Message from the Chair

I am happy to introduce the latest issue of the Biology Department Newsletter. The Department is very active in pursuing our research and educational goals and I want to share news of the past year.

In terms of faculty hiring, we are pleased to welcome Dr. Thomas Begley to the Department. Tom is an alumnus of UAlbany receiving both his BS and PhD degrees in Biological Sciences. He previously held a faculty position of Full Professor at SUNY Polytechnic Institute. Dr. Alex Valm has joined the Department as an Assistant Professor after completing a post-doctoral fellowship at the National Institutes of Health. We are also happy to welcome Dr. Andy Berglund to the Biology Department. Andy is moving from the University of Florida to UAlbany and will be the new Director of the RNA Institute. He has a faculty appointment as Full Professor of Biological Sciences and we are excited to have him join the Department this fall. Dr. ChangHwan Lee recently accepted a position as Assistant Professor in the Department. He is finishing up a post-doctoral fellowship at the University of Wisconsin in Madison and will join the Department in September of 2019. We also welcome two instructors in the Forensics program. Dr. Arati Iyengar and Dr. Ryan Thurman joined us in January and will be developing and teaching courses for our Forensic Science MS program. They will also be involved in setting up a new forensics program for undergraduates.

Undergraduate Research continues to be a strong focus of our undergraduate program. We had 68 undergraduates participate in our independent research program for 2017-2018. Several Biology majors were among the awardees at the annual Undergraduate Research Symposium. We also started the Bio-DOME (Biology-Developmental Outreach Mentoring and Enrichment) program this past year. This program offers academic help to upper level biology undergraduate students and also provides career counseling for biology majors. We are welcoming 20 students into our graduate program this year with nine students joining the PhD program.

We received record donations from friends and alumni this past year and I want to thank all our friends and alumni who have supported our mission in education and research.

Enjoy reading the newsletter. - Richard Cunningham, Professor and Chair
The Department of Biological Sciences welcomed four new faculty members in 2017—2018:

**Arati Iyengar**

Dr. Iyengar joined the University at Albany in January 2018 and is teaching forensic biology courses in the MS Forensic Biology program. Her current research interests are in forensic genetics and conservation genetics.

**Thomas Begley**

Dr. Begley joined the Biology Department as Professor and became Interim Director of the RNA Institute in the Fall of 2017. His research is focused on developing nanoscale-based diagnostic tools and a knowledge base that promotes personalized medicine, specifically in the areas of environmental health, cancer prevention and treatment.

**Ryan Thurman**

Dr. Thurman joined the University at Albany in January of 2018 and he is teaching forensic chemistry in the Masters Forensic Biology program. His research interests are focused on investigating the toxicology and forensic chemistry of emerging pharmaceutical analogues.

**Alex Valm**

Dr. Valm is interested in the relationship between structure and function in the human microbiome, especially how the physical structure of human-associated microbial communities influence health and disease. He discusses his work in more detail in the Q&A on page 7.
Biology Faculty Highlights, 2017-2018

Marlene Belfort

Distinguished Professor Marlene Belfort published several papers in coauthorship with members of her lab in *Current Biology*, *Current Opinion in Microbiology*, and other leading journals. She also served as the cochair of the “Keystone Conference: Mobile Genetic Elements and Genome Plasticity” in Santa Fe, New Mexico, in February 2018.

Haijun Chen

Associate Professor Haijun Chen’s ongoing research into the molecular basis of the electrical signaling of neurons (their dysfunction is the cause of human disorders including cardiac arrythmia and epilepsy) resulted in findings published in the *Journal of Molecular and Cellular Cardiology*, the *European Journal of Physiology*, and the *FASEB Journal* (which he joined this year as a member of its Editorial Board).

Paolo Forni

Assistant Professor Paolo Forni’s research in olfactory systems produced an article in coauthorship with members of his lab (“The Terminal Nerve Plays a Prominent Role in GnRH-1 Neuronal Migration Independent from Proper Olfactory and Vomeronasal Connections to the Olfactory Bulbs”) in the journal *Biology Open*.

Melinda Larsen

Associate Professor Mindy Larsen’s work on deciphering the molecular mechanisms behind animal organ development produced several publications coauthored with many of her graduate and undergraduate students. Her research work was recognized by the National Institutes of Health when she received a grant to study endothelial signaling in regeneration.

Cara Pager

Assistant Professor Cara Pager’s research into virus-host interactions produced a coauthored publication in *Nucleic Acids Research*, “Positive-sense RNA Viruses Reveal the Complexity and Dynamics of the Cellular and Viral Epitranscriptomes During Infection.”
Biology Faculty Highlights, 2017-2018 (cont’d)

Prashanath Rangan

Assistant Professor Prash Rangan published papers in coauthorship with members of his lab in *Developmental Biology* and *PLOS Genetics* including “A Switch in the Mode of Wnt Signaling Orchestrates the Formation of Germline Stem Cell Differentiation Niche in Drosophila” and “Transient Transcriptional Silencing Alters the Cell Cycle to Promote Germline Stem Cell Differentiation in Drosophila.”

George Robinson

Professor George Robinson published an article evaluating the effects of fire and the mechanical removal of vegetation on the development and spread of pine trees in the *Journal of Forest Research* entitled “Regeneration of Pitch Pine (Pinus Rigada) Stands Inhibited by Fire Suppression in Albany Pine Bush Preserve, New York.”

Morgan Sammons

Assistant Professor Morgan Sammons received a three-year award from the National Institutes of Health General Medical Sciences division for nearly half a million dollars for “Molecular Mechanisms Regulating the Establishment of CIS-Regulatory Elements by the Transcription Factor p63.”

Annalisa Scimemi

Assistant Professor Annalisa Scimemi, working as part of a joint effort between UAlbany, RPI, Albany Medical Center, and the NYS Department of Health’s Wadsworth Center, received a $1 million National Sciences Foundation MRI (“Major Research Instrumentation”) Consortium grant to acquire a state-of-the-art Leica TCS SP8 STED 3X super-resolution microscope. This new super-resolution microscope facility represents another unique resource made available in the growing life sciences and biotechnology community of the Capital District and will be used not only for collaborative research projects between these institutions but will be included in their outreach efforts to educate the public and introduce promising new students to STEM fields.

Assistant Professor Scimemi continues to research extensively in the area of the synaptic basis of neuropsychiatric disorders and in the past year has published in the *Journal of Neuroscience, Neuroscience Research, Neural Plasticity*, and *Cell Reports*.

Caro-Beth Stewart

Professor Stewart was coauthor of an article entitled “Sooty Mangabey Genome Sequence Provides Insight into AIDS Resistance in a Natural SIV Host” in *Nature* which recounted a joint study into research related to her role in the genomic analysis of simian immunodeficiency virus (SIV) in Sooty Mangabeys, a type of monkey native to West Africa. The animals’ immunity to a disease very similar to human immunodeficiency virus (HIV) can help elucidate the mechanisms by which these animals avoid AIDS.
Wendy Turner

Assistant Professor Wendy Turner’s work in animal ecology and behavior generated publications in the *Journal of Wildlife Diseases* ("Dust-Bathing Behaviors of African Herbivores and the Potential Risk of Inhalational Anthrax") and the *Journal of Theoretical Biology* ("Pathogen Transmission at Stage-Structured Infections Patches: Killers and Vaccinators").

Alex Valm

One of the department’s newest faculty members, Assistant Professor Alex Valm’s research into the relationships between systems-level structure and function in the human oral microbiome led to the award of an NIH R03 grant from the National Institute of Dental and Craniofacial Research to gather preliminary data (a full interview with Assistant Professor Valm is featured on page 8).

Ing-Nang Wang

As part of his research on the genetic basis for the evolution of life history traits, Associate Professor Ing-Nang Wang’s paper "Within-Host Dynamics and Random Duration of Pathogen Infection: Implications for Between-Host Transmission" was published in the *Journal of Theoretical Biology*.

Sho-Ya Wang

Professor Wang published an article in the *Proceedings of the National Academy of Sciences* (PNAS) with Ging Kuo Wang entitled “Single Rat Muscle Na+ Channel Mutation Confers Batrachotoxin Autoresistance Found in Poison-Dart Frog Phyllobates Terribilis.”

The poison-dart frog, an endangered species of tiny frogs native to Columbia also known as the “Golden Poison Frog” or “Golden Poison Arrow Frog,” protects itself from predators by producing a lethal toxin in its skin. Professor Wang’s article describes the biochemistry behind how this frog is able to protect itself from its own powerful toxins and how this capability can be replicated in laboratory animal tissue.

The first faculty member to hold the title "Professor of Biology" at the University at Albany was Charles Stuart Gager, appointed in 1898.

Professor Gager would go on to become Director of the Brooklyn Botanical Gardens in 1910.
Biology Graduate Student Highlights, 2017-2018

**Patrick Blatt**
Graduate student Patrick Blatt received an NIH F31 Diversity Fellowship and won first prize for his poster presentation at the Northeastern Regional Meeting of the Society of Developmental Biology.

**Kara DeSantis**
Recent Ph.D. recipient Kara DeSantis received an NIH F32 NRSA postdoctoral fellowship and published her research from the Larsen Lab in the journals *Organogenesis* and *Nature Regenerative Medicine*.

**Caroline Girard Cartier**
Recent Ph.D. recipient Caroline Girard Cartier received a Distinguished Doctoral Dissertation Award from the University at Albany and jointly authored a paper with Emeritus Professor Gary Kleppel for the *Northeastern Naturalist* titled “Grazing and the Coupling of Biodiversity in Vascular Plant and Soil Microbial Communities.”

### Student Awards, 2017-2018

- **Situation Interactive Prize for Experience Research**: Valerie Bresier, Celeste Champagne, Molly MacIsaac
- **Presidential Award for Undergraduate Research**: Robert B. Rosenblatt
- **David A. Shub Award for Excellence in RNA Science**: Cathleen Schiraldi
- **Peter S. Marfey Book Award**: Eren (Xiaolong) Dong
- **Donald LaFrancois Teaching Award**: Clare Miller
- **Biology Department Graduate Travel Awards, Fall 2017**: Thomas Hart, Andrew Powers
- **Biology Department Graduate Travel Awards, Spring 2018**: Brian Dagley, Nicholas Moskwa, Botros Toro
New Graduate Students, 2017-2018

Graduate education in the Biology Department at the University at Albany gathers and directs the most qualified students of life sciences towards the research and services that will benefit our region, state, nation, and ultimately the world.

Working together with faculty, graduate students fuel the discoveries and applications that benefit our economic, cultural, and societal development and help serve the University’s mission of responsible citizenship and stewardship. They also are crucial in enhancing the University’s teaching mission by serving as graduate teaching assistants who teach undergraduate laboratory courses or lecture discussion sections.

Our graduate program and faculty scholarship enjoy a symbiotic relationship where the Department’s outstanding graduate students attract highly qualified, motivated faculty with a strong desire to contribute to life sciences through scholarship, which in turn attracts graduate students who often prove to be catalysts for research and creative activity by our faculty.
Interview: Alex Valm

The Department of Biological Sciences welcomes Assistant Professor Dr. Alex Valm. Alex received his Ph.D. in Pathobiology from Brown University and went on to become a postdoctoral PRAT fellow in the laboratory of Dr. Jennifer Lippincott Schwartz at the National Institute of Child Health and Human Development, National Institutes of Health. For his Ph.D. work, he developed a new fluorescence imaging technique for mapping the spatial structure of complex microbial communities and applied this to study the spatial relationships in the human oral microbiome.

Alex was hired in our microbiome faculty search, and he investigates the relationships between systems-level structure and function in the human oral microbiome. He has a growing research group with a lab manager and several undergraduate researchers and was recently awarded an NIH R03 grant from the National Institute of Dental and Craniofacial Research to gather preliminary data.

We sat down with Alex to ask him about his research, teaching, and life outside the lab.

Q. What do you study?
A. My lab studies the systems-level spatial structure of the oral microbiome. We use advanced fluorescence imaging approaches to map the spatial distribution of bacteria in patient-derived tissues and in lab-grown biofilm models. We are developing an in vitro culture model that will support the growth of dozens of different species from the oral microbiome so we can test hypotheses about the systems-level structure of the community under controlled laboratory conditions.

Q. What are the implications of your research findings?
A. Next-generation DNA sequencing has revolutionized the study of the human microbiome. However, this technology gives little information on how the bacteria that live on and in the human body are arranged in their communities. Because the function of any biological system is implicit in its structure, we need to develop new approaches to study the spatial structure of the microbiome. Periodontal disease is the most prevalent bacterially mediated disease in the U.S. By improving our understanding of oral microbial community structure and function, we may be able to develop new approaches to monitor and control the disease.

Q. What advice would you give to new graduate students?
A. My biggest piece of advice is to find a project that really excites you. Research can really get you down, because most experiments fail. But if you have a project that really excites you, you can weather the storms until you find the experiment that works and all your hard work pays off. Don't ever be afraid to ask for help: science is hard, and no single person is an expert at everything. Also, don't forget to have fun along the way, because life happens every day!

Q. What do you like about UAlbany?
A. I love so much about UAlbany! My faculty colleagues are wonderful. They're all talented scientists at the forefront of their fields. They've helped me so much in my first year to learn all the ropes. I love the students in the program who have helped me as well. I like the way the grad program is structured so Ph.D. students can rotate and experience different labs. It's important that they have all the support they can to succeed. I love the campus, too! The architecture is really cool.

Q. Tell us something interesting about you and what you do outside of the lab.
A. I'm one-half first generation American! My dad came to the U.S. as a refugee. He eventually took the oath and became a U.S. citizen.

I love music. I play guitar at home, and I've been known to play around on a piano. I also love going to concerts--everything from classical to pop to indie rock.
Educating Forensic Scientists for the 21st Century: UAlbany Biology Expands Its Forensic Sciences Program

The University at Albany’s Department of Biological Sciences has taken key actions this year to ensure UAlbany is nationally recognized once again as an academic leader in the rapidly advancing field of forensic science.

The Department – working with the University and the College of Arts and Sciences – has begun the process of restructuring its graduate Forensic Biology program and introducing an undergraduate Forensic Science program by hiring two full-time forensic science instructors, procuring new state-of-the-art forensic science technology, and redoubling its efforts to engage in partnerships with law enforcement, criminal justice, academic, and other significant stakeholders.

In January the Department hired two full-time forensic science lecturers, Drs. Arati Iyengar and Ryan Thurman (see “New Faculty” on page 2). Both have the research and experience required to teach forensic biology, chemistry and toxicology courses as well as challenge students through instruction and mentorship to become independent, critical-thinking forensic scientists.

Dr. Iyengar came to UAlbany from the University of Central Lancashire in the United Kingdom, where she taught forensic genetics courses; her current research interests are in forensic and conservation genetics. Dr. Thurman came to UAlbany from the University of North Carolina at Chapel Hill, with professional experience gained as a forensic chemist for the Arkansas State Crime Laboratory; his research interests are focused on investigating the toxicology and forensic chemistry of emerging pharmaceutical analogues. Both will be teaching forensic biology and chemistry courses for the graduate Forensic Biology program.

Dr. Iyengar and Dr. Thurman are the first full-time forensic science faculty the Department has had since the graduate Forensic Biology program was launched in 2001. Previously, forensic science instruction in the program was provided by consultants and part-time adjunct faculty members.
Today’s global forensic science industry demands forensic scientists competent in multiple disciplines. Working in concert with the University, the Biology Department will be restructuring its graduate Forensic Biology program this year to address these new demands to maximize graduates’ employment opportunities.

The program will teach forensic biological procedures and instrumentation for human identification, and will incorporate other disciplines such as crime scene investigation, physical evidence, analytical chemistry and instrumental methods of analysis, drug chemistry, toxicology, and pattern evidence employing methodologies and instrumentation used in today’s crime labs.

The required core courses, plus other coursework, will provide the framework to offer two new academic programs: an undergraduate Forensic Science program and a graduate Forensic Science Investigation and Management program. The Department is completing separate proposals for the B.S. and M.S. programs with the University; the Department will then work towards receiving accreditation with the American Academy of Forensic Sciences (AAFS) for the two programs.

A significant component to forensic science is the use of technology and equipment for DNA identification, processing samples and evidence, and analyzing drugs, chemicals and other compounds. The Department therefore procured state-of-the-art forensic science equipment, consumable supplies, and annual maintenance contracts so that students can complete their academic experiments using the same methodology and instrumentation commonly used in today’s accredited forensic science laboratories.

Students will use this equipment to get hands-on experience in the day-to-day skills of the forensic scientist, analyzing and interpreting drug chemistry and toxicological substances as well as performing DNA profiling and sequencing.
UAlbany Biology Expands Its Forensic Sciences Program (cont’d)

Partnering with Law Enforcement, Academic, Criminal Justice, and other Stakeholders

The Forensic Biology program has historically teamed with various agencies, institutions and organizations to create and deliver various professional development programs for the forensic science and criminal justice community. Members from the Department and the programs have educated the general public through forensic science outreach programs, often presenting on novel forensic science education and research at criminal justice meetings and actively serving on various local, regional, and national forensic science committees.

The programs are building off these outreach and education efforts this year by collaborating with UAlbany’s University in the High School program to offer an “ABIO 175: Forensic Science Investigation” course to high school students. This lecture and laboratory introductory course, which grants college credit, covers a range of fundamental topics with the technical and scientific detail required to understand the breadth of today’s forensic science.

Additional planned outreach efforts include collaborations with other UAlbany campus units and off-campus institutions – including the College of Preparedness and Homeland Security, School of Criminal Justice, School of Business, Albany Law School, and the New York State Police – with a mission to develop novel academic coursework and professional workshops delivered by distant learning or on-site instruction.

Exceeding Current Expectations

The graduate Forensic Biology program over the years has attracted eager, high-caliber domestic and international students of all backgrounds to UAlbany. More than 100 students have successfully completed the graduate program since 2003, the overwhelming majority hired as full-time scientists in accredited forensic science agencies.

Recently, the Bureau of Labor Statistics has projected employment of forensic scientists to grow by 27 percent over the next decade, underscoring the need of academic institutions to keep pace with the growing demand of forensic science experts. UAlbany’s commitment to meet this demand — by hiring forensic science experts, training students to use the same equipment and software that is currently being used in forensic science laboratories across the world, restructuring the graduate Forensic Science program, and continuing to engage its partners and public stakeholders — is positioning UAlbany to serve as a national model for how to prepare well-educated and well-trained forensic scientists.
The IBASS and Bio-DOME
Undergraduate Student Support Initiatives

As part of its commitment to help undergraduates reach their academic potential, and recognizing the unique issues confronting today’s biology students, the UAlbany Biology Department started two related undergraduate-support initiatives in the past year: IBASS and Bio-DOME.

**IBASS**

IBASS (Introductory Biology Academic Support Service) represents the first phase of support for new undergraduate biology students. While it targets issues common to all incoming university students — time management, note taking, and study skills — it also provides specific support for studying the biology and life sciences.

Working closely with the professors who teach our introductory biology classes, the center is managed by a coordinator, Ms. Erin Allen, with an extensive background both in education and biological sciences. Being personally familiar with the progression of the introductory courses, she organizes workshops and small-group tutoring sessions coordinated with the material being covered in the courses and also makes herself available for one-on-one help with homework and assignments.

With walk-in hours for any undergraduate with questions or issues with the classes, IBASS supplements the Department’s traditional faculty office hours so that new undergraduates are given whatever additional support is required to help them succeed as they begin their biology studies at UAlbany.

**Bio-DOME**

Bio-DOME (Biology Development Outreach and Mentoring Enrichment) represents a second stage of support for undergraduate biology students taking our more advanced courses, with an additional emphasis on preparing them for careers in biology.

The Department, recognizing the different issues facing undergraduate biology students who have completed their introductory coursework, created Bio-DOME as a more advanced support resource. Bio-DOME provides a dedicated work area as well as free tutoring and more targeted mentoring in genetics, cell biology, evolution, biochemistry, microbiology, and immunology.

Bio-DOME also introduces upper-level students to the professional opportunities made possible with a UAlbany Biology degree.

For example, in late March Bio-DOME held a very successful meet-and-greet event with representatives of the pharmaceutical company Regeneron, where over 50 students were able to discuss the types of research they’re conducting and learn about current and upcoming opportunities at a leading biotech company.
Endowed Lecture Series: “Life at the Interface of Science and Engineering” presents Karl Deisseroth

The Department of Biological Sciences hosted its second “Life at the Interface of Science and Engineering” series lecture, featuring renowned Massry Prize winner Karl Deisseroth, Professor of Bioengineering, Psychiatry, and Behavioral Sciences at Stanford University.

Professor Deisseroth is best known for his development of methods that revolutionized the study of the brain and led to major advances in neuroscience and biomedical engineering.

These methods include optogenetics (a biological technique which involves the use of light to control cells in living tissue, typically neurons) and CLARITY, a technique for making biological tissues such as mammalian brains translucent and accessible to molecular probes.

On Friday, September 8, 2017, in a presentation to students and faculty in the Life Science Building’s D’Ambra Auditorium, Professor Deisseroth discussed his work in a lecture titled “Nature’s Gift: How the Discovery of Structural Principles in a Microbial Protein.”

Dr. Deisseroth described some of the innovative tools he and his lab members have created. These optical tools allow researchers to experimentally manipulate neurons and to study neural circuits in great detail. Optogenetics allows scientists to understand how the brain controls behavior and how mental illness can arise from disrupted neural activity.

On the same day, Dr. Deisseroth gave a companion seminar at RPI entitled “Integrated Brainwide Structural and Functional Analysis.”

Both seminars were fully attended and very well received.
Events: The 35th Annual Undergraduate Research Symposium

April 27, 2018

In April the University at Albany's Biology Department held its 35th Annual Undergraduate Research Symposium, where undergraduates traditionally get the opportunity to present their research in the types of competitive poster sessions and oral presentations common in the scientific community.

The annual spring undergraduate research symposia represent a departmental tradition going back over three decades. At this year’s event, undergraduate researchers presented posters in the lobby of the D’Ambra Auditorium and interacted one-on-one with faculty, staff, graduate students and fellow undergraduates to describe their research, methodologies, and findings.

Undergraduate students find that participating in the research symposium represents one of the most challenging but ultimately useful parts of their education in UAlbany’s biology program, and this year’s symposium met with an enthusiastic reception.

Winner of the Glenn L. Bumpus Award

Molly MacIsaac  “Development of MicroRNA Detection Technology”

Winners of the Oral Presentation Awards

Benjamin Moolick  “Cerebellum and Levodopa-Induced Dyskinesia”

Anthony Piche  “Zinc Actions in Hippocampal Modulation”

Kyle Thompson  “Structural Studies of Zika Virus RNA”

Winners of the Poster Presentation Awards

Emaan Effendi  “Neuromodulatory Effects on Dopaminergic Neurons”

Diana Nikolyan  “Regulation of ZIKV Translation”

Robert Rosenblatt  “Bloodstain Differentiation from Environmental Contaminants”
An esteemed member of the UAlbany Biology Department community, Professor Dan Wulff retired in 2016 after a lifelong career in biology research and education.

A native of California, Professor Wulff attended the California Institute of Technology as both an undergraduate and graduate student. After completing his Doctorate in Chemistry, he worked in the Institute of Genetics at the University of Cologne in Germany and would then move on to work in the molecular biology laboratory of Dr. James D. Watson, Nobel Prize winner (and best known as one of the co-discoverers of DNA with Francis Crick and Rosalind Franklin).

His highly successful career at SUNY Albany began in 1980 as Dean of the College of Science and Mathematics and as Professor of Biological Sciences in the Biology Department. A beloved teacher as well as a respected scholar, coworkers and students have universally expressed both appreciation and gratitude for their experience with Professor Wulff at UAlbany.

As described by alumnus and Director of the Forensic Biology Program Dr. Donald Orokos (UAlbany '99), "I met Dan at UAlbany in 1992 when I was a first-year biology graduate student. At that time, Dan stepped in for a fellow professor, providing two lectures in my advanced molecular genetics course on lambda phage. I remember the day because Dan’s first 20 minutes of his first lecture was spent in his classy three-piece suit telling personal stories ... stories of when he worked with various scientific icons that included James Watson, Francis Crick, and Max Delbruck, the father of molecular biology. It wasn’t just storytelling; he used those experiences as a way to engage and entice us to look deeper into what was discovered at the time so that we could continue with the work previously done by not just names but real, live scientists who just happened to be brilliant and world-changing in their careers. Over the years, Dan continued with this teaching style by drawing upon his anecdotes or information gathered from numerous scientific journals for his lead-in to each lecture, whether this lecture was in his immunology, nutrition or freshman biology courses."

Professor Wulff also founded the Upstate New York Junior Science and Humanities Symposium (https://www.jshs.org/region/new-york-upstate), where he helped introduce thousands of high school students to STEM (science, technology, engineering, and mathematics) fields. These students were given the opportunity to begin developing the technical skills that would lead many of them to go on to work in applied and basic research labs. Many of these students have since earned national recognition for their work.

In retirement, Dr. Wulff spends time with his family, traveling, and serving as an Emeritus Professor in the department. He and his wife Bonnie have long been supporters of the UAlbany Biology Department, and we sincerely thank them for their continued generosity.
Biology Undergraduate Spotlight, Class of 2018

Molly MacIsaac

Growing up in Saugerties, New York (45 minutes south of Albany), Molly admits that she initially chose UAlbany because of its location and affordability. But from her first day as an undergraduate she learned how the UAlbany Biology Department provides the unique combination of education, practical training, and research opportunities that make for a solid foundation for a career in life sciences.

A major in Biochemistry, Molecular Biology, and Mathematics, Molly is one of the Biology Department's most accomplished undergraduate students, winning the 2018 Glenn Bumpus Award for her senior thesis work, the Situation Interactive Award, and the Distinguished Scholar Leader President’s Award. She was also the treasurer of the UAlbany Pre-Medical Club, the cofounder and president of the peer-tutoring organization Students for Academic Success (SAS), and a member of Tri-Beta, the National Biology Honors Society.

Community involvement is also very important to Molly, and during her undergraduate career she volunteered in the emergency department of St. Peter’s Hospital and served as a medical scribe in the St. Peter’s Primary Care office in Rensselaer.

Molly’s successful undergraduate experience exemplifies the Biology Department's balanced program of classroom learning and hands-on involvement in ongoing life sciences research.

"Research has certainly made the biggest impact on my career as an undergraduate student. I was fortunate to start the summer of my freshman year in Dr. Ken Halvorsen’s lab at the RNA Institute. My project utilized nanoscale DNA switches (referred to as “nanoswitches”) to detect specific microRNAs (small pieces of RNA). These microRNAs are especially important and could be used for early detection and diagnosis of certain diseases like muscular dystrophy and certain cancers,” Molly wrote in describing her UAlbany Biology experience.

After graduating, Molly traveled to Nicaragua to participate in a weeklong “medical brigade,” then moved to Boston to attend the Biochemistry and Molecular Pharmacology Summer Scholars Program at Harvard Medical School, where she participated in researching single-molecule force measurements using the DNA nanoswitch in the laboratory of Dr. Wesley Wong.

She writes: “I really couldn’t be where I am today without the immense support from my school and all the incredible students and faculty there.”

As Molly begins her gap year, she will continue working in Dr. Wong’s lab at Harvard Medical School as she applies to M.D. / Ph.D. programs, with the goal of starting a graduate program in August of 2019.
Renovations, 2017-2018

The University has long understood that it is imperative for science departments to have the latest and highest-quality lab equipment because it recognizes that effective education requires students to go beyond books and conventional classroom teaching and actually see, handle, and work with the materials they are studying.

High-quality laboratories and experimental equipment are also crucial for students graduating into careers in the life sciences, where training in and exposure to the working environments and actual instruments currently used in labs in academia, government, and industry will give them a clear advantage.

So just as life sciences are in a constant state of innovation and reinvention, the UAlbany Biology Department is in a constant state of upgrading and renewing of its facilities.

In the last year significant resources were directed to upgrade lab spaces and related teaching support facilities in the Biology building.

The ongoing upgrades included not only the highly visible upgrades to the Department’s teaching labs (like the extensive equipment, wiring, benchtop, flooring, lighting, and audio/visual upgrades to the B-20 Invertebrate Ecology/Behavioral Genetics/Genetics lab but also significant upgrades to the equipment and facilities employed by our popular and expanding undergraduate and graduate programs (such as the Forensics Initiative for the M.S. in Forensic Science program — see page 8).

Less visible but equally important, upgrades to the Department’s lab and classroom preparation facilities were also undertaken to continue improving our labs’ efficiency and our students’ classroom and lab experiences.

By creatively repurposing a room in the Biology building, the department’s aging autoclave facility was upgraded to improve its functioning and increase its capacity. At the same time, another part of the building was repurposed and renovated to make an “Instructional Core Facility.” This space gives our lab instructors the room they need to prepare the materials they use in the classroom and also provides a shared instrumentation room for student use.

As one of UABy’s premiere STEM departments, UAlbany Biology remains committed to keeping its facilities up-to-date in support of advancing its educational and research missions. The Department recognizes the ongoing importance of maintaining and upgrading its facilities to make for the best possible research and teaching environment for its researchers, faculty, and students alike, and will continue to organize and use its resources in the most efficient and productive way in furtherance of this goal.

Naturally, contributions to the Department can help our continuing efforts to keep our facilities up to date and help us provide the most supportive research and educational environment available in life sciences.
Honor Roll of Donors

The Department of Biology thanks all of its donors for their generous support. The following donors have contributed to the University at Albany’s Department of Biology from 2017 to 2018.

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