



The Department of Biology at The College at Brockport, State University of New York

The College at Brockport

Volume 7, Issue 1

December, 2015

The State of the Department

The Fall 2015 semester is almost completed. I would like to take this opportunity to welcome the new freshmen and transfer students to the department who are majoring in Biology or Medical Technology. I would also like to welcome the new Masters of Science students. I hope all of the new and returning students had a productive Fall semester.

I have some exciting news items I would like to share. The first involves Dr. Laurie Cook. She received a three-year grant from the National Science Foundation to further her research on melanin concentrating hormone, MCH, and its effects on fat cell maturation. The second involves Dr. Huey Hing who received a three-year National Institutes of Health grant to continue his research on olfactory control of brain development. The third item involves a new track in the Biology ma-

major. Starting in the Fall of 2016, the department will offer a Biology for Educators Track as part of the Biology major. This track is designed specifically for students interested in pursuing a career in middle school and high school teaching. This last news story involves the annual flag football game between the departments of Biology and Chemistry and Biochemistry. It was another great event that had good food and the football was fun. As usual, Biology won for the second year in a row. I hope to see more supporters of the event next year.



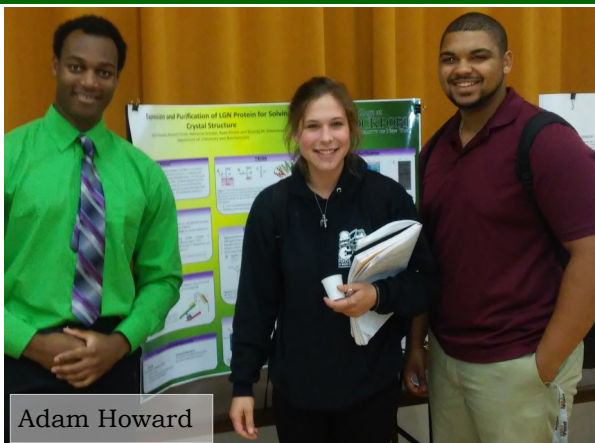
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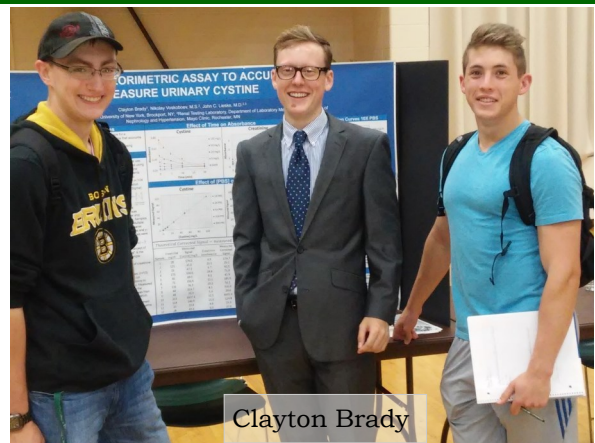


Have a wonderful holiday season and we look forward to a happy and successful 2016!

Biology Department Represented at the 2015 Brockport Summer Undergraduate Research Poster Session



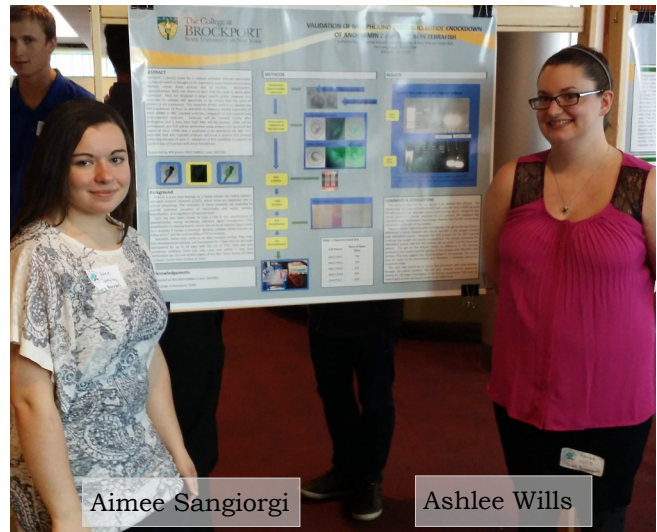
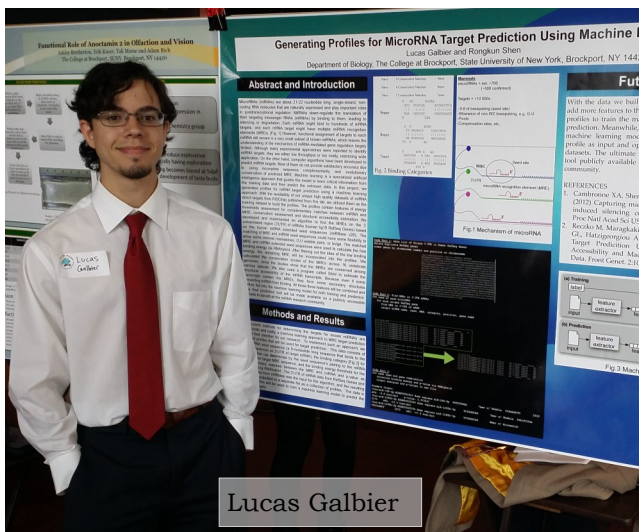
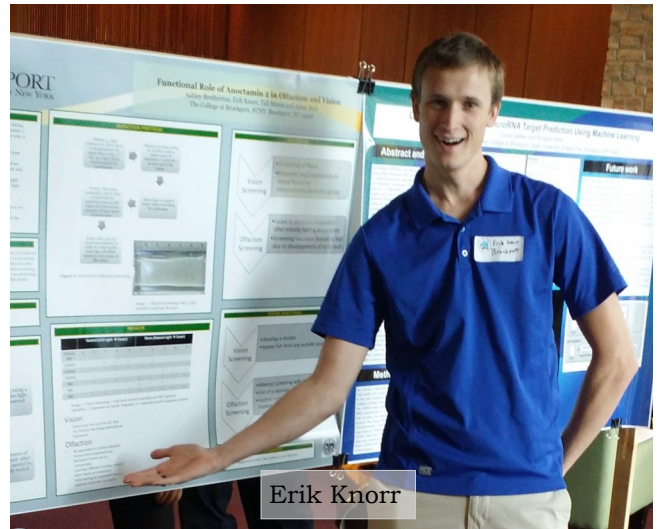
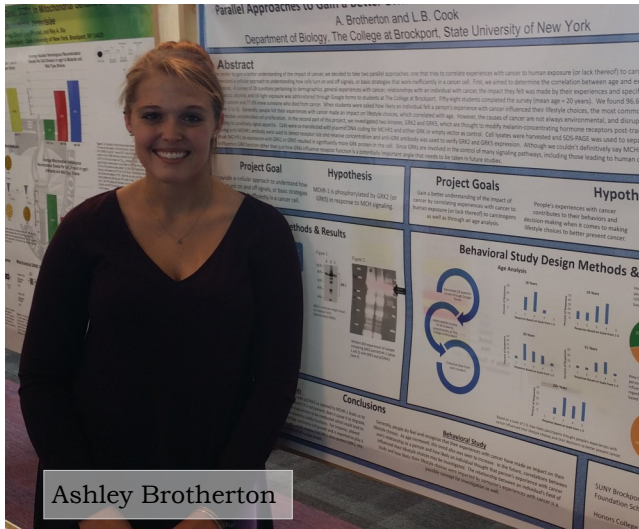
Adam Howard



Clayton Brady

Brockport Biology Students at the 2015 RAS meeting

The Rochester Academy of Science Meeting was held this year on November 7 at the Finger Lakes Community College. Congratulations to all students representing our Department!



Help Support the Next Generation of Biology Students

Dear Alumni,

We are asking you to contribute to our Department and to help us provide research experiences for students. A research experience contributes to undergraduate and graduate education by providing hands-on experience with state of the art equipment, and an opportunity to work with faculty mentors directly. These skills are fundamental to success, and the research experience provides a competitive edge. Biology faculty are active, working with students, and presenting results at scientific meetings with students. Not surprisingly research is expensive and

Biology faculty work hard to raise money for research. The College at Brockport is doing a great job in spite of funding cuts, and has found the funding to support equipment repair, equipment purchases, and support for summer research internships.

We ask that you consider donating to The College at Brockport, and specifically to the Biology Department. Your support will help us to help students. The faculty in the Department of Biology, and the College at Brockport, are committed to student excellence and student success. Donations of any amount will help us

to provide significant and meaningful research experiences for student. Please consider helping to support our students' research opportunities. For more information please contact Dr. Rey Sia (rsia@brockport.edu) or by making an online monetary gift by visiting the College's Giving Website below, making sure that your gift is designated for use by The Biology Department in the appropriate box.

<https://www.brockport.edu/giving/online/gift.php>
-The Biology Faculty

Featured Biology Graduates — Undergraduate Student

Kyle McAtee

(B.S. '16)

As a senior biology major at The College at Brockport, I cannot believe how fast these past years have gone by. It does not seem that long ago that I was an enthusiastic freshman sitting in Dr. Tsubota's General Biology lecture. Honestly, I cannot picture myself at any other institution for my undergraduate education. The friends and faculty I have had the pleasure to meet have helped shape the individual and learner I am today. Brockport gave me an enthusiasm for learning that I did not possess in high school.

I was allowed to cultivate my enthusiasm for learning in the lab of Dr. Rey Sia where I, and others, are working to determine the mechanisms that ensure the integrity of

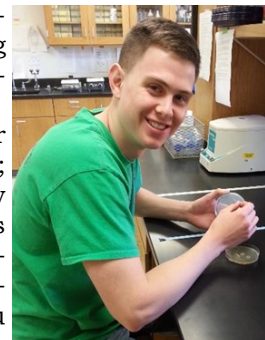
the mitochondrial genome. The atmosphere of Dr. Sia's lab is one that encourages collaboration and personal growth. I am excited to present my research at the Rochester Academy of Sciences in November and hopefully at the National Conferences on Undergraduate Research in the spring. Additionally, I will be writing a thesis on my research next semester under the advisement of Dr. Laurie Cook and Dr. Rey Sia.

I feel Brockport has given me the tools necessary to excel in my goal to become a physician. The Pre-Professional Health Committee at Brockport, many of which are Biology Department faculty, has guided me in my journey towards medicine and I could not be more appreciative of their efforts. I am currently in the process of applying for medical school and I have felt as prepared, or in some cases more pre-

pared, than students applying from other institutions.

My advice for students is this; get to know your professors and get involved. Brockport grants you the unique opportunity to be treated as more than a number, so take advantage of that.

Personally, I can think of several professors who have either written me letters of recommendation or granted me opportunities that I would have otherwise missed. Additionally, the biology department grants students the unique opportunity to get involved with the Honors Biology Program where you are given priority in conducting research with faculty.



Featured Biology Graduates — Graduate Student

Carmelina A. D'Errico (Computer Science & Biology B.S. '14, M.S. '16)

Hearing about the possible closing of my auto parts plant, Valeo (once known as Delco Products) at the youthful age of 50, required a decision be rendered about my future direction in life. As a first generation Italian American child, my dreams were to be a doctor. There was always the drive for science and logic. However, those dreams were not only unsupported by family and ex-husband but staunchly opposed by them. In youth there are many paths but not always the wisdom to follow the best path. Life experience is what constitutes for wisdom in the later years when you realize your errors and the paths become much narrower. The staff at SUNY Brockport for Computer Science was very supportive and from them I learned the value of this word. So again, I turned to

SUNY Brockport. The goal at this time was to enter the Physician Assistant program. SUNY Brockport welcomed me back and quickly put me to work in the Biology program with access to other programs such as Computer Science.

Soon it became obvious that not all colleges are as progressive and nondiscriminatory as SUNY Brockport, as being a nontraditional (older) student was frequently brought up at interviews. Yet my teachers (God Bless Them) refused to allow me to give up and instead offered me advice on other employment avenues which could meet the essence of my childhood dreams of science and logic. It was not easy to be a student with gray hair but the biology staff here became a type of extended family not allowing me to stagnate in any form. Options were explored in other fields. Bioinformatics seemed like a perfect marriage of

my computer and biology background. Knowing what life can throw in your path, there

are other jobs which I could also use my talents. One of my teachers tried to get me into research and insisted I should try it. Well Dr. Cook was correct. I do love research and actually enjoy Dr. Tsubota's playful nagging. Lab research coupled with computers can narrow the overwhelming possibilities to produce more constructive results. This can lead to faster response to old diseases as well as new diseases. SUNY Brockport has taught me that dreams can also go through the process of evolution in what we call "life". For the last five years I have .



Department Achievements

Faculty Updates



Dr. Laurie Cook welcomes **Tylor Hunn, Oleg Kibukevich, Henry Ophardt and Nick Walls** to her lab this Fall semester. They are busy gearing up for experiments related to her NSF-funded Grant

Proposal titled *Adaptation of MCH Receptor Function During Differentiation of Adipocytes*: **Tylor** is working on learning how to use fluorescence microscopy to stain for cellular proteins; **Oleg** is using Oil Red to quantify lipid accumulation in adipocytes; **Henry** is isolating total RNA from pre-adipocytes and ciliated adipocytes for RNASeq Analysis; and **Nick** is purifying MCH receptors from caveolae membranes. **Dr. Cook** will be presenting preliminary findings at the 2015 ASCB meeting in San Diego December 11-16th.

Dr. Cook was also recently named Assistant to the Provost for Applied Learning and Director of the Institute for Engaged Learning. She is co-chairing the Strategic Planning Taskforce on Experiential Learning this academic year. As a related project, she is also facilitating the *NYC Meet and Greet Program* which connects Brockport students with alumni in the greater New York City area. **Dr. Cook** is accompanying 35 Brockport students and four administrative colleagues to the City November 5-7th.



Dr. Adam Rich, from the “The GI lab”: Physiology at Brockport is going well! We welcome **Amber Clay, Bailey Majtyka and Jon Sleeper** to the lab. We have some new and exciting transgenic fish. **Jeffery Amack**, our collaborator at Upstate

medical, created an anoctamin 1 knockout zebrafish. Max Denora and Ian Shannon have been measuring GI transit in this knockout, and it looks like we do not see any difference! We are surprised because anoctamin 1 has been called ‘the pacemaker channel. We are now challenged to re-evaluate our ideas about motility regulation. Dr. Amack created another transgenic expressing a genomic calcium sensor. When calcium rises muscle cells fluoresce! Therefore the heart glows just before it contracts, and in GI smooth muscle we see calcium ‘flashes’ ahead of propagating contractions! We intend

to examine spontaneous and rhythmic contractions in the GI tract with this zebrafish.

It is Fall and that means Systems Physiology. Students are examining the physiological role for anoctamin 2 in zebrafish. No one has shown expression of function of this gene in zebrafish so far, but there is some evidence that it plays a role in olfaction in mice. Therefore we are looking for mRNA expression and using immunohistochemistry to try to find protein expression in olfactory epithelium, and in the brain. We have seen expression already in the retina and are trying to establish a functional assay in olfaction and in vision.



Dr Rongkun Shen reports: Time really flies. I’ve been at Brockport for more than a year. I teach Genomics and Proteomics in Biomedicine in Fall, and Bioinformatics in Spring for both senior undergraduate and graduate students. Through those courses, I hope the students are equipped with bioinformatics skills and hands-on experience to better accommodate the academic and industrial demands in this post-genomics era.

My research area is in bioinformatics and computational biology. My goal is to understand how gene expression is regulated during development, by environmental stimulation, or in diseases in a genome-wide scale. The lab is focusing on analyzing the next generation high-throughput sequencing data, including RNA-Seq and ChIP-Seq, from various projects to answer the specific biological questions using computational and statistical approaches. I co-authored two journal papers in 2015, one published in *Hepatology* and the other, *Nature Communications*, which I did bioinformatics data analysis. I am luckily partially in **Dr. Laurie Cook’s** NSF-funded grant and obtained a powerful computer server that will help our research. Meanwhile, the data generated from the research and the server will be valuable resources to greatly improve teaching in several courses that the department has to offer.

Lauren Benoodt graduated from Brockport after working in the lab for one year and started her Ph.D. program in Biophysics, Structural & Computational Biology at U of Rochester in Fall 2015. **Lucas Galbier**, an Honors student, joined the lab in Spring 2015 and has been working on “microRNA target prediction using

Department Achievements

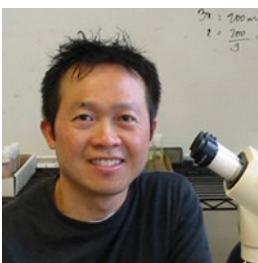
Faculty Updates

machine learning and profiles". In the summer he made much progress on building the profiles and his work was presented in Rochester Academy of Science Fall Scientific Paper Session at Finger Lakes Community College. Any students interested in bioinformatics/genomics research in my lab may contact me at rshen@Brockport.edu.



Dr. Ortega reports; our research on metabolism of dietary magnesium continues at full speed. The lab recently published a research article entitled "Hyperphosphatemia, hypocalcemia and increased

serum potassium concentration as distinctive features of early hypomagnesemia in magnesium deprived mice" in the journal "Magnesium Research". This work was co-authored by students **Jason Dey**, **Valerie Courtright** and **Jacob MacWilliams**. Other projects, looking at the implementation of new non-invasive methods to measure blood pressure in mice, or are also under way. **Jason Dey** presented his research on the effect of Avertine™ in mice blood pressure at the Rochester Academy of Science Fall Scientific Paper Session at Finger Lakes Community College. **Jacob MacWilliams** graduated and is now studying towards a PhD at the University of California, Riverside. We welcome **Oyindamola Aregbesola**, who joined the lab during the summer, and **Allie Gardella**, who joined the lab this fall.



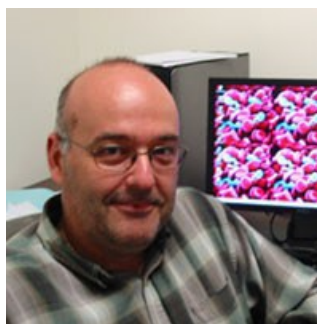
Dr Huey Hing's lab was recently successful in renewing its funding from the National Institutes of Health to continue its investigation into the mechanisms of brain development. Four undergraduate students are carrying out research in the lab this semester.

They are **Greg Ruddy**, **Devin Dunmeyer**, **Joel Baque** and **Emily Mains**. **Joel** is continuing to investigate the role of the p21-activated kinase in antennal lobe development, a project which he started last summer under the **McNaire** scholarship program. **Greg**, **Emily** and **Devin** are investigating the role of the Vang transmembrane protein in antennal lobe development.



Dr. Rey Sia writes: The research lab was pretty busy this past Summer. **Chris Prevost** successfully defended his M.S. Thesis and is currently working in the research lab of **Dr. Elaine Sia** at the Univ. of Rochester River Campus. He's continuing his research on factors involved in mitochondrial genome stability

in budding yeast. **Kathryn Wershing** and **Nate Leisenring** received Brockport Summer Undergraduate Research Fellowships and presented their work at the Institute for Engaged Learning Poster Session in Sept. **Christina Seger**, **Nicole Ashman**, and **Allsyon Burkhart** did research over the summer towards their M.S. degrees. I also want to congratulate them on passing their qualifying exams, which is an important step in the progression towards their degrees. **Melissa Stoj** is also deserving of congratulations as she was accepted into the Univ. of Buffalo School of Dentistry's Early Assurance Program. This means, as a junior, she was accepted to their dental school. Finally, this past November, **Kyle McAtee**, **Kathryn Wershing**, and **Nicole Ashman** presented their research in the form of posters at the Rochester Academy of Sciences Annual Fall Paper Presentation.



Dr. Michel Pelletier writes: I hope everyone has had a productive semester. I have been busy teaching BIO323 to mostly nursing intent students, but also some Medical Technology, and Biology majors. I am also looking forward to teach two awesome classes this coming spring semester: General Microbiology (BIO423/643), and Immunology (BIO414/514). Make sure to register as soon as possible as these classes fill up quickly.

Four undergraduate students have been working in my lab conducting research on trypanosomes, but also on more bacteriology-specific projects. **Jeleda Stewart** and **Iggy Fernandez** have been working hard on different aspects of phospholipid biosynthesis in *Trypanosoma brucei*, while **Rachel Dentico** has been screening and characterizing bacteria and fungi re-

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Faculty Updates

leased by the ventilation system in Lennon Hall. Finally, **Samantha Sherry** has been working on characterizing and testing different bacteria and molds in their ability to degrade biological wastes generated by **Dr. Ortega** mice lab.

Two graduate students, **William Bigham** and **Caitlyne Kocik**, are in the process of writing their Master thesis. While he is writing, Will has also been working as a Clinical Trials Assistant (CTA) at Vet-Pharm, a company that deals with clinical trials exclusively for companion animals. Three other graduate students are busy with classes and research: **Andrew Bumstead** and **Daniel Steiner** are hoping to graduate by the end of May, and **Ben Sargeant** is completing his first semester.

Congratulations to **Samantha Sherry** for being admitted to the Albany School of Pharmacy starting in the Fall of 2016. Great job Samantha!



Dr. Stuart Tsubota: Jacob Courtney completed his Master's degree and is looking for research positions in the Boston area. **Beresford Crick** graduated and is in the Post-baccalaureate Research Education Program (PREP Program) at the University of Rochester, working

in **Dr. Scott Butler's** lab. He is currently applying for Ph.D. programs in cellular/molecular biology. **Carmelina Derrico** passed her oral exam and is working hard on her Master's research. She is examining the role of the 3' UTR in the localization of the *e(r)* mRNA in oocytes. She is almost finished the cloning part of her project.

Dr. Tsubota took part in five performances with **BIODANCE** at the Rochester Fringe Festival in September. The first was an outside piece on the metal sculpture, *Tribute to Man*, in collaboration with Grounded Aerial who performed suspended from the top of the 21-story HSBC Plaza.

- <http://m.rochestercitynewspaper.com/rochester/photos-from-grounded-aerial/Content?oid=2634069>

The next four performances were at the Geva Theatre as part of BIODANCE's Social Justice Project.

- <http://www.democratandchronicle.com/story/lifestyle/2015/09/26/day-10-rochester-fringe-fest/72683354/>

Below are some links to YouTube videos of two of the dances.

- https://www.youtube.com/watch?v=t5RB1EYXBDw&feature=em-upload_owner
- https://www.youtube.com/watch?v=ync1xi_iWHY&feature=em-upload_owner
- <https://vimeo.com/140875037>
- <https://vimeo.com/145093347>



Biology Offers a Combined B.S. Plus M.S. Degree in 5 Years

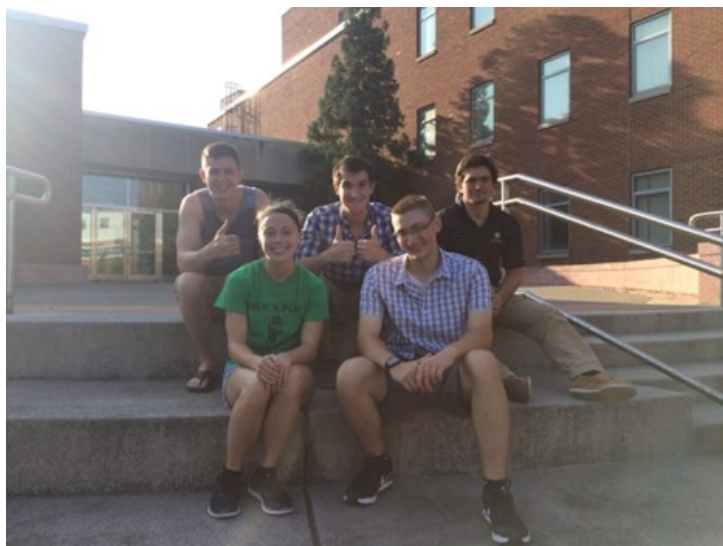
In the Spring semester of your Junior Year, you are eligible to apply for this new opportunity. If you are considering graduate work, we offer well-qualified students with a 3.25 GPA or higher the chance to get an accelerated Masters degree in one year rather than the usual two years. If you are interested, please contact Dr. Laurie Cook, 3+2 Program Coordinator.

A Word from the President of the Biology Honors Club

The Biology Honors Club has been busy this semester with a variety of activities. We started off the semester with our 1st Annual “Biology Department Kick Off” on September 4th, where we served pizza, an assortment of snacks, and drinks as well as shared great conversation with faculty, staff and other students in the Biology Department. We followed this event with our 2nd Annual Flag Football game against the Chemistry Club on October 2nd. We had a fantastic turn out and will definitely be making this event a tradition for the Biology Honors Club. Secretary, Max DeNora made a statement about the game saying, “The flag football game against the Chemistry club was a great time! I enjoyed being able to do something with the professors and other science students that was not related to our studies. I hope the tradition continues in the future!”. In addition to these events, on October 23rd, the Biology Honors Club hosted a study skills session with Dr. Algernon Kelley of the Chemistry Department. As always, Dr. Kelley grabbed the attention of many students as he presented his expertise on study skills and strategies for academic success. Lastly, club members participated in the Gilda’s Club Noogie Fest on October 30th and also set up the event the week prior, October 23rd. This event is a Halloween party that is held for children with parents battling cancer. Vice President, Bailey Majtyka attended the event and said, “Decorating for Gilda’s Club Noogie Fest was a lot of fun. It was really nice being able to give back to the local community and help out, even if it was in a small way.

We were even invited back for the actual event on October 30th. Overall, I am very proud of what the club has accomplished this semester. We are continuing to push forward with new events and providing club members a variety of opportunities on and off the Brockport campus. If you are interested in the Biology Honors Program, please download our application from the department website. Questions about membership or general information can be forwarded to me or Dr. Laurie Cook.

Nikole Van Wie,
President of Biology Honors
nvanw1@brockport.edu



Student Successes and Alumni Updates

- **Joy Wang** was accepted into an oral oncology and maxillofacial prosthodontics fellowship at MD Anderson Cancer Center.
- **Vince Badali** has returned to the area and is now practicing dentistry at CrossKeys Dental in Fairport, NY.
- **Benjamin Tentis** is living in Plattsburgh, NY working at University of Vermont Medical Center as an application analyst.
- **Colin King** is working at Roswell Park Cancer Institute as a laboratory technician.

Call for Updates!

If you are a current or former Brockport Biology Student, we want to hear about you! Please send Dr. Ortega updates on your career, education, etc. at bortega@brockport.edu in order to include them in our Departmental Newsletter!