholarship, an award from Esther's Book Fund, and was recognized as a Queens College Scholar. Joel is taking a "gap year," applying to medical school and teaching biology and chemistry at Yeshiva Shar Hatorah. He has been accepted into the University of Maryland and Florida Atlantic medical schools but is waiting to hear from schools in the New York area before making a final decision.

Sydul Choudhury, at Commencement with Karamvir Singh of the chemistry department.

Professor John Dennehy and research team at the SEA-PHAGES Symposium.

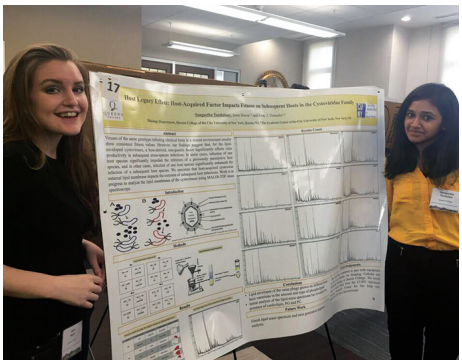
Front: Nanami Kubota (current undergrad), Elsa Rosario (BA class of 2018, current MA, received NSF Graduate Research Fellowship for CUNY PhD program next year), Carmen Urgiles (class of 2017), Irene Hoxie (doctoral student).

Middle: Sherin Kannoly (postdoc), Kaung Myat (Zach) San (BA class of 2016, current MA), Sangeetha Tandalam (class of 2018)

Rear: Tevin Lynch (current undergrad), John Dennehy, Hisham Alrubaye (class of 2018), Vincent Cali (class of 2018).

RAMANDEEP KAUR was recognized as a Queens College Scholar and by the Transfer Honors Program.

SANGEETHA TANDALAM PALANIEVELU received the prestigious Donald E. Kirkpatrick Award. This award is given annually by Queens College to a "graduating senior of outstanding academic achievement whose activities have been in the best interests of the college and its goals." This award is one of the oldest college awards established to honor a former Dean of Administration and well-recognized physicist. The biology department awarded Sangeetha the Feigelson Award, in recognition of her excellent research work carried out in collaboration with Professor John Dennehy and for her significant academic achievement. Sangeetha presented a poster on the project entitled "Host-Acquired Factor Impacts Fitness on Subsequent Hosts in an RNA virus" at the New York City SEA-PHAGES Symposium held at Mount Saint Mary College.



Sangeetha Tandalam Palanievelu (right) with Irene Hoxie at their poster presentation at the SEA-PHAGES.

Student Highlights 2018

MIN KYUNG SHIN received the Mardel Ogilvie Scholarship, awarded by the Queens College Retirees Association. This award is "presented annually to a graduating senior of high academic achievement who shows promise of contributing to the quality of life in New York City and has plans for continued education." Min was also honored as a Queens College Scholar. She will be attending the University of Pennsylvania Dental School, class of 2022.

CHAYA TUSK received an award from the Esther's Book Fund.

JOSHUA YAMINIAN was the recipient of the Queens College Retirees Association's Charlotte & Howard Knag Scholarship. This award is "presented annually to a graduating senior with high academic skills who show promise of contributing to the quality of life in New York City and has plans for continued education." Joshua also received a Renée Kroll Zarin Scholarship Award, the Phi Beta Kappa Scholarship Award, and was recognized as a Queens College Scholar. Joshua is attending Columbia University School of Dental Medicine.

GRADUATE STUDENTS

Awards • Invitations • Honors

JAMES F. CLARK (Savage-Dunn mentor) received a CUNY Doctoral Dissertation Award and was awarded the PhD degree from the doctoral program in Biology of the Graduate School of CUNY. He spoke at the New York Worm Meeting on his thesis research, "DBL-1/BMP Signaling Interacts with Insulin Signaling to Regulate Lipid Accumulation." Clark is currently doing postdoctoral work at the Mt. Sinai School of Medicine.

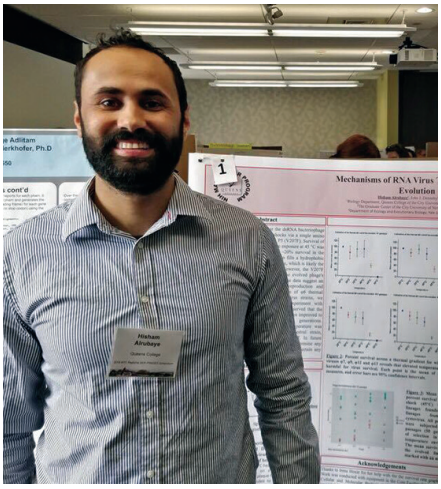
MARLEN ACOSTA-ALAMO (Anadon mentor) received the Master of Arts degree in biology. Her thesis title was "Impact of Climate Change on Local Tree Species Richness in Mexico." She is currently in the PhD program in biology of the Graduate School of CUNY, Evolution, Ecology, and Behavior Subprogram.

OLIVIA PINEIRO-RAMERIZ (Anadon, Waldman mentors) "Structure of the Fish Community of Jamaica Bay in Space and Time." She is currently a PhD student at the University of Miami.

NOTABLE STUDENT ACTIVITIES

Our students at all levels continue to advance their careers. The rigorous research and academic environment engendered by the department's faculty encourages their progress and successes. Your donations offer significant support for these activities.

HISHAM ALRUBAYE (class of 2018) received the Best Poster Prize for his research entitled "Mechanisms of RNA Virus Thermotolerance Evolution" presented at Mount Saint Mary College at the New York City SEA-PHAGES Symposium that was carried out in the Dennehy lab. Hisham was accepted to three PhD programs and chose to attend the University of Pittsburgh's Department of Biological Sciences. His outstanding research experiences undoubtedly were a significant factor in his success. Great work.



Hisham Alrubaye shown with his first-place winning poster at the SEA-PHAGES Symposium.

VINCENT-JOE CALI (class of 2018) was awarded the biology department's Colwin Award for graduating seniors who have demonstrated outstanding research ability and who are planning a career in biological research.

CARMEN URGILES presented a talk on her research entitled, "Does Cell Growth Rate Affect Lysis Timing in *Escherichia coli* Phage Lambda?" in the New York SEA-PHAGES Symposium at Mount Saint Mary College that was carried out in the Dennehy lab.

Carmen Urgiles in the lab.

MASON YOUNGBLOOD (Lahti mentor) received a CUNY Doctoral Student Research Grant and a Sigma Xi Grant-In-Aid of Research to support his project on the "Neurological Basis of Female Preference for Culturally Evolved Traits in the House Finch (*Haemorhous mexicanus*)." Mason's research is making excellent progress, as evidenced by the number of invited talks he presented at notable venues during 2018. In June, he spoke at the Applications in Cultural Evolution Conference in Tartu, Estonia. The topic of his presentation was "The Cultural Transmission of Sampling Traditions in a Network of Musical Collaborators." In September, he presented at the Cognition and Comparative Psychology Colloquium in New York on "Pattern and Process in Cultural Evolution." In October 2018, he spoke at the Cultural Evolution Conference in Tempe, Arizona on "The Cultural Transmission of Sampling Traditions in a Network of Musical Collaborators."

Mason Youngblood in the field.

model system to demonstrate the role of maternal high fat diet on development of diabetes and metabolic disease in offspring. Using her model animals, Charron described epigenetic changes in both hepatic histone code and DNA methylation profiles in offspring exposed to maternal high fat diet. Recently, she has been leading a major study on growth-restricted babies who are at high risk for developing childhood diabetes and metabolic disease. Using cells isolated from umbilical cords of growth-restricted newborns, Charron's research team has identified an epigenetic signature of DNA hypermethylation. Her study may help identify novel targets for anti-obesity therapy.

Dr. Robert Dubin (Queens College BA '77) speaking on his research.

Robert Dubin, an associate member of the genetics department and bioinformatics of the Albert Einstein College of Medicine Computational Genomics Core Facility, gave a second keynote presentation. He discussed his work identifying potential driver mutations in osteosarcoma and their detection as short DNA fragments in patient blood samples, a technique he referred to as "liquid biopsy." The project is a collaboration with AECOM medical faculty and aims to test the feasibility of applying next-gen sequencing as a tool to identify patient-specific mutations associated with their osteosarcoma and to assess whether the appearance of these specific mutations can be detected in cell-free DNA in plasma samples during relapse. The ultimate goal of the project is to determine whether serial molecular analysis of cell-free DNA can detect relapse prior to the manifestation of physical symptoms.

During lunch, colleagues and friends continued to swap stories while enjoying the reproductions of a few of Michels' paintings that were displayed in the room. From start to finish, this event aimed to honor not just Michels' academic career, but to also celebrate her life.

Since retiring, Michels has been spending the winter months in Tampa, Florida with her husband Harold, a retired engineer with a doctoral degree in metallurgy and material science. Family is a very high priority for the Michels. They regularly see their daughter Catherine Alonzo and her family in Westchester, New York and frequently visit their son Bill Michels and his family in South Pasadena, California. In Tampa, they get to spend time with Michels' sister and her husband. Their many friends are located in the New York area but a few are scattered throughout the United States. They do their best to keep in touch and visit when possible.

Right after retiring, Michels worked as an expert witness for a law firm representing Butamax Advanced Biofuels in a patent dispute case, which is now settled. She also was an active participant in science projects and continues to publish her work. Michels was involved in a research project in collaboration with Dr. Nidhi Gadura and students on the mechanism of copper surface killing that resulted in two journal articles. In addition, she has written reviews and trade journal articles with her husband to spread the word on anti-microbial copper and popularize its utilization in hospitals and other healthcare environments, which resulted in three review articles.

"Wading for Lunch" by Dr. Corinne Michels — 2018

Michels had always traveled for leisure and work. Since retiring, she and her husband increased the frequency of their international trips and have explored new destinations in Europe, Asia, and South America. Her travel adventures have included Argentina, Bosnia and Herzegovina, Chile, Croatia, Germany, Jordan, Israel, Montenegro, Panama, and Spain.

In 2015, after a chance meeting with a St. Petersburg artist, Michels began to learn "plein air" painting, impressionist landscape painting done outdoors. She finds painting relaxing and rewarding. One of her works is shown here. Dr. Michels' paintings have been exhibited in shows at The Art Guild of Port Washington and she has gifted several to friends and family. She has not tried to sell her art—at least not yet.

Michels continues to serve the community as well as the biology department. She is a member of Board of Trustees of the Science Museum of Long Island in Manhasset, New York and published a book entitled, *The Story of the Science Museum of Long Island* that is being used for the museum's fund-raising efforts. She is in the process of writing a book on the scientific method provisionally entitled, *Rules for Reasoning*. Though Michels may have retired from her role at Queens College, she has definitely not retired her efforts as an active member of the scientific community.

Drs. Corinne and Harold Michels celebrated their 50th wedding anniversary in 2013 with Bill, Catherine, their spouses, and all five grandchildren at Duck Key Resort, near Marathon Key, in the Florida Keys.

We are very excited to include updates on five biology alumni in this issue of *Biology Currents*. If you enjoy reading these, we heartily encourage you to contact Editor-in-Chief Dr. Michels via email (Corinne.Michels@qc.cuny.edu) and update your fellow biology alums on what is happening in your personal and professional life. Put "biology alum" in the subject line and indicate the year you graduated. Be brief, or not—your choice. We will edit your text if needed. If you have a photo you would like to include, please send it as an attachment. We will not publish your email address, but anyone interested in getting in touch with an alum who appears in *Alumni Update* should contact Corinne Michels by email, as above. She will forward your message as appropriate. ***We Want To Hear From You!***

DR. JOSEPH MUZIO '55

Originally, I attended Columbia University but transferred to Queens College for the last two years of my undergraduate education. Drs. Lancefield, Hecht, and the Colwins were wonderful instructors, as were others in several other departments. At that time, the college was an intimate setting, and the professors seemed to have plenty of time to chat and be supportive of the students throughout the college.

After leaving Queens College, I joined the United States Marine Corps and became an officer. There was a draft on, and I had a strong desire to select the military unit in which to serve. Following almost four years, I went to medical school for a year, didn't like it, and went on to pursue a doctorate at Columbia University/Teachers College. It was there that I learned a great deal about curriculum, teaching, and learning. I also became involved in the physiology/psychology of sleep and engaged in sleep research at Columbia and Mt. Sinai facilities for several years.

After teaching at Newark State College and Hunter College, I taught at Kingsborough Community College for 32 years, where I served as department chair for 15 years. During that time, I co-authored a textbook with Dr. Peter Pilchman about human anatomy and physiology and a microbiology laboratory manual co-authored with Dr. Loretta Taras. In retirement, I've reviewed textbooks in the biological sciences and written a memoir about my parents, as well as many essays on a variety of topics. These are on my website at www.joemuzio.com.

My undergraduate days at Queens College shaped me intellectually in a variety of positive ways. Many of the fine instructors there deserve the credit for my academic development. Now, in retirement, my wife and I live in Rockport, Massachusetts, a quiet New England coastal town about 40 miles north of Boston.

DR. ARTHUR KOPELMAN '75

is dedicated to studying the 20+ species of whales, seals, and dolphins that live in the waters in and around New York. His work was highlighted in an article that appeared in the April 26 issue of the *New York Times* (https://nyti.ms/2HuWIDx).

Kopelman was awarded his bachelor's degree in biology from Queens College and received his PhD in 1982 from the Doctoral Program in Biology of the Graduate School of CUNY. His thesis research on the reproductive strategies of a parasitic wasp species that preys on *Drosophila* larva was mentored by Professor Peter Chabora. Dr. Kopelman joined the faculty of the Department of Science and Mathematics of the Fashion Institute of Technology in 1981, where he is currently a professor of science.

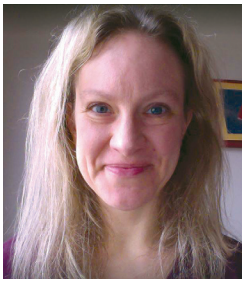
Professor Arthur Kopelman '75 shown as he typically dresses when on board an ocean-going vessel chasing whales and seals in their natural habitat. His penchant for thermal coveralls is well-known around the Fashion Institute of Technology where he proudly claims, "I try to be a role model for the anti-fashion group, to help people move away from caring about what you own."

Kopelman's expertise is in population ecology and field ecology and he teaches courses in field biology and ecology. His research interests have undergone an interesting transition, from fruit fly parasitoids to giant whales. For over three decades, Dr. Kopelman has been studying the population dynamics and feeding ecology of fin and humpback whales and the harbor, grey, harp, and hooded seals that live in the Atlantic Ocean off New York and New England. His field work has involved detailed photo-identification studies and he offers a course called Ecology and Photography: Sustainable New York. A sustainable environment is a focus of Kopelman's work.

Kopelman is a co-founder and president of the Coastal Research Education Society of Long Island (www.cresli.org), a nonprofit research and education organization dedicated to "promote and foster understanding and stewardship of coastal ecosystems through research and education." He often spends long days on board a vessel chasing these magnificent animals in their natural habitat.

In May 2010, Kopelman was appointed to the rank of Distinguished Service Professorship by the State University of New York (SUNY) Board of Trustees, the highest honor conferred upon instructional faculty in the SUNY system. Kopelman is the only faculty member of the Fashion Institute of Technology to achieve this rank.

DR. BRIDGET PILCHMAN GOLDMAN '98



is a second-generation biology Queens College alumna, daughter of Peter Pilchman '65 (CUNY PhD, 1972). At Queens College, Bridget was a biology major and music and education minor.

Professor Goldman at work before the chalkboard.

She earned a MS in 2000 and a PhD in 2005 from the Doctoral Program in Biology from the CUNY Graduate School in the Molecular, Cellular, and Developmental Biology (MCD) subprogram.

Goldman joined the biology faculty at Siena College in 2007, where she designed the lectures and laboratories for a course in human anatomy and physiology. Initially she taught both lectures and labs but student enrollment in the course doubled and she now oversees adjuncts who teach some of the lab sections. She says she loves it! One of the human anatomy and physiology labs brings students and the local community together to cook a big organic meal from scratch in the Siena College kitchens.

In addition, Goldman offers an astonishing variety of courses at Siena: General Biology, Molecular Genetics, Human Biology, Nutrition, Nutrition and Public Health, Plant Physiology, Biology of Aging, and Developmental Biology.

Her recent scholarly activities are an outgrowth of her classroom experience. Goldman has authored two review articles in the *HAPS Educator*, the journal of the Human Anatomy and Physiology Society: "The Dangers of Excess Dietary Sugar," and "Empowering Yourself by Reenacting Your Own Immunity Power." In the last few years, she attended the Annual Conference of HAPS, where she presented a string of posters on nutritional and physiological topics. Recently, Goldman joined the blog of the Life Science Technology Teaching Resource Community (www.lifescitrc.org), where she posted her review article, "Empowering Yourself by Reenacting Your Own Immunity Power."

Dr. Goldman enjoys participating in the community surrounding the Siena College campus, just north of Albany.

She is regularly asked to speak on nutrition to community groups, on topics such as "Ancient Grains and How to Use Them." And she finds particularly rewarding her work as part of the Home Educator Network that provides science teachers for home-schooled children.

DR. CARLOS PEÑALOZA '05 was appointed provost and chief academic officer at St. Luke's College of Health Sciences in Kansas City, Missouri. Peñaloza's roots are in Queens and Queens College. During his undergraduate studies, he got his first taste of biological research when he joined the NIH Minority Access to Research Careers (MARC) program with Professor Zahra Zakeri. After earning his bachelor's degree, he continued doing research in the Zakeri laboratory and earned his doctorate in molecular, cellular, and developmental biology from the Graduate School of the City University of New York in 2013. Peñaloza's thesis research, done under the mentorship of Zakeri, investigated the molecular mechanisms responsible for sex differences in stress response.

During his doctoral studies, Peñaloza was actively involved with several programs to support the academic and research activities of minority students, such as the Queensborough Community College Research Initiative for Minority Students (RIMS), the LaGuardia Community College Bridge to the Baccalaureate program, and the City College Louis Stokes Alliance for Minority Participation Program (LSAMP). This experience was pivotal in stimulating his academic administrative career.

Provost Carlos Peñaloza '05

After leaving CUNY, Peñaloza served as dean of Health Sciences of Briarcliff College in Bethpage, New York. In 2015, he became acting dean of Mathematics, Science, Technology and Health and then was appointed assistant vice president of academic affairs at Schenectady County Community College, which is part of the SUNY System. He took a position at Metropolitan Community College of Kansas City in 2016, where he served as vice chancellor for instruction and chief academic officer. His responsibilities included oversight of academic assessment, academic offerings, program revisions, new program submissions, and accreditation-related matters.

In 2016, Peñaloza was appointed to his current position as provost at St. Luke's College of Health Sciences. Congratulations!

DR. NICHOLAS J. PALMISANO (PHD, 2017) is currently a postdoctoral fellow at SUNY-Stony Brook University in David Matus' laboratory. Palmisano just received a prestigious American Cancer Society Fellowship.

Dr. Maral Tajerian Joins Biology Department as Assistant Professor

By Dr. Uldis Roze

Dr. Maral Tajerian has a geographically scattered academic resume. She received her Bachelor of Science degree from American University in Beirut, a Master of Science in biology from McGill University in Montreal (mentor Ronald Chase), and a PhD in neuroscience from McGill University (mentor Laura Stone). Following this, she did post-doctoral training at Stanford University in Palo Alto, California (David Clark laboratory).

Maral's academic wanderings reflect a life story battered by the genocidal currents of 20th-century Armenian history. In 1915, Maral's grandparents were living in an Armenian village off Turkey's Mediterranean coast. With the outbreak of the Armenian Holocaust, the villagers were marked for extinction, a fate visited on 1.5 million of their contemporaries. The village was saved by the French navy, then engaged in military action against Turkey. Some 5,000 villagers were rescued and resettled in a series of Middle Eastern sites. (The events are commemorated in the movie *The Promise*, which includes scenes from Maral's village.) The final move came in 1940, when the whole village was relocated to coastal Lebanon, then a French protectorate.

It was here that Maral's parents worked as schoolteachers, with her father teaching math and physics, and her mother linguistics and history. When Maral's older sister went off to school, Maral, then age two, insisted she wanted to go as well. Despite parental discouragement, Maral persisted. She was successfully installed in kindergarten, and progressed to first grade at age five.

Maral had many interests at the time but remembers a TV series called "Duck Tails," featuring an elephant that could stomp lumps of coal into diamonds—science with a glamorous twist.

After finishing elementary school and high school in the village, she relocated to college in Beirut, a one-hour bus ride away. She majored in biology, with minors in chemistry and psychology. For graduate school, she applied everywhere and chose McGill University in Montreal, traveling to Canada on the first plane trip of her life. It was here, under the mentorship of Laura Stone, that she embarked on her current research interest: the study of central and peripheral mechanisms of chronic pain in animal models.

And it was at McGill that Maral made another vital life choice: she met and married a fellow graduate student, Sebastian Alvarado, now a fellow faculty member in the Queens College biology department. Maral and her husband had their first child in 2011 while both were still graduate students. In her opinion, it is never easy for a professional woman to have a child. The demands are unforgiving, and at times they collide. The couple had a second child in 2015, and a third in 2017.

Maral took no time off for pregnancies and little for the births. In 2017, work and family had their most dramatic collision. Maral had entered labor but had to take an important conference call in the delivery room. Nurses pleaded with her to hang up, but Maral persisted, muting the laptop at difficult moments. One year later, both mother and child are doing fine.

After receiving their PhDs from McGill and becoming Drs. Tajerian and Alvarado, the couple cast another net and accepted post-doc positions at Stanford University—Dr. Tajerian at the medical school in the lab of Dr. David Clark, Dr. Alvarado in the biology department. Though the two have separate research programs, they have published five papers together.

Tajerian's core interest is the brain and the changes it undergoes in response to chronic pain. A 2016 report by the Centers for Disease Control estimates that in the U.S., 20.4 percent of the adult population (50 million) suffers from chronic pain, and eight percent (19.6 million) suffer high-impact chronic pain. Both of Tajerian's parents suffer from the condition.

Chronic pain affects all aspects of brain structure and function. Tajerian has done pioneering work on chronic pain effects on mouse hippocampus (involved in regulation of emotions as well as higher-order cognitive functions such as learning and memory).

The investigation revealed that while the neurons were affected, dramatic effects were seen in the extracellular matrix components (including a proteoglycan scaffolding), and remodeling enzymes. Tajerian used atomic-force microscopy to show that chronic pain reduced the rigidity of the scaffolding. This in turn compromised the functioning of the glia and resulted in abnormal pruning of neurons. Scaffolding could be restored by normalizing the levels of a key enzyme, matrix metalloprotease 8. Such findings may lay the groundwork for future avenues of treatment.

New FDA-approved treatments for chronic pain have been slow to materialize. The reason? All new treatments for chronic pain must prove themselves superior to a placebo. The placebo effect is a powerful one, sometimes able to overcome even intense pain. In the opinion of Tajerian, this may represent a promising avenue for research. She would love to discover the neural pathways operating during a placebo effect.

During her first semester at Queens, Tajerian has been establishing her laboratory and interviewing prospective undergraduate and graduate student members of her lab. She began lecturing in the Bio 105 course in Spring 2019 and has added a fresh voice and enthusiasm to the biology major experience.

Dr. Sebastian Alvarado Joins Biology Department as Assistant Professor

By Dr. Uldis Roze

Dr. Sebastian Alvarado was born in California, but at age one moved with his family to Ottawa, Canada. He got a BS in biology and biotechnology from Carleton University in 2007. His favorite memory of Ottawa is skating on the Rideau Canal, a United Nations Educational, Scientific, and Cultural Organization (UNESCO) World Heritage site and the world's largest skating rink connecting downtown Ottawa and Carleton University eight kilometers away.

He entered the graduate program at McGill University's Pharmacology Department in the same year. A major attraction of McGill was the city of Montreal, with fine architecture in the inner city and port area. Montreal is also the home of the Cirque du Soleil, the largest circus company in the world, as well as the National Circus School, which Sebastian pronounces is harder than a graduate school.

Sebastian found the McGill Pharmacology Department offered a rich diversity of research paths. Under the mentorship of Dr. Moshe Szyf, he studied the progression of breast cancer from an epigenetic perspective. In addition to the genetic changes that accompany cancer, this work revealed the genome-wide changes in how genes are regulated through DNA methylation. Genes such as the oncogenes are demethylated, leading to activation. Other genes, such as the DNA repair genes, are hypermethylated, leading to loss of function. In his dissertation work, he showed how specific microRNAs could be regulated by DNA demethylation.

In addition to his dissertation work, Sebastian collaborated with Dr. Ehab Abouheif of the McGill Biology Department and Szyf on a study of carpenter ant (*Camponotus floridanus*) colonies. The ants have worker castes of widely different body sizes. But despite the great physical variation, there is minimal genetic variation within a colony, making them excellent models for the study of epigenetic effects. The study revealed that the variation in physical size results from an epigenetic process—DNA methylation of a cell-signaling gene, the epidermal growth factor receptor (Egfr). Continuous DNA methylation of the gene can generate continuous size variation in the workers. This in turn allows for division of labor in the colony. The methylation process can be influenced by the environment (food, social interactions). The study was published in the influential *Nature Communications*.

In his time as a graduate student, Sebastian was highly productive. To date, he has published nine papers on work done during this period. All of these explore the role of DNA methylation in a variety of biological settings: progression of breast cancer, chronic pain, peripheral nerve injury, ground squirrel hibernation, influence of social and seasonal factors on DNA methylation patterns, DNA methylation, and genomic memory. Besides his prolific scientific output, Sebastian's years at McGill were crowned with another high note: he met and married a fellow graduate student, Maral Tajerian, who shared his graduate residence hall. The couple took post-docs together at Stanford University and came to Queens College afterwards.

At Stanford, Sebastian worked in the biology department lab of Dr. Russell Fernald, a neuroethologist. The two have already published a paper in *PLoS ONE*, showing that social crowding in a cichlid fish, *Astatotilapia burtoni*, causes DNA methylation changes in the GnRH1 (gonadotropin releasing hormone) gene, a key gene of development and sexual behavior.

Alvarado also worked out the sequence of events that develop discrete blue and yellow color morphs in male cichlids. Transitions between the two-color morphs involve the methylation of a single DNA cytosine that regulates the endothelin receptor, which in turn controls the aggregation and dispersal of pigment granules in the pigment cells.

Alvarado plans to continue the work with cichlids from the East African Great Rift lakes at Queens College. This family of fish show a great deal of diversity in morphology and behavior, making them one of the largest adaptive radiations recorded among vertebrates. Surprisingly, recent genome sequencing efforts have revealed a lack of genetic differences to explain the range of observed trait variations. Alvarado plans to study how various epigenetic processes (including DNA methylation) can contribute to the observed variation in behavior as well as the development of pigmentation patterns.

Alvarado feels that DNA methylation is an underappreciated epigenetic process. For example, the first edition (1983) of Bruce Albert's influential *Molecular Biology of the Cell* spends less than five pages on the topic. The sixth edition (2015) has expanded coverage by 460% to 23 pages. Perhaps the late appreciation is due to an unlucky choice of eukaryote model organisms. The classic model organisms–*Drosophila*, yeast, *C. elegans*—all lack robust DNA methylation. Students in Alvarado's genetics course can expect to learn more about this emerging field.

Dr. Saima Cheema, Molecular and Cellular Biologist, Appointed Lecturer of Biology

By Dr. Esther Muehlbauer

The Biology Department is very pleased to announce that **Dr. Saima Cheema** has accepted a full-time position as lecturer of biology after serving as an adjunct instructor and substitute assistant professor at Queens College for several years. She previously also taught courses in microbiology and food biochemistry at the New York University Steinhardt School of Public Health.

Cheema is very much a part of the biology department "family"—she majored in biology as a Queens College undergraduate, receiving her BA from Queens in 2000, and earned her PhD in molecular and cell biology from the Graduate School of CUNY in 2006. Now onboard as faculty, Cheema is inspiring the next generation of the college's biology students, teaching a variety of courses including human anatomy and physiology and microbiology for health professions.

Cheema likes to offer her students a perspective that helps them apply course topics to their own health, such as the importance of sanitation and disinfection in preventing disease and similarities between human physiology and infectious disease agents, and their mechanisms for bypassing the human immune system.

Stemming from a family of teachers and veterinarians, education was always a priority for Cheema. Her family encouraged her to keep going—higher education was simply expected. Growing up in the countryside in Pakistan, she spent time roaming cotton and wheat fields and climbing the orange and jamun trees. There, among the diversity of plants and animals, Cheema's interest in biology was ignited. Her veterinarian dad, a healer of farm animals, was a great inspiration, as she observed his ability to connect with horses, cows, and buffalo, and with life.

There was an ongoing interplay between nature and education throughout Cheema's childhood. At the age of 15, she moved to New York City with her family and attended Hillcrest High School in Queens. This was a significant change from the all-girls school she attended in Pakistan. Cheema then set her sights on Queens College, the only undergraduate program she applied to and similarly selected the Graduate School of CUNY for her graduate education, despite encouragement to apply to Ivy League schools.

While her original goal was to become a physician, upon studying with Queens College biology professor Dr. Corinne Michels and doing research in Dr. Michel's genetics laboratory, everything changed. "I so enjoyed bench-work, and I loved molecular genetics," Dr. Cheema recounts. She found that she "grew" with the lab work, like the swift growth of the yeast cells she studied.

Cheema's pedagogy is strongly influenced by the educational system she experienced in Pakistan, where students are encouraged to focus deeply on specific topics and to write on those topics. When students ask her "How do I memorize anatomy?" Dr. Cheema advises them to comprehend one part at a time and to study by writing essays on the topics at hand.

Coming from another country also gives Cheema a unique perspective on the immigrant student experience at Queens College and insights into students' varied learning backgrounds. Cheema's own research career, studying yeast mutants, and her expertise in genetic engineering give depth to the various microbiology courses that she teaches at Queens. In her smaller seminar classes, like Microbiology for Health Professions, Cheema asks students to write blogs on assigned research articles and to give peer reviews— a technique that deepens comprehension and provides an opportunity for students to interact and forge friendships.

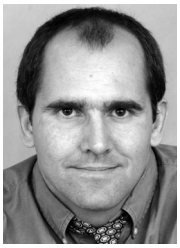
In addition to her teaching, Cheema serves on the Queens College Committee for Undergraduate Admissions and Re-entry Standards and as an advisor in the recently developed Biology Department Career Counseling services for Queens College students. As a career counselor, Cheema guides students who wish to enter the health professions to chart a viable course of study for entry into graduate programs. She takes great pride in helping our college students learn and succeed. Cheema states emphatically that she realized her full potential at Queens College and that she wants to give back to the community that fostered her interests and abilities. "Queens is my alma mater, and it is very close to my heart."

FACULTY NOTES 2018

This section highlights the national and international extracurricular scholarly activities of biology department faculty members in 2018.

SEBASTIAN ALVARADO gave an invited talk in the neuroscience department of UC-San Francisco entitled "Dynamic DNA Methylation Paints Blue Fish Yellow." He also spoke at the Annual Conference of the Society for Integrative Comparative Biology held in San Francisco on "Adaptive Plasticity of Blue Yellow Color Morphs in an African Cichlid" in January. Dr. Alvarado is actively involved in science outreach with Latin American youths in Santiago, Chile and Mexico City, Mexico with EduExplora. You can learn more about his efforts in this area at: https://bit.ly/2Czkyd1 and https://bit.ly/2Y0dlLT.

JOHN DENNEHY reviewed the book



Thinking Like a Phage: The Genius of the Viruses That Infect Bacteria and Archaea authored by Merry Youle (Wholon Press). His review was published in the *Quarterly Review of Biology* (Vol 93:166–167).

Dr. Dennehy and his students participated in the New York Science Education Alliance-Phage Hunters Advancing Genomics and Evolutionary Science (SEA-PHAGES) Symposium at Mount Saint Mary College, where Carmen Urgiles presented a talk and several others presented award-winning posters (see *Student Highlights. p.2*). They also participated in the Phage Hunters of New York symposium at the Graduate Center of the City University of New York. Dennehy also was invited to speak at the Oceanside Library's Science Café on "What's the Big Deal About the Human Microbiome?"

Dennehy reviewed grant proposals for the National Institutes of Health (NIH) Genetic Variation and Evolution Study Section. He also served on the panel evaluating applications for Postdoctoral Fellowships in Biology for the National Science Foundation. Additionally, he is a senior editor for the American Society for Microbiology's *Microbiology Resource Announcements*, an online-only, open-access journal that publishes articles announcing the availability of microbiological resources, such as strains and plasmids, deposited into a repository available to the research community.

ANDREW GRELLER spoke at the

Long Island Botanical Society meeting on "Wildflowers of Southeastern Minnesota" held at the Muttontown Preserve in New York. He also presented a talk entitled "Plants and Animals of Central Mexico" at the Queens County Bird Club, Alley Pond Environmental Center in Douglaston, New York. Dr. Greller, an avid bird watcher, contributed a photo of a Swainson's thrush to the Queens County Bird Club News and Notes.

Greller became a collaborator with the Rockefeller Foundation's newly formed Zilient Program (https://bit.ly/2kB01fH). This is "a first-of-its-kind online publishing and knowledge-sharing platform for global resilience practitioners" designed to "help people, communities, and institutions around the world to address mounting physical, social, economic, and climate issues." The Rockefeller Foundation will work in collaboration with the Thomson Reuters Foundation, Blue State Digital, and OnFrontiers to identify, support, and leverage funding for the Zilient Program.

DAVID LAHTI was invited to speak on

"Why are Robin's Eggs Blue?" in the Hunter College Department of Chemistry Seminar Series, the Cognition and Comparative Psychology Colloquium at The Graduate Center of the City University of New York, and at the New Jersey Institute of Technology in Newark, New Jersey. He also was invited to give an oral presentation and debate with Columbia University philosopher Dr. Philip Kitcher on the topic of "Science, Religion, and Democracy" at Ohio State University in Columbus, Ohio.

Dr. Lahti authored a commentary for the *ASEBL Journal* of the Association for the Study of (Ethical Behavior)•(Evolutionary Biology) in Literature entitled "Evolution Doesn't Eliminate, it Illuminates" (ASEBL Journal 18:7–10). Additionally, he reviewed the 2016 book by Kenneth Schaffner entitled, *Behaving: What's Genetic, What's Not, and Why Should We Care?* (Oxford University Press, New York). Lahti's review titled, "Behavior" appeared online in the *International Review of Science*, Vol. 3 (4).

ALICIA MELÉNDEZ was the Keynote

Speaker at the Fifth Annual Research Colloquium of the American Museum of Natural History–NYC Science Research Mentor Consortium. She also was invited to speak at Rowan University in Glassboro, New Jersey on "Autophagy in *C. elegans* Development and Aging." Dr. Meléndez organized the January meeting of the New York Area Worm Meeting held at New York University. She attended the Cold Spring Harbor Laboratory Germ Cell conference where she presented research entitled "Distinct Heparan Sulfate Modification Patterns Control Proliferation and Differentiation of Germline Stem Cells in *C. elegans*."

Meléndez's research is supported by several significant grant awards, all of which focus on the role of autophagy, a highly regulated process by which cells recycle subcellular components and macromolecules. Work continued on an award from the National Institutes of Health entitled "Role of Autophagy and Retromer Genes in GLP-1/Notch Signaling." Meléndez and her

collaborator Sivan Henis-Korenbilt of Bar Ilan University, Israel are studying a deficiency in autophagy with funding from the U.S.-Israel Binational Science Foundation. In 2018, the Meléndez and Henis-Korenbilt research team received a second award from the U.S.-Israel Binational Science Foundation, this time to investigate "a novel autophagy checkpoint" regulating the process.

CATHY SAVAGE-DUNN is the

executive officer of the doctoral program in biology of the Graduate School of CUNY. Despite this responsibility, Dr. Savage-Dunn maintains an active research program based at Queens College. Her research is funded by a number of grants, including an award from the National Institutes of Health entitled "Regulation of Metabolism by *C. elegans* DBL-1/ BMP signaling." Savage-Dunn is also a co-investigator with Associate Professor Jun Liang Rice of Borough of Manhattan Community College-CUNY working on a CUNY Community College research grant entitled "Novel Mechanism of Chloride Intracellular Channel Protein (CLIC) Regulated Healthy Aging." In addition, Savage-Dunn received a PSC-CUNY Enhancement Award to initiate a new investigation on "BMP signaling in the innate immune response in *C. elegans*." She also serves as a research/training mentor for Tina Gumienny of Texas Woman's University and receives funding in support of this work from a Chancellor's Research Fellow Mentor award.

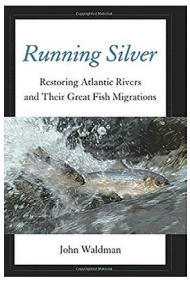
Savage-Dunn was invited to speak at the College of Staten Island on her research entitled "DBL-1 is a BMP/TGFβ-Related Signal that Regulates Growth and Fat Storage in the Nematode *C. elegans*." She and several of her students attended a number of conferences and presented posters on their research including Northeast Society for Developmental Biology Meeting (Woods Hole, Massachusetts); the Topic Meeting on Aging, Metabolism, Stress, Pathogenesis and Small RNAs in *C. elegans* (University of Wisconsin, Madison); and the American Society of Cell Biology-European Molecular Biology Organization joint meeting (Washington, DC).

Savage-Dunn served on an NIH/ National Institute of General Medical Sciences (NIGMS) K99 Grant Review Panel that reviews five-year awards to help young investigators transition from post-doctoral positions to an independent career position. Savage-Dunn was a member of the Genetics Society of America Working Group on Public Communication and Engagement.

MARAL TAJERIAN was an invited speaker at the 17th World Congress on Pain held in Boston, Massachusetts and organized by the International Association for the Study of Pain. She also spoke at the Human Genome and Health Conference of the Georgian Society of Medical Genetics and Epigenetics held in Tbilisi, Georgia. The title of her talk was "The Pain Memory Engram: An Epigenetic Signature of Chronic Pain in the Rodent Brain."

Dr. Tajerian also served as a grant reviewer for the United Kingdom's Medical Research Council (MRC).

JOHN WALDMAN's acclaimed book,



Running Silver: Restoring Atlantic Rivers and Their Great Fish Migrations, published in 2013, is still garnering recognition for the author. Professor Waldman gave a lecture on "Restoring the Once-Great Fish Migrations of the Susquehanna and Other Atlantic Rivers," at the annual Kirkland/ Spizuoco Lecture at Shippensburg University in Pennsylvania; at the Gulf of Maine Research Institute in Portland, Maine with Friends of the Presumpscot; at the Lehman College Seminar Series; and at the Wells National Estuarine Research Reserve. Dr. Waldman was one of four distinguished guests invited by Paul Gallay, President of Riverkeeper, to serve on a panel examining the "The Hudson River as Life Force" at the Hudson River Museum. The discussion was held in conjunction with an exhibition by Maya Lin entitled "A River is a Drawing." His presentations often lead to projects funded by local organizations. One example is "Transitioning from Destructive 19th Century to Sustainable 21st Century Energy: Presumpscot River, Maine" (with R. Kreisman).

Waldman writes on his department website "there is the newly recognized need to apply intelligent green-infrastructural approaches to help armor the city against storms like Sandy–'resilience' has superseded 'sustainability' as the mantra of our times." This concept has guided much of his recent activities. He is a fellow of the CUNY Institute for Sustainable Cities, which has led to several studies of Jamaica Bay with an eye toward improving the "resilience" of this marshland protecting New York Harbor. With William Solecki of Hunter College, he authored a report for the U.S. Department of the Interior entitled "The Great Transformation: Exploring Jamaica Bay in the 19th and Early 20th Centuries Through Newspaper Accounts" (https://bit.ly/2HBVyou). He spoke on "Connecting Fish, Rivers, and People" at the mini-symposium on "Swimways and Water Management in the 21st Century" held at the Dutch Embassy in Washington, DC. Waldman also authored the final report to the New York Offshore Wind Power Alliance entitled, "A Review of Possible Wind Power Effects on Fisheries."

Waldman spoke at the American Fisheries Society Conference in Atlantic City, New Jersey on "Freeing U.S. Rivers from Hydropower Dams: What Would It Take for Full Photovoltaic Replacement?" and at the New York Chapter of the American Fisheries Society in Cooperstown, New York on "Toward Reconciling Energy Production and Diadromous Fish Migrations on Atlantic Rivers." He was an author on studies of the fish species composition of the Hudson

continues on next page

FACULTY NOTES 2018

and Bronx Rivers presented by colleague Sam Chew Chin titled, "Surveying Fish Community Composition of the Hudson and Bronx River Systems Using Environmental DNA" at the American Society of Ichthyologists and Herpetologists in Rochester, NY and "Captureless Catching: Environmental DNA Metabarcoding of the Hudson and Bronx River Fish Communities" at the American Fisheries Society Conference in Atlantic City, NJ.

Waldman regularly writes articles for layman literature and blogs and thereby brings national and international attention to Queens College, its biology department, and CUNY. Here are just this year's examples. Each can be found at the link provided. Enjoy!

His article for *Hakai Magazine* on "A Fish Coup in the Salmon Kingdom" describes the appearance of striped bass in waters as far north as Newfoundland and the St. Lawrence Seaway (https://bit.ly/2DbFPXA).

He authored "Fish Tales: Six Amazing Journeys to Celebrate World Fish Migration Day" for the online environmental newsletter *Mongabay* (https://bit.ly/2HTVT4l).

Waldman's article, "Maine Voices: State Could Magnify its Allure by Removing More Dams from its Rivers" appeared in the August 16th issue of the *Portland Herald Press* (https://bit.ly/2MmwHbW). He wrote about "On the Many Salmon and Few People of Norway's Kvaroy Island" for *MainStreet Magazine* (https://bit.ly/2Ter3Y3).

DANIEL WEINSTEIN's research continues

to be supported by a grant from the National Institutes of Health entitled "Transcriptional Regulation of Pluripotency in the Early Vertebrate Embryo." He attended the 17th International *Xenopus* Conference held in Seattle, Washington where he presented a poster on this research entitled, "Tbx2 is Required for the Suppression of Mesendoderm During Early *Xenopus* Development."

BIOLOGY ALUMNI FUND Donations FY2018

In fiscal year 2018, **57** of our alumni donated **$13,833.** Thank you all for your generosity. A very special thanks to Elissa Koff for her extraordinary gift!

Your donations represent unrestricted money that the department uses for student educational enrichment programs. Most expenditures focus directly on our students. We support undergraduate student research and their travel to scientific conferences, provide supplements to undergraduate student graduation awards, and support other student-centered special events. These funds also help defray the expenses for visiting research scientists to present talks on their science in seminar classes where students can meet and be inspired by an outstanding array of cutting-edge researchers.

If you do not already contribute, please tell us how we can inspire you to do so. We are sincerely interested in your comments and suggestions. Send emails to **Dr. Esther.Muehlbauer@qc.cuny.edu** or snail mail to Dr. Esther Muehlbauer, Biology Department, Queens College, CUNY, 65-30 Kissena Boulevard, Queens, NY 11367-1597.

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LIST OF GRADUATES

HH—with High Honors; H—with Honors; ΦBK—Phi Beta Kappa, the national honor society; BΔΦ—Beta Delta Phi, the national Biology Honor Society; ** College-wide awards detailed in *Student Highlights*

Samia Ahmed
Yasaman Alibabaiee**—HH
Hisham Alrubaye
Ghumique Asfand
Robyn Awendstern
Sheikh Bablu
Nazeema Bacchus
Rafael Badalov—H
Samantha Balgobin—H
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Katherine Barbaro—H
Judith Barona
Judith Barzallo
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Nandini Bhattacharjee—H
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Vincent Joseph Cali—HH, *Magna Cum Laude*
Kristeena Chambers
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Sheldon Chen
Daisy Cheung—H
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Farhan Chowdhury
Evangelina Cothalis
Farah Crawford
Kuhokee Das—HH
Ricodem Desir
Zahava Deutsch—H
Allan Edmond
Wafaa Elmanasir
Daniya Farooq
Edwin Figueroa—HH
Dionisi Filpo
Malka Garber
Jeremy Garcia—HH
Dominique Germain
Joel Grunhut**—HH, ΦBK, BΔΦ, *Summa Cum Laude*
Mabel Guan—HH
Victoria Hanson
Anne Harrison—HH
Eric Huttler—HH,ΦBK
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Bryan Jenkins
Sunil Jeong
Anita Jiang
Jessica Jimenez
Rebecca Jung—H
Dana Kandova
Hyunju Kang
Christos Kariolis—H
Kirandeep Kaur
Ramandeep Kaur**
Toslima Khan
Sally Kim
Sara Kowalski
Tiffany Lucas
Faisal Malik
Samee Mian
Yafit Muladjanov—HH
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Saleemah Nausrudeen
Esra Omeroglu—H
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Debra Millen
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Sima Nisimova
Sangeetha Tandalam Palanivelu**—HH, ΦBK, *Summa Cum Laude*
Rachelle Paras
Roy Park—H
Yerin Park—H
Kenesia Phillip
Sultana Rahman
Gehan Ranepura
Elsa Rosario
Hanna Rose—HH
Ricardo Saboya
Shazia Saleem
Francesca Scaturro
Rachel Schottenfeld—HH
Peter Scimemi
Aviela Segev—HH
Mita Sen
Wildan Setia—H
Zayna Syed Ayesha Shahab
Madiha Shakoor
Mervat Sheira
Min Kyung Shin**—HH, *Summa Cum Laude*
Hardeep Singh
Mahaaninder Singh—*Summa Cum Laude*
Blanca So
Geohaira Sosa
Elaine Szumanski—H
Ezekiel Tabet
Johnattan Teran
Kaitlyn Thompson
Moshiyakh Tokov
Hideo Tosaka – H
Chaya Tusk**—*Magna Cum Laude*
Carmen Urgiles
Rasheed Usman
Thomas Varghese
Angela Vohra
Simcha Weinman—H
Tyler Wong
Avi Yadgarov
Joshua Yaminian**—ΦBK, BΔΦ, *Summa Cum Laude*
Matania Yehounatan—HH, ΦBK
Susan Yin—HH
William Youn

Master's Degree Recipients

Marlen Acosta-Alamo
Olivia Pineiro-Ramirez

FACULTY SCHOLARSHIP 2018

D = Doctoral student M = Master's student U = Undergraduate student

BOOKS

Chabora, P. C. 2018. *Biology I and II: Laboratory and Lecture Synthesis,* 3rd Edition. Hayden-McNeil Publishers, Macmillan Learning Curriculum Solutions. Pp. 570. ISBN 978-0-7380-9781-7

Greller, A. M., Fujiwara, K., and Pedrotti, F., Editors, 2018. *Geographical Changes in Vegetation and Plant Functional Types.* Springer International Publishing AG, Switzerland. Pp. 359.

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Waldman, J., 2018. Delaware River. *In, From Sea to Source 2.0: Protection and restoration of fish migration in rivers worldwide.* H. Wanningen, P. P. Schollema, P. Gough, K. Brink, J. Royte (Eds.), Published online at http://www.fromseatosource.com/. Pp:32-33.

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RESEARCH ARTICLES (PEER-REVIEWED)

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FACULTY SCHOLARSHIP 2018

D = Doctoral student
M = Master's student
U = Undergraduate student

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