UPBM E-Newsletter Undergraduate Program in Biology and Medicine



University photo / J.. Adam Fenster

Welcome Back UPBM!

We're so glad that we could welcome you back to Rochester, even if the semester is going to play out a little differently than normal. We'd love to know how you are all doing and how you plan to make this school year your best one yet!

If there is anything you want featured in future newsletters, or on our social media pages, please email <u>marcella.sherlock@rochester.edu</u> and we can make it happen!

Quick Links

- *** UPBM Website**
- ***** UPBM E-News Archive
- * Department of Biology Website
- * Department of Biology Contact Information

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Quick Notes

The UPBM has entered the Twitterverse! Make sure to go and give us a follow! We'll be posting content soon!



Make sure to follow us on Facebook to keep up to date with the latest UPBM events, opportunities, and important deadlines!



University of Rochester Undergraduate Program in Biology and Medicine UPBM

Head on over to Instagram to check out our page! We can't wait to have more ways to connect with you all!



<u>@ur_upbm</u>

Learned something interesting recently? Travelled somewhere new and want to share your experiences? Let us know and we can feature your story in upcoming e-newsletters.



You can email submissions to Marcie Sherlock in the UPBM office.

Meet the Biology Peer Advisors



Michaela Burrell '21

Major: Ecology and Evolutionary Biology Minor: Computational Biology Research Experience: Fry lab through the McNair Scholars and de Kiewiet Fellowship, Chen lab studying phenotypic evolution in the Florida Scrub-Jay

Activities: TA for BIOL 104K, 111, and 117P, Captain of the Women's Track and Field team Contact Information: <u>mburrel5@u.rochester.edu</u>



Erica Culbert '21

Major: Ecology and Evolutionary Biology Research Experience: Brisson Lab, Smithsonian NMNH Department of Entomology Study Abroad Experience: IES Abroad Galapagos Islands, Ecuador in Spring 2020 Activities: Pep Band, Teaching Assistant for BIO 260 (Animal Behavior)



Srilatha Edara '21





Major: Biology Minor: Business and Psychology Research Experience: Research assistant in Dr. Whasil Lee's lab on research related to ACL injury and its progression; Work as an Emergency Department Research Associate (EDRA) at Strong Memorial Hospital's Emergency Department Activities: Teaching Assistant for CHEM 203 and 204, Resident Advisor, FOS Volunteer, tutors students through RSA, Students Helping Honduras (SHH)

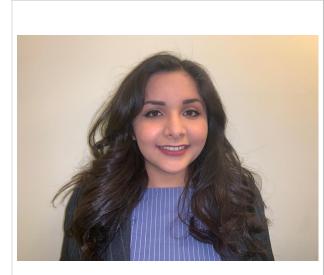
Contact Information: sedara2@u.rochester.edu

Syed Arsalan Ghani '21

Major: Computational Biology and Psychology **Research Experience:** Through researching with Dr. Laura Elenbaas (Developmental Psychology) and Dr. Nancy Chen (Computational Biology), I have learnt how to apply research and statistical methods to big data in elucidating contemporary social and biological problems. Moreover, my coursework with Dr. Joseph Ciminelli and Dr. Emil Homerin has reaffirmed my resolve to shine a light on societal inequalities.

Activities: Board of Academic Honesty, Associate Justiceon the All-Campus Judicial Council in the Student Association. In my free time, I enjoy drinking espresso and reading about religion. Contact Information: sghani@u.rochester.edu

Meet the Biology Peer Advisors



Valeria Guerra '21

Major: Biochemistry Take Five (2020-2021): Italian Language and Culture Research Experience: Ghaemmaghami Lab (Summer 2018- Present) DeKiewiet Fellow (2019) Overall Research focused on the effects of oxidation on cells and the role of methionine when oxidation occurs. Lab website: http:// www.ghaemmaghamilab.org/index.php Study Abroad Experience: IES Milan Fall 2019. Assistant at Immigration Office, Comune di Milano (Service Learning) Activities: First-Year RA, Hospice Care, Lifetime Care, Volunteer (Spanish Speaking, Workshop Leader and CETL Tutor: BIOL 110 and 111, Kearns Scholar Contact Information: pguerra@u.rochester.edu





Major: Biology Minor: Epidemiology Take Five: "We Are What We Eat: A Comparative Study between Chinese and Italian Food Culture" Research Experience: Research Assistant for the Department of Public Health and the Center for Community Health and Prevention Study Abroad Experience: 2020 Spring in Arezzo, Italy Activities: TA for BIO 110, 198, and 222, Peer Health Advocate

Contact Information: ylin69@u.rochester.edu



John Roy Lozada '21

Major: Molecular Genetics Minor: Business

Research Experience: URMC, Li Lab (Summer 2020 to Present) - RNA regulation in testicular cancer

URMC, Kim Lab (Fall 2018 to Present) - Cancer immunology and immunotherapy Dana-Farber Cancer Institute, Hahn Lab

(Summers 2018 and 2019) - Cancer genomics and RNA regulation

Memorial Sloan Kettering Cancer Center, Reis-Filho Lab (Summers 2016 and 2017) - Genetics of rare cancers

Study Abroad Experience: Nanyang Technological University, Singapore, Fall 2019 Activities: Editor-in-Chief, Journal of Undergraduate Research President, Filipino American Students' Association Contact Information: jlozada3@u.rochester.edu



De Kiewiet Summer Research Fellows 2020

The **<u>De Kiewiet Summer Research Fellowship</u>** affords undergraduate UPBM majors the opportunity to stay in Rochester during the summer to work on a research project in the lab of the research mentor of their choice.

Summer projects must be rooted in the biological sciences and non-clinical. The Fellowship runs for ten weeks between June and August. The stipend amount for each fellow is \$4,000 and is paid out in biweekly installments.

Fellows are expected to work for 40 hours a week and will need to create and present a poster of their research findings at the UPBM Poster Session in October of their fellowship year.

This past summer we were not able to host our scholars in our research labs, but we still wanted to honor their hard work and dedication that they put into their proposals. The 2020 summers fellows are:

Catherine Barker BCB '21

Title: "Generating a computational algorithm for designing probes against mammalian tRNAs" Mentor: Dr. Dragony Fu Biology

Sammy Cheng BMB '21

Title: "Life History of Wolbachia Lateral Gene Transfers" Mentor: Dr. John Werren Biology

Hannah Cook BEB '21

Title: "Nasonia in Nature: Tracking the Local Extinction of a Missing Species" Faculty Mentor: Dr. Jack Werren Biology

Gilbert Giri BCB '21

Title: "Imbalance in RNA Pol II Pausing and Its Impact on Tumor Cells" Mentor: Dr. Paula Vertino Biomedical Genetics

Nivedita lyer BBC '21

Title: "Roles of TAN1 in tRNA biology in Schizosaccharomyces pombe" Mentor: Dr. Eric Phizicky Biochemistry and Biophysics

Qingyuan Jia BMG '21

Title: "Investigate the relationship between cell reintegration and cell division" Mentor: Dr. Dan Bergstralh Biology

Maya Lippard BMB '21

Title: "Structural and Functional Analysis of a Class I Type I PreQ1 Riboswitches Mentor: Dr. Joseph Wedekind Biochemistry and Biophysics

John Roy Lozada BMG '21

Title: "Genome-wide CRISPR Screen to Identify Mediators of Myeloid Derived Suppressor Cell Differentiation" Mentor: Dr. Minsoo Kim Microbiology and Immunology

Maggie Straight BMB '21

Title: "Novel antimicrobials with activity against mycobacterium" Mentor: Dr. Martin Pavelka Microbiology and Immunology

Anika Tahsin BMG '21

Title: "Protein Crystallography: Crystallization of Engineered Myoglobin Biocatalysts" Mentor: Dr. Rudi Fasan Chemistry

Jinghong Tang BCD '21

Title: "Function of Heat Shock Factor in Normal Development and Tumor Growth in Drosophila melanogaster" Mentor: Dr. Michael Welte Biology

Biology in the News:

Anusha Naganathan Wins Grant Supporting Outreach to Incarcerated Students

Anusha Naganathan, Ph.D., who is a Research Associate in the Culver Lab and is teaching BIOL 190 this Fall, won an ASCB Public Engagement Grant this past summer to "help bring science education to students in a local prison." The grant is titled "UR Science Stories: Bringing the Experience of Scientific Experimentation to Students at Groveland Correction Facility." Her co-Principal Investigator is Eitan Freedenberg of the Rochester Education Justice Initiative (REJI).

The grant itself supports a one-year pilot project at the facility but the long-term goal is to continue their collaboration with REJI to expand to more of the local incarcerated population. This population of students happen to be "disproportionately from racial and ethnic minority communities that have historically lacked access to educational and economic opportunity."

Anusha's program will allow Department of Biology scientists, which includes undergraduates, to "develop and present a series of video- and model-based science stories in the form of a seminar course to students at Groveland Correctional Facility." Anusha's goals for the program are:

- 1. Provide a big picture view of how research happens
- 2. Create outreach opportunities for undergrads, graduate students, and postdocs to showcase their work by making short professional videos to introduce their research.

Anusha got introduced to the work that REJI does when designing an introductory biology course to teach at Groveland this semester. She knew that science courses could have a positive impact on these students after they are released and go through reintegration. The challenge. However, was teaching inquiry-based laboratory courses. When she wrote her proposal to bring live science into the classroom and have the students engage with real scientists, this is when she found REJI. They were able to offer her support and give her the necessary background information on their program in Groveland. This is also when she met Eitan.

Joshua Dubler, Faculty Director of REJI said that "Making science work in a correctional setting is a difficult challenge, and Anusha's proposal makes the absolute most of the constraints. We are thrilled to expose our students to a range of original researchers. As well, in our efforts to embed the education of incarcerated and formerly incarcerated students into the cultural life of the institution, we are so pleased to be able to work with the Department of Biology on this effort, and we look forward to many future partnerships."

During this academic year Anusha will start recruiting biology labs to participate in the program, and they will meet in the spring to develop their work. The work will be presented in a college-credited course at Groveland in Summer 2021. Very strict prison rules and COVID-19 guidelines will be challenges that the teams will need to overcome.

Congratulations Anusha, we are so proud of you!

To read the article in full, please visit <u>https://www.sas.rochester.edu/</u> bio/news-events/2020 06 29 a.naganathan corrections.html



Biology in the News:

Dr. Vera Gorbunova and Dr. Andrei Seluanov think that bats offer the clues to treating COVID-19

Bats are considered patient zero for a whole host of deadly viruses that affect humans: Ebola, rabies, and now most notably, the SARS-CoV-2 strain of virus that causes coronavirus. Humans have adverse reactions to all these viruses, however bats have shown to be incredibly tolerant of any effects, as well as have longer life-spans than other similar-sized mammals.

According to **Dr. Vera Gorbunova** and **Dr. Andrei Seluanov** "bats' longevity and capacity to tolerate viruses may stem from their ability to control inflammation, which is a hallmark of disease and aging." In a **review article**, featuring themselves and other researchers, in the journal *Cell Metabolism*, they "outline the mechanisms underlying bats' unique abilities and how these mechanisms may hold clues to developing new treatments for diseases in humans."

The idea came about when Gorbunova and Seluanov were in Singapore in March, right before the COVID-19 travel bans began. When the virus began to spread, they were quarantined in the home of their friend and colleague Brian Kennedy, who is the director of the **Centre for Healthy Aging** at the National University of Singapore. He is also the co-author of the paper.

The conversation in quarantine turned to bats. SARS-CoV-2 is believed to have originated in bats before being transmitted to humans. Like stated above, the bats aren't affected by the virus, and they have a long lifespan despite their size. Dr. Gorbunova said that "Being in quarantine gave us time to discuss this, and we realized there may be a very strong connection between bats' resistance to infectious diseases and their longevity. We also realized that bats can provide clues to human therapies used to fight diseases."

The researchers say that there are serval factors that may contribute to bats having evolved to be resistant to viruses and live long lives. Bats are the only mammals with the ability to fly, which "requires that they adapt to rapid increases in body temperature, sudden surges in metabolism, and molecular damage. These adaptations may also assist in disease resistance."

Their environment may also be a factor, as they all live in close proximity to each other and are constantly bringing new pathogens back to the cave or nest.

"The researchers anticipate that studying bats' immune systems will provide new targets for human therapies to fight diseases and aging. For example, bats have mutated or completely eliminated several genes involved in inflammation; scientists can develop drugs to inhibit these genes in humans. Gorbunova and Seluanov hope to start a new research program at Rochester to work toward that goal."

To read the full article, please visit <u>https://</u> <u>www.rochester.edu/newscenter/bats-offer-clues-</u> to-treating-covid-19-443332/



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Biology in the News:

"Two University of Rochester Department of Biology Faculty Members receive NSF Funding Awards to Study Biological Processes in COVID-19"

Congratulations to **Dr. Dragony Fu** and **Dr. Jack Werren** on receiving funding awards from the National Science Foundation (NSF) to study the biological processes involved in COVID-19. The thought is that "by better understanding the specific biological mechanisms and proteins involved in COVID-19 infection, scientists will better be able to develop effective treatments and vaccines to fight the disease."

For Dr. Fu, he says that "the central goal of our lab is to understand the functions of proteins that modify RNA. TRMT1 happens to be one of the main RNA modification proteins we study, so it was quite serendipitous that it is connected to the COVID-19 virus because we have already established tests to measure TRMT1 function in human cells."

Dr. Fu is partnering with researchers at the French National Centre for Scientific Research to "study why SARS-CoV2 interacts with TRMT1 and how the interaction affects both the virus and human cells." His hypothesis is that "the coronavirus protease cuts TRMT1, preventing the protein from modifying RNA as it normally does, and, in turn, compromising RNA's function in protein synthesis."

Dr. Elaine Sia, Professor and Co-Director of the UPBM, had this to say about Dr. Fu and his work: "Dr. Fu is well positioned to carry out these studies using the rigorous biochemical and molecular approaches that have characterized his previous research endeavors. In addition, he has the admirable ability to establish effective collaborations across the world, which has allowed him to tackle some really difficult problems in the past."

To read more about Dr. Fu's project, please visit https://www.nsf.gov/awardsearch/showAward? AWD ID=2033354&HistoricalAwards=false.

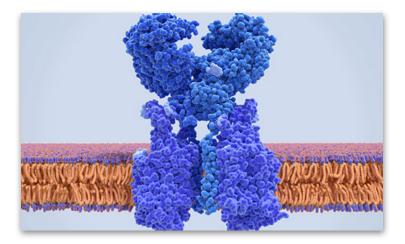
Dr. Werren is using his grant to "identify potential interactions between ACE2 and other human proteins that are involved in human health problems associated with COVID-19 infection."

Dr. Werren is using the evolutionary rate correlation (ERC) approach to identify proteins that may coevolve and interact with the ACE2 receptor on human cells.

About Dr. Werren, Dr. Sia had this to say: "Dr. Werren is an evolutionary geneticist who has applied his considerable skills to a variety of important questions over the course of his career, many of them involving the interaction of genomes in symbiotic or parasitic relationships. An examination of the interaction between the SARS-CoV2 virus and the human host cell was, therefore, a natural fit for his expertise."

To read more about Dr. Werren's project, please visit https://www.nsf.gov/awardsearch/showAward? AWD ID=2034507&HistoricalAwards=false

To read the full article, please visit <u>https://</u> www.rochester.edu/newscenter/rochesterbiologists-explore-coronavirus-and-proteinsand-covid-19-444562/



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Message from an Alumnus

Michael Gilbert '17 Biochemistry gives us insight on his research experiences as a graduate student at the University of Pennsylvania

I was fortunate to work in Dr. Vera Gorbunova's lab for over 3 years as an undergraduate at the University of Rochester researching the epigenetics of aging, where I was constantly challenged to analyze and interpret new information, as well as familiar information in unfamiliar situations. I reflect back on my time as biochemistry major, grateful for the intellectual and critical thinking skills that the biology department helped me foster. Upon graduation, I embarked on a Fulbright grant to the University of Hong Kong, where I continued to investigate the epigenetics of aging. The opportunity to see how biomedical research operates in different parts of the world has allowed me to tackle biological problems with a more multifaceted approach. After Fulbright, I followed my passion for aging research to the University of Pennsylvania in the Biochemistry and Molecular Biophysics program, where I am currently in my second year co-advised by Drs. Shelley Berger and Ben Garcia.

I was inspired by the non-model organism research in the Gorbunova lab with naked mole rats and sought to feed that interest with a new unique organism. Now I investigate aging in ants, which have many unique properties. Each ant in a colony is nearly genetically identical but exhibits exceptional morphological and behavioral diversity! In some species, workers live only 6 months, while the queen lives longer than 30 years. Given their identical genomes, the epigenome drives these incredible lifespan differences. My thesis revolves around manipulating transcription factors and histone modifications to control ant behavior. I currently focus on leafcutter ants (*Atta cephalotes*), which have 10

castes. Again, all these castes have nearly identical genomes, but exhibit vastly different behaviors and morphologies. My goal is to understand their epigenome well enough to change their behaviors. For example, can I make a soldier caste behave like a nurse? I use a combination of genomic and proteomic approaches to interrogate the epigenome and also work on a novel behavioral assay to objectively classify the leafcutter ant castes. I am excited that three more UR students, Maxx Fioriti, Alan Boka, and Zhenfeng Lui, will be joining the Penn community this fall!



Helpful Hints: Five Tips for Students Navigating a Rocky Job Market

The global pandemic has caused a lot of us to adjust our lives drastically. It's also caused disruptions in the job market. **The Gwen M. Green Center for Career Education and Connections** at the University of Rochester has a list of 5 tips for students as they navigate the next several months.

1. Relationships matter more than ever

The relationships that students form here at Rochester have always been important, but now it's even more important. With certain industry sectors and professions having a reduction of open positions, it's important to have a strong network. Good connections with people can also help you navigate the emotional, psychological and intellectual toll that post-grad life may deal. Most relationship and network building will occur virtually this year, so it's important to practice how to build connections in a virtual space.

2. Pivot and adapt to new opportunities

The pandemic may have thrown some doubt into your plans for after graduation. Maybe the industry sector you wanted to go in as been severely affected by the pandemic. The Gwen M. Green Center can help you lay out what experiences you have and apply them to a wider, more diverse field. Being able to adapt and change plans is a skill that future jobs will be looking for.

3. Patience + Persistence

Having patience and persistence will be key this year. Some organizations won't know what their needs are or will need to consistently evolve to meet current guidelines. Creating alternate plans can help mitigate some of this stress. Being aware of current news in whatever industry you want to join, following up with people, asking questions about timelines, and connecting with people will be extremely important, since human resources reps may not know specifically when positions will open up.

4. Keep learning and adding to your portfolio of skills and competencies

Because there will most likely be greater competition in certain industries, it's important to be aware of what competencies and skills are the most in-demand. If you have them, come up with ideas to best showcase them and provide examples. Expect that organizations will want to know how you can operate in a remote and virtual environment. The Greene Center has resources that can allow you to add to your body of knowledge, be in through things such as Coursera, Udemy, Kaggle, or Tableau. Think about "pitching" a virtual or remote position to companies, especially ones who don't think virtual work would be possible in their industry. You can create a great opportunity for yourself if you can show them how that type of work may be a value or asset to their organization.

5. Empathy: For yourself and others

It's important to be kind to others. The pandemic has affected people in numerous ways, and we don't know what others are going through behind closed doors. It sends a message that you respect and care for others as you go along navigating your professional life. It's also important to be kind to yourself. Make sure to find time to relax and unwind, the job hunt can be extremely stressful and taxing.



To read the full article, please visit <u>https://www.rochester.edu/newscenter/five-tips-for-students-navigating-a-rocky-job-market/</u>

Have a research topic in mind and want to get academic credit for it? Take an independent research course this year! The course is available for either 2, 3, or 4 credits.

Steps:

- 1. Find a research mentor and develop a course description
- 2. Fill out the online UPBM Pre-Registration Form
- 3. Submit the CCAS Independent Study Form

In-person independent studies are allowed to go on until Wednesday, November 25th, 2020, when all courses must move to online instruction. Instructors of courses that need to start after the deadline will need to provide a brief explanation of contact hours to justify the number of credit hours the course is taken. Instructors can send letters of justification to the UPBM Directors' care of Marianne Arcoraci at email: marianne.arcoraci@rochester.edu.

Important deadlines for Fall 2020:

4 Credit 395 Courses: -Must start course by 8/31 -Submit Online UPBM Pre-Registration Form by 8/28 -Submit CCAS Independent Study Form

3 Credit 395 Course: -Must start course by 9/14 -Submit Online UPBM Pre-Registration Form by 9/11 -Submit CCAS Independent Study Form

2 Credit 395 Course: -Must start course by 10/12 -Submit UPBM Pre-Registration Form by 10/09 -Submit CCAS Independent Study form

Important deadlines for Spring 2021:

Dates for Spring 2021 TBD

For more detailed information visit our **Independent Research** webpage!

If you are a senior UPBM student with a 2.7 GPA and have research you would like to present, you can apply for the Honors in Research program.

To qualify, you must have "a novel body of work that includes publication-quality data from which to generate a senior thesis." If chose, candidates would need to defend their thesis before a faculty examination committee.

Upon completion, the student would have "Honors in Research" noted on their transcript and be given a certificate at their diploma ceremony.

Students must submit an <u>Application for</u> <u>Candidacy</u> by March 1st, 2021. If you are a T-5 student, you may apply for this during your 5th year.

The thesis paper must be at least 20 pages, written as a scientific paper, and be properly referenced. The committee members and the UPBM Administrator must be provided copies of the paper prior to the thesis defense. The results from the committee must be submitted to the UPBM office in writing by the **end of the first week of May.**

For more information, visit the <u>Honors in</u> <u>Research</u> page on our website!



University of Rochester Department of Biology Donut Talks Fall 2020

Sept 14 Monday	Dr. Michael Lampson, University of Pennsylvania, Department of Biology "Violation of Mendel's First Law: Centromere drive and suppression in meiosis"
Sept 21 Monday	Dr. Andrew Gordus, John Hopkins University, Department of Biology "Untangling the web of behaviors employed in spider orb weaving"
Sept 28 Monday	Dr. Michelle Starz-Gaiano, UMBC, Department of Biological Sciences "Genetic regulation and the influence of tissue structure on cytokine signaling and collective cell migration in <i>Drosophila</i> "
Oct 5 Monday	Dr. Hyun Youk, Delft University of Technology, Department of Biology "At the cusp of life and death: A case study in baker's yeast"
Oct 12 Monday	Fall Break – No Seminar Scheduled
Oct 19 Monday	Dr. Sohini Ramachandran, Brown University, Department of Ecology and Evolutionary Biology "Leveraging linkage disequilibrium to characterize human complex trait architecture"
Oct 26 Monday	Dr. Shelby Blythe, Northwestern University, Department of Molecular Biosciences "Building patterning-dependent chromatin states during development"
Nov 2 Monday	Dr. Holly Lovegrove, University of Manchester, Department of Developmental Biology & Medicine "TBA"
Nov 9 Monday	Dr. Karine Gibbs, University of California, Berkeley, Department of Plant & Microbial Biology "How bacteria can use a local sense of identity to shape community assembly and movement"
Nov 16 Monday	ТВА
Nov 23 Monday	ТВА
Nov 30 Monday	Dr. Sharlene Santana, University of Washington, Department of Biology "TBA"
Dec 7 Monday	Dr. Buz Barstow, Cornell University, Department of Biological and Environmental Engineering "What is the efficiency of microbial electrosynthesis?"
	Seminars will be held on Mondays at 12:00 p.m. via Zoom This schedule can be found on the Biology Department Seminar Calendar: <u>http://www.rochester.edu/College/BIO/seminars.php</u>

This schedule can be found on the Biology Department Seminar Calendar: <u>http://www.rochester.edu/College/BIO/seminars.php</u> or on the U of R Medical Center Scientific Events Calendar: <u>http://www.urmc.rochester.edu/calendar/</u>

Society of Undergraduate Biology Students

"Our purpose is to promote faculty-student interaction, to serve as a guiding force for Biology majors/interests, provide networking opportunities through events, and to cater to the needs of the membership through member input."

Membership allows students to have a better connection with professors through research panels, luncheons, and even volleyball. There are weekly study groups and membership would allow for research shadowing program eligibility.

Their executive board is as follows: President - Rui Ting Liang President - Shuang Qing Secretary - Marjorie Rowe Publicity Chair - Kylah Rendell Business Manager - Alexys Gayne Research Chair - Rohitkumar Marol Adivsor - Madeleine Aborn



You can follow them on social media by visiting their **<u>Facebook Page</u>** or **<u>Instagram</u>**. Head to their **<u>website</u>** to join or find out more information!

Upcoming Events

Red Cross Blood Drive: Corporate Woods September 11th: 9:00 a.m. - 2:00 p.m. Pre-scheduled appointment suggested Event link

Biology E2G2 Seminar - Emery Longan September 11th: 3:00 - 4:00 p.m. Online via Zoom, registration required <u>Event Link</u>

Biology Donut Talk - Michael Lampson September 14th: 12:00 - 1:00 p.m. Online via Zoom, registration required **Event Link**

Presidents' Roundtable September 15th: 6:00 - 7:00 p.m. Online via Zoom, registration required **Event link**

URBEST Career Story: Brett Mulvey September 17th: 11:00 a.m. - 12:00 p.m. Online via Zoom, registration required **Event Link** Kearns Scholar 101: First Gen for the Win! September 17th: 1:00 p.m. - 2:00 p.m. Online via Zoom <u>Event Link</u>

Graduate Women in Science Meeting September 17th: 3:00 - 4:00 p.m. Online via Zoom, registration required **Event Link**

Drop-In e5 Info Session September 22nd: 2:00 - 3:00 p.m Online via Zoom **Event link**

Fall Career Expo 2020 September 24th: 3:00 - 6:00 p.m. Online via Zoom, registration required <u>Event Link</u>

EPA Internships in Europe Info Meeting September 25th: 3:00 - 4:00 p.m. Online via Zoom **Event Link**

Opportunities

Alaskan Observers North Pacific Ground Fish Observer North Pacific Ground Fish Observer Position Openings

Albert Einstein College of Medicine Summer Undergraduate Research Program

Amgen Scholars Amgen Scholars Program

Animal Care Sanctuary Pre-Veterinary and Animal Science Internships

Boise State University REU in Raptor Research

Boyce Thompson Institute Summer Internship

Caltech Wave Fellows

Case Western Reserve University Summer Programs

Cincinnati Children's Hospital Summer Undergraduate Research Fellowship (SURF)

City Internships Program Overview

Cleveland Clinic Center for Reproductive Medicine Summer Mentorship Program

Cold Spring Harbor Watson School of Biological Sciences Summer Undergraduate Research Program

Cornell University Boyce Thompson Institute for Plant Research Internships Agritech

Coastal Marine Education and Research Academy Summer Field Research

Davis Projects for Peace Kathryn W. Davis Projects For Peace

Deutscher Akademischer Austausch Dienst (DAAD) Paid Research Internships in Germany

Donald Danforth Plant Science Center Danforth Center Summer Internship Program Duke University Science & Society Leadership Award

EPA Internships Medical Research and Health Science Internships Available in Europe!

Fred Hutch Cancer Research Center Internships in Scientific Research or Medicine Summer Undergraduate Research Program

Fulbright Scholarship US Student Program

Gerstner Sloan-Kettering Summer Undergraduate Research Program

GEHI Ghana Health and Education Initiative

Goldwater (Barry) Scholarship Scholarship & Excellence in Education Program

Harvard Forest Summer Research Program in Ecology

Harvard School of Public Health Summer Program in Biological Sciences Public Health

Institute for Health Metrics and Evaluation (IHME) Post-Bachelor Fellowship

Journal of Young Investigators Article Submission Requirements

Louisiana University Marine Consortium Research Experience for Undergraduates

MATCH Education Teacher Residency

Mayo Clinic Summer Undergraduate Research Fellowship

MedLife Student Opportunities

Michigan State Veterinary Enrichment Summer Program

National Collegiate Research Conference (NCRC) NCRC 2020 Applications

Opportunities

Nemours/Alfred I. duPont Hospital for Children and Nemours Office of Health Equity and Inclusion Summer Undergrad Research Scholarship

Nobel Research Institute Scholars in Agriculture Scholars in Plant Science

One Heart Source Volunteer Opportunities in Africa

PIRG - Job Openings for Graduating Seniors Jobs

Roswell Park Cancer Institute Summer Research Experience Program in Cancer Science

Southern Teaching Agency Spring Job Fairs

Stowers Institute for Medical Research Stowers Summer Scholars

SUNY Oswego Global Laboratory Summer Science Research Abroad

Teach for America Opportunities

Texas Tech University Health Sciences Center Summer Accelerated Biomedical Research Internships

The UNCF Merck Science Initiative Science Scholarships and Fellowships

University of Iowa Summer Undergraduate MSTP Research Program

University of Michigan Summer at Michigan for Undergraduate Research Training

University of Missouri MU-ARTSS Internship

University of Notre Dame Environmental Research Center Research

University of Rochester deKiewiet Summer Fellowship Research Initiative Award for Undergraduates Udall Unergraduate Scholarship Undergraduate Research Exposition (URE) University of Texas South Western Amgen Scholars Program Summer Undergraduate Research Fellowship SURF

University of Utah Summer Program for Undergraduate Research (SPUR)

University of Virginia / Mountain Lake Biological Station Summer Research Experiences of Undergraduates

Upstate Medical University Summer Undergradute Research Fellowship

West Virginia University Center for Neuroscience Summer Undergraduate Internship SURI Program

The Woodrow Wilson National Fellowship Foundation Teaching Fellowships

World Teach Programs

Yale Autism Center of Excellence Yale Fellowship in Developmental Neuroscience of Autism

Graduate Studies

Albert Einstein College of Medicine Biomedical Sciences

Arizona State University Science and Technology Policy

UC Berkley Metabolic Biology Molecular Toxicology

Cedars-Sinai Medical Center Ph.D. in Biomedical and Transitional Sciences

Cornell University Ecology & Evolutionary Biology

Duke University Neurobiology | Program in Genetics & Genomics

George Washington University Environmental Resource Policy Program

Harvard Medical School Master of Medical Science in Immunology

Harvard-School of Public Health Ph.D. Program in Biological Sciences in Public Health

Icahn School of Medicine at Mount Sinai Graduate School of Biomedical Sciences

Indiana University Biochemistry Graduate Program

Michigan State University College of Veterinary Medicine Graduate Programs

Penn State College of Medicine Ph.D. Programs | MS Programs

Salisbury University Master of Science in Applied Biology

Seton Hall University MS Biology I MS Microbiology I Ph.D. Molecular Bioscience

St. Jude Graduate School Biomedical Sciences

Stowers Institute for Medical Research Stowers PhD Program

Stony Book University Neuroscience Masters and Ph.D. Program

Texas Tech University School of Biomedical Sciences

University at Buffalo Ph.D. Biomedical Science University of California, Los Angeles Ecology & Evolutionary Biology

University of Colorado Structural Biology & Biochemistry Program

University of Iowa College of Medicine Degree Programs

University of Maryland Biophysics Program

University of Massachusetts Dartmouth Marine Science and Technology

University of Michigan Graduate School Hub *New Medical School Program

University of Pennsylvania Graduate Program in Biology

University of Pittsburg Biological Sciences Programs

University of Rochester Graduate Program TEAM-BMTD Department of Biostatistics and Computational Biology

University of South Florida Graduate Programs

University of Utah Bioscience Programs

University of Virginia School of Medicine

Upstate Medical University Graduate Studies I M.D./Ph.D.

Van Andel Institute Ph.D. in Molecular and Cellular Biology

Vanderbilt University Neuroscience Graduate Program

Virginia Tech Molecular and Cellular Biology Ph.D. Program

Watson School of Biological Sciences Ph.D. Program

Wake Forest University M.S. and Ph.D. in Biology

Woodrow Wilson Graduate School Graduate School of Teaching and Learning

Helpful Links

- * Athletics
- * Center for Excellence and Teaching
- * Center for Study Abroad
- * Counseling Center
- * Department of Biology
- * Dining
- * Directory
- * English Language Program
- * The Greene Center for Career Education & Connections
- ***** Facilities
- * Journal of Undergraduate Research (JUR)
- * Kaplan Test Prep and Admissions
- ***** Libraries
- * Multidisciplinary Studies Center
- * Pre-Med and Allied Health Professions Advising
- * Research Connections Newsletter
- ***** Rochester Academy of Science
- * Undergraduate Program in Biology and Medicine
- * Undergraduate Research Office
- * University Health Services

Feedback and Submissions

Have any interesting stories or events coming up you want featured in future newsletters? Please let us know! We would also love to hear your feedback so that we can improve upon future newsletters. You can email <u>marcella.sherlock@rochester.edu</u> with comments, questions, or concerns.

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Contact Us

Dr. Cheeptip Benyajati

Director of UPBM: Email: <u>cheeptip.benyajati@rochester.edu</u> Phone: 585-275-8040

Dr. Elaine Sia

Associate Chair of Biology Department / Director of UPBM Email: <u>elaine.sia@rochester.edu</u> Phone: 585-275-9275

Dr. Danielle Presgraves

Assistant Professor of Instruction / Associate Director for Student Affairs Email: <u>danielle.presgraves@rochester.edu</u> Phone: 585-275-2634

Marianne Arcoraci

UPBM Program Manager & Curriculum Advisor Email: <u>marianne.arcoraci@rochester.edu</u> Phone: 585-275-3850

Allyson DeBoard

Undergraduate Course Coordinator Email: <u>allyson.deboard@rochester.edu</u> Phone: 585-275-5181

Marcella Sherlock

Undergraduate Secretary Email: <u>marcella.sherlock@rochester.edu</u> Phone: 585-273-3685

