UPBM

UNDERGRADUATE PROGRAM IN BIOLOGY AND MEDICINE

E- NEWSLETTER

TABLE OF CONTENTS

This E-Newsletter is dedicated to the class of 2021 and all their accomplishments. Although your time here as an undergraduate has come to an end, you have left an everlasting impact on the University of Rochester.

Graduation is always bittersweet and we will miss you all dearly. We know that whatever the future has in store for you, you will be able to tackle any and all challenges that come your way.

Please make sure to stay in touch and if you're ever in the Rochester area, we would love for you to pop in to say hello!

-The UPBM Office

UPBM Class of 2021 Graduates

Bachelor of Science
Molecular Genetics
Alexander Anderson
Emily Andrews
Merle Becker
Mairead Bresnahan ΦBK
Sarah Chan
Bahawar Dhillon
Shekina Emongo
Sierra Falcone T5
May Goldberg ΦBK
Jordan Gregg
Qingyuan Jia T5, ΦBK
Yue Lin Hu ΦBK
Tori Lader
Camila Lage Chavez T5
Chia-yu Liu
Michael Liu
Jon Roy Lozada
Samantha Macchioni
Genevieve Putnam
Nabil Fazleh
Thea Riley
Yeonseong Seo
Rebecca Simons
Anika Tahsin ΦBK
Paige Van Haute
Greg Zapas

Bachelor of Science
General Biology
Bianca Hall
Susanna Huang
Shourya Jain MCL, ΦBK
Yifei Lin MCL, T5
Changze Liu
Margaret Peo
Omaira Rivera T5
Steve Stephen MCL, ΦBK
Jacob Stern
Ling Na Zhang

Bachelor of Science
Neuroscience
Nicholas Abraham
Noah Balestra MCL
Robin Barbour
David Belkin
Deziree Bell
Lydia Borsi
Mateo Boulos MCL
Olivia Brumfield MCL
Kayla Burrowes
Lia Calcines Rodriguez
Robert Cao
Jeronimo Cardona
Sarah Cawley
Ananya Chauhan
Abigail Combs
Alexa Courtepatte
Robert Deleon-Kollmer
Antonia Demopoulos
Annie Duan
Maria Favella
Daniel Garcia
Karen Gordon
Tonie Hahn T5
Su Bin Jang MCL
Elizabeth Karpman
Emily Lainoff SCL
Eleanor Lena CL
Lijing Lin CL
Stefanie Ma CL
Sabrina Mai T5
Hari Mandeln
Evelyn Matei CL, **
Jessica Mitchell
Divya Naidu
Vivek Nithipalan MCL, ΦBK
Eimi Oda
Saskia Paines
Samuel Pronovost
Michelle Qiu MCL
Spencer Rosero
Shelby Sabourin CL
Shinya Sakurai MCL
Leah Sikand CL
Bradley Smith
Benjamin Srajer MCL, ΦBK
Kayla Ucciferri CL
Grace VanGorder
Gaayathri Varavenkataraman
Rochelle Vassell
Chethana Venkatraman
Josephine Wanner
Maia Warner
Madeline White

Bachelor of Arts
Biological Sciences
Rachel Aiudi
Mashael Alkhaled
Mnair Alkhaled
Eddyson Altidor CL
Bryon Arevalo
Nayab Arshad
Zainab Bah
Ivana-re Baldie
Muamer Brka
Elois Chan CL
Yaal Dryer
Srilatha Edara CL
Mason Grimes ΦBK
Paul Guirguis CL
Johanny Hernandez
Hannah Holquist
Wanyin Hu CL
Andrew Kaseman
Klotoume Kromah
Angelo McCullough
Alydia Meinecke SCL, ΦBK
Samantha Mensa
Alina Mueller
Katherine Murphy T5
Delilah Przybyła
Ankit Punreddy CL
Jonathan Rosales
Aditya Seshardi SCL, ΦBK
Brooke Smith CL
Yi-de Tai CL
Bhavana Upadhyaya MCL, ΦBK
Victoria Vasquez
Tracy Xu

Bachelor of Science
Biochemistry
Raza Ahmed CL
Kawthar Alashoor
Molly Behan **
Destinee Bell
Andrew Deng **
Anna Gao ΦBK
Paula Guerra T5
Nivedita Iyer MCL, **
Emily Laskey MCL, **
Emily Loose T5
Meghan Martin CL
Alexis Pope CL, ΦBK
Kristian Saeter
Joseph Sanabria Amaro
Asir Savdharia T5
Minhtam Tran CL
Jason Weeks MCL
Selina Ka Lam Xu CL

Bachelor of Science
Computational Biology
Catherine Barker MCL, ΦBK
Perya Bhadchandani CL
Tamanna Bhatia T5
James Chaffer
Jackson Faulx
Yuewei Fei
Alana Ferris T5
Syed Arsalan Ghani T5
Gilbert Giri CL
Jamie Huber
Michael Lansford MCL
Matthew Le
Shanghai Ma MCL
Kyle Magee
Samantha Mauser MCL
Athena Mustakis
Fariha Nuha
Abhijna Reddy CL
Gladiana Spitz

UPBM Class of 2021 Graduates

Tyler Stahl CL
Shama Varghese
Gefei Yu CL
Qizhe Zhang
Yijin Zhao
Yujie Zhao MCL
Benyu Zhou

Bachelor of Science
Cell and Developmental Biology
Alana Ferris
Hannah Foster CL
Juliana Greene
Karyssa Harris CL, ΦBK
Yu Jin Ko
Kathleen Mulhern MCL
Sayuj Narayan
Emily Schiller MCL, ΦBK, **
Ava Schwartz CL
Isabel Sia MCL, ΦBK, **
Jianing Song T5
Gladiana Spitz **
Himal Subramanya
Jinghong Tang CL, **
Zivile Verbaite MCL

Bachelor of Science
Ecology and Evolutionary Biology
Michaela Burrell T5
Deniz Cengiz
Jordyn Condrate
Hannah Cook CL, **
Erica Culbert
Simeng Hao
Julia Hyatt
Christopher Penman
Caitlyn Ransom
Joel Reiter
Tyler Stiggers
Dakota Wheeler
Caroline Wilcox

Bachelor of Science
Microbiology
Yaw Agyarko Jr.
Lisa Barash CL
Shannon Brady
Johnathan Caldon MCL
Sammy Cheng MCL, **
Donghyuk Choi
Haley Cohen SCL, ΦBK
Aidan Colin Eldridge
Paola Ferreira
Angus Fuori
Clare Heffernan
Khoa Tuan Hoang T5, ΦBK
Gabriel Isaacson CL
Chloe Jones CL
Harrison Kern
Bailey Kinn
Gregory Kirchoff
Krishni Kumaresan CL
Elizabeth Kunes
Xiang Li
Rui Ting Liang MCL
Maya Lippard CL, **
Luis Luy
Jorge Matute
Betelhem Nibret
Kira Ozer
Mary Panepento MCL
Claire Diane Paulsen
David Personius
Rafael Ramirez
Joty Rashid
Marjorie Rowe
Sonakshi Sharma CL
Paige Smith CL
Maggie Straight MCL, **
Sophia Tilkin
Evrim Topal

Symbols Key
- Cum Laude -CL
- Magna Cum Laude - MCL
- Summa Cum Laude - SCL
- Take 5 Scholars - T5
- Phi Betta Kappa - ΦBK
- Honors in Research - **

HONORS IN RESEARCH

The Undergraduate Program in Biology and Medicine (UPBM) provides majors in the B.S. or B.A. tracks the opportunity to graduate with honors in research. Students must achieve a minimum GPA of 2.7 and defend their written thesis at a meeting of their advisory committee.

Most students seeking a degree with honors in research have worked on a research project for a year or more and have achieved significant results. Those who complete their research and then write and successfully defend a senior thesis are rewarded with the phrase "Honors in Research" added to their transcripts. This year, the following graduates earned honors in research:

CLASS OF 2020

Eric Albuquerque '20 BNS
Thesis: "*Comparison of Neuronal Activity in the Medial and Ventral Prefrontal Cortices During"Audiovisual Working Memory in Nonhuman Primates*
Sponsor: Dr. Lizabeth Romanski
Neuroscience

Kamel Awayda '20 BBC
Thesis: "*Characterization of THUMP Domain-Containing Protein 1, A Putative Regulator of RNA Modification"*
Sponsor: Dr. Mitchell O'Connell
Biochemistry and Biophysics

Anson Cheng '20 BNS
Thesis: "*The Role of TG2 in Astrocytic Modulation of Neurite Outgrowth and Synapse Formation"*
Sponsor: Dr. Gail Johnson
Anesthesiology and Perioperative Medicine, Pharmacology and Physiology, Neurotherapeutic Discovery

Brandon Courteau '20 BBC
Thesis: "*Characterization of a Plasticity Associated horizontal Gene Transfer in Acyrthosiphon pisum"*
Sponsor: Dr. Jennifer Brisson
Biology

Brandon Dexter '20 BMG
Thesis: "*Identifying vttRA Regulatory Proteins in T3SS(+) Vibrio cholerae* "
Sponsor: Dr. Michelle Dziejman
Microbiology

Alessandra DiMauro '20 BCD
Thesis: "*Prolactin is Expressed in Uterine Leiomyomas and May Promote their Growth"*
Sponsor: Dr. Stephen Hammes
Department of Pharmacology and Physiology, Department of Pathology and Laboratory Medicine

Maxxum Fioriti '20 BMG
Thesis: "*Mapping the Site of SIRT6 Self-Ribosylation to Determine in vivo Relevance"*
Sponsor: Dr. Vera Gorbunova
Biology

Roisin Flanagan '20 BMG
Thesis: "*Analyzing X-Linked Hybrid Male Sterility Between Drosophila Sister Species"*
Sponsor: Dr. Daven Presgraves
Biology

Yidan Gao 20' BMB
Thesis: "*Role of Senescence in Irradiated Salivary Glands"*
Sponsor: Dr. Catherine Ovitt
Biomedical Genetics

Maria Cristina Gil Diaz '20 BNS
Thesis: "*Bisphosphonates: Mechanism of Action and Effects of Zoledronic Acid tTeatment on Bone Outcomes in Primary and Secondary Osteoporosis"*
Sponsor: Dr. David R. Weber
Pediatrics Endocrinology

Aurakoch Harnpramukkul '20 BNS
Thesis: "*Effect of Anticipated Water Intake on Glymphatic Influx"*
Sponsor: Dr. Maiken Nedergaard
Center of Translational Neuromedicine

Jordan Hurlbut '20 BMB
Thesis: "*Identification of Novel Markers of ER Stress using EGFP CD-Tagging"*
Sponsor: Dr. Marc Halterman
Neurology

Madina Jumabaeva '20 BMB
Thesis: "*Comparison of Infant Fecal Bifidobacterium spp. and Bifidobacterium longum subsp. infantis Proportions Between Cohorts at High and Low Risk for Allergy"*
Sponsor: Dr. Kirsi Jarvinen-Seppo
Pediatric Allergy and Immunology

Aidan Kendra '20 BBC
Thesis: "*SUMO Represses Diverse Proteostatic Stress Responses in Caenorhabditis elegans"*
Sponsor: Dr. Andrew Samuelson
Biomedical Genetics

Arianna Lopez '20 BMB
Thesis: "*Evaluating the Dissemination, Survival, and Pathogenicity of Mycobacterium abscessus Smooth and Rough Morphotypes in Tadpole and Adult Xenopus laevis"*
Sponsor: Dr. Jacques Robert
Microbiology

Colleen Maillie '20 BCB
Thesis: *Computationally Modeling ClpX for Exploring Mechanism and Re-Design*
Sponsor: Dr. Anne Meyer
Biology

Tiana Rohe '20 BBC
Thesis: "*Structure and Function Analysis of a PreQ1-III Riboswitch from Faecalibacterium prausnitzii"*
Sponsor: Dr.Joseph Wedekind
Biochemistry and Biophysics

Yifan Shen '20 BMB
Thesis: *Defining Small RNA-Mediated Anti-Viral Mechanisms in Cats*
Sponsor: Dr. Xin Zhiguo Li
Department of Biochemistry and Biophysics

Alexandre Trapp '20 BCB
Thesis: *Comparative Biology of Mouse, Human, and Naked Mole-Rat mesenchymal stromal Cells Reveals Distinct ex vivo Phenotypes*
Sponsor: Dr. Vera Gorbunova
Biology

Austin Varela '20 BCB
Thesis: *Evolutionary Rate Correlations: A Tool to Predict Protein-Protein Interactions*
Sponsor: Dr. John Werren
Biology

Amanda Waugh '20 BMB
Thesis: *Identifying Regulators of vttRA Gene Expression*
Sponsor: Dr. Michelle Dziejman
Microbiology and Immunology

…continued on page 6

HONORS IN RESEARCH

CLASS OF 2021

Molly Behan ’21 BBC
Thesis: “*Exposure to Oxygen at Birth Suppresses DLK1-Meg3 Locus in Alveolar Epithelial Type II Cells”*
Sponsor: Dr. Michael O’Reilly
Pediatrics, Neonatology

Sammy Cheng ’21 BMB
Thesis: “*Nasonia in Nature: Local Extinctions and Range Expansions”*
Sponsor: Dr. John Werren
Biology

Hannah Cook ’21 BEB
Thesis: “*Nasonia in Nature: Local Extinctions and Range Expansions”*
Sponsor: Dr. John Werren
Biology

Andrew Deng ’21 BBC
Thesis: “*Optimizing the Synthesis of Putative CCR5 RNA Binding Ligands Synthesized using the 2,5-DKPs as a Scaffold*"
Sponsor: Dr. Benjamin Miller
Biochemistry

Nivedita Iyer ’21 BBC
Thesis: *The Role of tRNA Acetyltransferase Subunit Tan1 in Schizosaccharomyces pombe”*
Sponsor: Dr. Eric Phizicky
Biochemistry and Biophysics

Emily Laskey ’21 BBC
Thesis: “*Investigating the Prevention and Treatment of Staphylococcus aureus Infections* “
Sponsor: Dr. Paul Dunman
Microbiology and Immunology

Maya Lippard ’21 BMB
Thesis: “*Structural and Functional Analysis of a Class I NadA Riboswitch from Acidobacterium ailaaui*"
Sponsor: Dr.Joseph Wedekind

Evelyn Matei ’21 BNS
Thesis: “*The Role of the Lipid Kinase PI3Kg in Regulating Microglial Characteristics in the Healthy and Injured Brain”*
Sponsor: Dr. Ania Majewska
Neuroscience

Emily Schiller ’21 BCD
Thesis: “*The Interaction between Dlg and GPSM2/Pins: an Evolutionary Perspective”*
Sponsor: Dr. Daniel Bergstralh
Biology

Isabel Sia ’21 BCD
Thesis: “*V. cholerae vttRC Expression and Activity”*
Sponsor: Dr. Michelle Dziejman
Microbiology and Immunology

Gladiana Spitz ’21 BCB
Thesis: “*Indirect Genetic Effects of Social Interactions on Juvenile Fitness in the Florida Scrub-Jay”*
Sponsor: Dr. Nancy Chen
Biology

Maggie Straight ’21 BMB
Thesis: “*Characterizing Novel Natural Antimicrobials”*
Sponsor: Dr. Martin Pavelka
Microbiology and Immunology

Jinghong Tang ’21 BCD
Thesis:” *Linking the Function of Heat Shock Factor in Tumor Progression with Normal Development in Drosophila melanogaster”*
Sponsor: Dr. Michael Welte
Biology

THANK YOU PEER ADVISORS

The 2020-21 academic year marks the 6th year that the UPBM has participated in the College's Peer Advising Program. Our peer advisors are a great resource for both current and prospective students. They can help them navigate college life, answer questions regarding academics, schedules, as well as just being a shoulder to lean on.

We are so grateful for this years Peer Advisor's and we cannot thank you enough for all the help you have been. We are excited to see where your life takes you and we hope your experiences here at the University of Rochester have made a lasting impact.

Michaela Burrell BEB

Valeria Guerra BBC

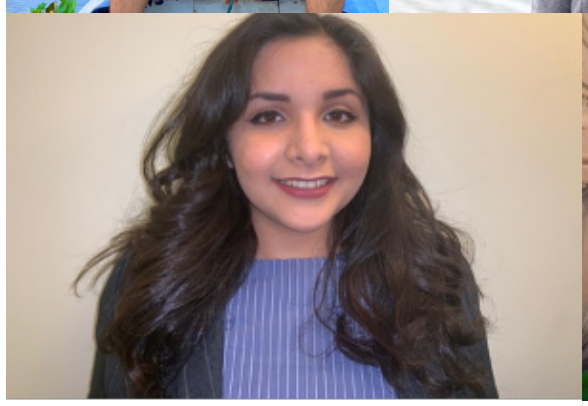
Erica Culbert BEB

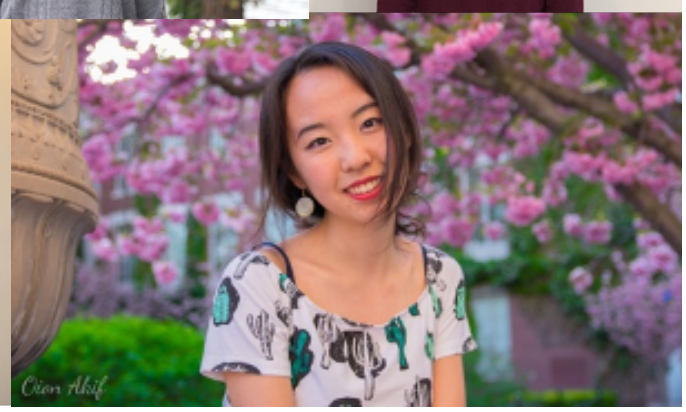
Sylvia Lin BIO

Srilatha Edara BIO

John Lozada BMG

Syed Arsalan Ghani BCB,PSY





ARS GHANI '21 BCB/PSY T5

"I was and I continue to be honored to be a peer advisor for UPBM. It has been very fulfilling to help out students, younger and older, with course selections, time management, career planning, and research opportunities. I feel that the peer advisor role became especially salient during the pandemic simply because students reached out more as the face-to-face conversations that usually took place before and after lectures with peers and professors declined. Therefore, I am glad that the College Centre for Advising Services and UPBM had put into place excellent and time-sensitive resources, such as trained peer advisors, to help students navigate the uncertain and turbulent times.

I have learnt so much from everyone that I have advised, and I can distill it all in one sentence: *do not be afraid to change your path, career or otherwise, even if you think it is too late; your life's trajectory depends on your awareness of your own situation*.

That being said, please apply as a peer advisor as applications are open. It is rewarding and ensures that you pass down your knowledge from the four-years besides the Genesee to a new generation.

I will continue to be around as a Take-5 student: please reach out to me at: sghani@u.rochester.edu."

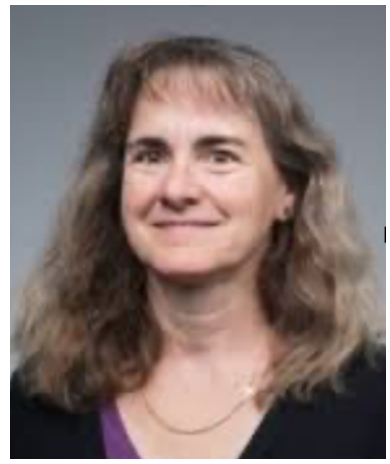
-Syed Ars Ghani BCB

Tribute to Biology Teaching

Dr. Cheeptip Benyajati, Ph.D.
UPBM Co-Director
Associate Professor

"We would like to acknowledge the unsung heroes of our program - our undergraduate teaching assistants. They are the real agents of change by offering themselves as strong role models, cheerleaders, counselors, as well as tutors. They share our pain when our students don't do quite as well as expected, politely point out small mistakes that instructors make before they can become larger ones, and work tirelessly with their students. They accept without reservation the charge to become true advocates for their peers."

"In a normal year, Biology faculty are dependent on the efforts of our teaching assistants to provide small group instruction to our students. As we all know, the 2020-2021 academic year was not a normal year. I could not have run my courses without the exceptional efforts of the TAs for my courses. They stepped up to go above and beyond their usual duties to make sure that the student experience would be as engaging as possible in the hybrid environment. I am so grateful for the commitment of these students to our teaching mission. They all had to do more for us, while still pursuing their own studies at such a difficult time."

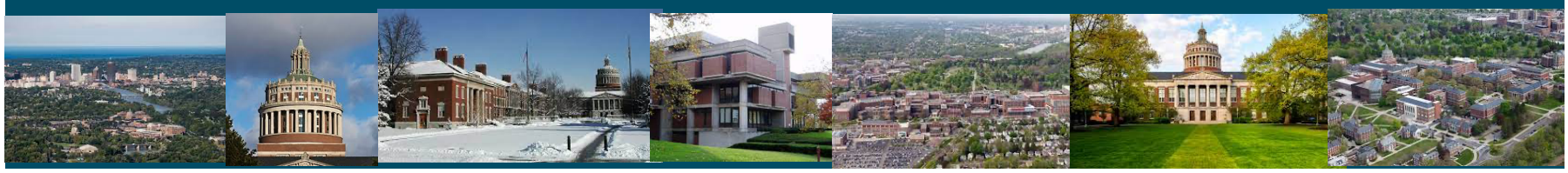


Dr. Elaine Sia, Ph.D.
UPBM Co-Director
Associate Chair, Professor

This Year's "*Unsung Academic Heroes*" *Meliora!*

Kawthar Alashoor
Addison Altidor
Emily Andrews
Lisa Barash
Catherine Barker
Perya Bhagchandani
Mairead Bresnahan
Muamer Brka
Michaela Burrell
Eloise Chan
Sammy Cheng
Haley Cohen
Hannah Cook
Erica Culbert
Sierra Falcone
Hannah Foster
Anna Gao
Syed Arsalan Ghani
Gilbert Giri
May Goldenberg
Paula Guerra
Paul Guirguis
Bianca Hall
Khoa Hoang
Yue Lin Hu
Julia Hyatt
Gabriel Isaacson
Nivedita Iyer
Su Bin Jang
Qingyuan Jia
Harrison Kern
Gregory Kirchoff
Krishni Kumaresan
Camila Lage Chavez
Emily Lainoff
Emily Laskey
Eleanor Lena
Rui Ting Liang
Yifei Lin
Chia-yu Liu
Samantha Macchioni
Jorge Matute
Angelo McCullough
Alydia Meinecke
Kathleen Mulher
Athena Mustakis
Sayuj Narayan
Mary Panepento
Claire Paulsen
Alexis Pope
Joel Reiter
Shinya Sakurai
Ava Schwartz
Yeonseong Seo
Sonakshi Sharma
Isabel Sia
Leah Sikand
Jianing Song
Gladiana Spitz
Steve Stephen
Jacob Stern
Maggie Straight
Anika Tahsin
Jinghong Tang
Kayla Ucciferri
Bhavanna Upadhyaya Chethana Venkatraman
Maia Warner
Jason Weeks
Dakota Wheeler
Greg Zapas
Benyu Zhou

UNDERGRADUATE RESEARCH EXPOSITION



The annual Undergraduate Research Exposition is a College-wide event in which University of Rochester students at all levels and in all areas of study are invited to present their investigative and creative work. The Expo reflects the passion for learning that enlivens the University, professors and students alike, and that finds expression in varied forms, in every area of study.

Merle Becker BMG
Presentation: "*The Role of Arylsulfatase b in Morph Determination"*
Sponsor: Dr. Jennifer Brisson
Biology

Molly Behan BBC
Presentation: "*Exposure to Oxygen at Birth Suppresses DLK1-Meg3 Locus in Alveolar Epithelial Type II Cells"*
Sponsor: Dr. Michael O'Reilly
Pediatrics, Neonatology

Clare Heffernan BMI
Presentation: "*Phagocytic Engulfments: A Focus on Kinetics, Persistence and pH Change"*
Sponsor: Dr. Charles Chu
URMC, Department of Medicine, Hematology/Oncology (SMD)

Emily Laskey BBC
Presentation: "*Utilizing Signs of Altered Immunity to Develop a Theoretical Diagnostic for Endometriosis"*
Sponsor: Dr. Anne Meyer
Biology

Stefanie Ma BNS
Presentation: "*Sez6L2 is a Complement Inhibitor for C3"*
Sponsor: Dr. Jennetta Hammond
Neuroscience

Sabrina Mai BNS
Presentation: "*Optogenetic Effects of Corticogeniculate Feedback on Lateral Geniculate Nucleus Neuronal Visual Tuning Metrics"*
Sponsor: Dr. Amanda Larracuente
Biology

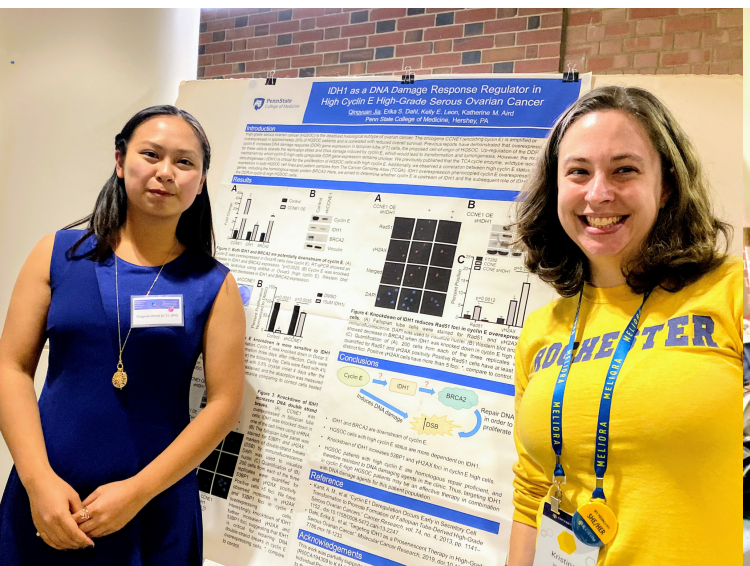
Joel Reiter BEB
Presentation: "*Examining the Fitness Trade-Off of the Wing Polymorphism in Male Pea Aphid"*
Sponsor: Dr. Jennifer Brisson
Biology

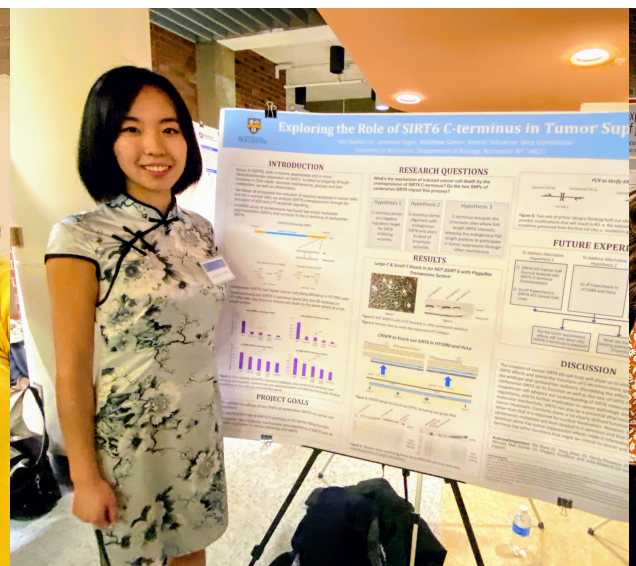
Emily Schiller BCD
Presentation: "*Interaction between GPSM2/Pins and Dlg Proteins: an Evolutionary Perspective"*
Sponsor: Dr. Dan Bergstralh
Biology

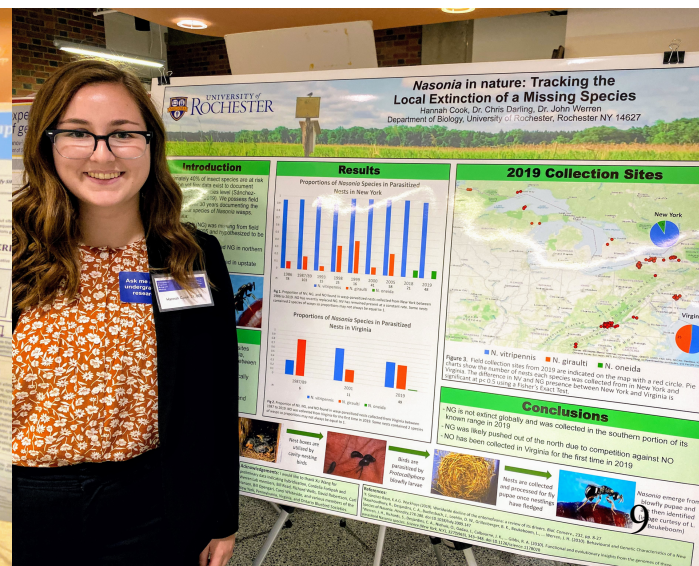
Yeonseong Seo BMG
Presentation: "*Manganese Promoted Oxidative Radical Addition Reactions"*
Sponsor: Dr. Shauna Paradine
Chemistry

Gladiana Spitz BCB
Presentation: "*Social Effects of Family Members on Juvenile Fitness in the Florida Scrub-Jay"*
Sponsor: Dr. Nancy Chen
Biology

Jinghong Tang BCD
Presentation: "*Linking the Function of Heat Shock Factor in Tumor Progression with Normal Development in Drosophila melanogaster"*
Sponsor: Dr. Michael Welte
Biology







de Kiewiet Summer Research

The de Kiewiet Summer Research Fellowship is a 10 weeks research fellowship where students work in the lab of their research mentor. The students then present their findings at the UPBM poster session the following October. The fellowship allows our students to gain valuable research experience.

de Kiewiet Scholars 2020

Catherine Barker BCB '21
Title: "*tRNAs Proline Research"*
Mentor: Dr. Dragony Fu
Biology

Sammy Cheng BMB '21
Title: "*Life History of Wolbachia Lateral Gene Transfers"*
Mentor: Dr. Jack Werren
Biology

Hannah Cook BEB '21
Title: "*Nasonia in Nature: Tracking the Local Extinction of a Missing Species"*
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 Iyer 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 BMG '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: "G*enome-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

de Kiewiet Scholars 2021

Sarah Fischer BBC '22
Title: *"The Role of Lipoxygenase Enzymes in Vulvovaginal Pain and Inflammation"*
Mentor: Dr. Megan Falsetta Wood
Obstetrics and Gynecology

Maggie Kane BBC '22
Title: "*Parasitic Neuromodulation"*
Mentor: Dr. Floria Uy
Biology

Ankita Kumar BNS '22
Title: "*The Role of Metabolic Plasticity in Corneal Fibrosis"*
Mentor: Dr. Kystel Huxlin
Ophthalmology

Sherif Negm BCB '22
Title: "*Modeling Satellite DNA Evolution"*
Mentor: Dr. Amanda Larracuente
Biology

An Nguyen BNS '22
Title: "*Sexual Differences in Pheromone-Mediated Developmental Plasticity"*
Mentor: Dr. Douglas Portman
Biomedical Genetics

Atalanta Ritter BEB '22
Title: "*Post-Embryonic Factors Influencing Female Aphid Wing Plasticity"*
Mentor: Dr. Jennifer Brisson
Biology

Eli Rust BSG '22
Title: "*History of Wolbachia Lateral Gene Transfers in Insects"*
Mentor: Dr. Jack Werren
Biology

Huishan Shi BMB '22
Title: "I*nvestigating the Role of the Tight Junction Protein, claudin-1, in Viral Infection and Differentiation* of *Keratinocytes"*
Mentor: Dr. Lisa Beck
Dermatology

Honors, Awards, & Accomplishments

Ayman Amin-Salem Memorial Award
To be presented each year at Commencement to that member of the senior class who best evidences the quality of good character and good citizenship, such as decency, reliability, responsibility and congeniality. Preference may be given to students who also have an interest in biology or the biological sciences, music, art, writing or athletics.

- **Meghan Martin** '20 BBC
- **Anna Gao** '21 BBC
- **Toni Anne Hahn** '21 BNS
- **James (Jinghong) Tang** '21 BCD

Catherine Block Memorial Fund Prize
Awarded to the junior woman in any field of science as recognition of outstanding ability and achievement.

- **Hannah Kim** '20 BCD

Fulbright U.S. Student Program
The Fullbright Scholarship competition is sponsored by the Department of State, designed to promote mutual understanding and peace between the United States and other nations through educational and cultural exchange. It offers opportunities for career-launching study, teaching, and research abroad. Scholars pursuing study or research design their own programs and arrange institutional affiliations in the host countries. More information about this year's competition.

- **Bianca Roy** '20, BNS
- **Jacob Rozowsky** '20, BCB, CHM
- **Alexis Pope** '21, BBC

Grace McCormack Fund for Biology Prize
This award is given annually to worthy students who, in the judgement of the Department, have great potential and have demonstrated excellence in academics, teaching, service to the department, or scientific research.

- **Emily Andrews** '21 BMG
- **Mairead Bresnahan** '21 BMG
- **Michaela Burrell** '20 BEB
- **Hannah Cook** '21 BEB
- **Srilatha Edara** '21 BIO
- **Sierra Falcone** '22 BMG
- **Syed Arsalan Ghani** '21 BCD, PSY
- **Valeria Guerra** '21 BBC
- **Bianca Hall** '20 BSG, IPA
- **Anna (Qingyuan) Jia** '21 BMG
- **Camila Lage Chavez** '21 BMG
- **Sylvia (Yifei) Lin** '21 BSG
- **John Lozada** '21 BMG
- **Alydia Meinecke** '21 BIO, DST
- **Emily Schiller** '21 BCD
- **Ava Schwartz** '21 BCD
- **Isabel Sia** '21 BCD
- **Gladiana Spitz** '21 BCB
- **James (Jinghong) Tang** '21 BCD

Janet Howell Clark Prize
Woman in the senior class who has shown the greatest promise in creative work in Physics, Chemistry, Biology or Astronomy and who has shown outstanding versatility in the mastery of allied fields.

- **Nivedita Iyer** '21 BBC
- **Emily Laskey** '21 BBC
- **Evelyn Matei** '21 BNS
- **Emily Schiller** '21 BCD
- **Yeongseong (Catherine) Seo** '21 BMG/CHM
- **Isabel Sia** '21 BCD
- **Emma Strawderman** '22 BNS

McNair Scholars
The Ronald E. McNair Post-Baccalaureate Achievement Program is named in honor of the late Challenger space shuttle astronaut and laser physicist. Funded through a grant from the US Department of Education, the objective of the McNair Program is to increase the numbers of low-income, first-generation, and underrepresented minority undergraduates who pursue PhD degrees and go on to careers in research and teaching at the university level.

- **Leon Harvey** '20 BIO
- **Makaila Banks** '20 BNS
- **Michaela Burrell** '20 BEB
- **Shourya Jain** '21 BIO
- **Alydia Meinecke** '21 BIO

Merle Spurrier Award
Gives recognition to the senior woman who has made the most outstanding contribution to women sports by demonstrating such qualities as leadership, enthusiasm, and service in her four years at the University. Article is featured here.

- **Michaela Burrell** '20 BEB

Nathaniel and Helen Wisch Scholarship
The Dr. Nathaniel and Helen Wisch Undergraduate Scholarship provides income that supports a promising junior or senior undergraduate student or students majoring in Biology at the University of Rochester. This years recipients are:

- **Michaela Burrell** '20 BEB
- **Sammy Cheng** '21 BMB

Provost's Circle Scholars
The Department of Athletics nominates student athletes who exemplify excellence as well as in their sport for recognition as a Provost's Circle Scholar. Award Recipients are honored at a dinner at the Patrick Barry House, the official residence of the Provost.

- **Adam Hopson** '21 BMB
- **Michaela Ricker** '21 BCS

Honors, Awards, & Accomplishments

Ronald E. McNair Post-Baccalaureate Achievement Scholars
The Ronald E. McNair Post-Baccalaureate Achievement Program is named in honor of the late Challenger space shuttle astronaut and laser physicist. Funded through a grant from the US Department of Education, the objective of the McNair Program is to increase the numbers of low-income, first-generation, and underrepresented minority undergraduates who pursue PhD degrees and go on to careers in research and teaching at the university level.

- **Michaela Burrell** '20 BEB
- **Shourya Jain** '21 BSG
- **Alydia Meinecke** '21 BIO, DST

Peter DiPasquale Male Scholar Athlete Award
Honors the male student athlete who has shown excellence in the classroom and is a role model for his fellow students. Article is featured here.

- **Garret Renslow** '20 BNS/PSY

Provost's Circle Scholars
The Department of Athletics nominates student athletes who exemplify excellence in academics as well as in their sport for recognition as a Provost's Circle Scholar.

- **Samantha Mauser** '21 BCB
- **Mary Panepento** '21 BMB

Rigby Wile Prize
For proficiency in work in Course I in the Department of Biology. Awarded to members of the freshman or sophomore class.

- **Aasim Hawa** '23 BME
- **Paula Brown** '23 EVS/ BIO
- **Lydia Levesque** '23 BIO
- **Luciano Rienecker** '23 BBC

Take Five Scholars
A unique program to the University of Rochester, it provides an additional semester or year of study, tuition-free. It offers the chance to pursue a demanding major and still enjoy the once in a lifetime opportunity for the broad-based intellectual enrichment of a liberal arts education. More information is on the Take Five webpage.

- **Tamanna Bhatia** '20 BCB
- **Michaela Burrell** '20 BEB
- **Sierra Faclone** '21 BMG
- **Alana Ferris** '21 BCD
- **Syed Arsalan Ghani** '21 BCB
- **Paula Guerra** '20 BBC
- **Toni Anne Hahn** '21 BNS
- **Khoa Hoang** '21 BMB
- **Qingyuan Jia** '21 BMG
- **Camila Lage Chavez** '20 BMG
- **Matthew Le** '20 BCB
- **Yifei Lin** '20 BIO
- **Emily Loose** '21 BBC
- **Sabrina Mai** '21 BNS
- **Katherine Murphy** '21 BIO
- **Rafael Ramirez** '21 BMB
- **Omaira Rivera** '21 BBC
- **Hannah Rubin** '21 BIO
- **Asir Savdharia** '20 BBC
- **Jianing Song** '20 BCD

Walt and Bobbi Makous Prize
Honors the graduating senior who has made the most outstanding contribution to vision research at Rochester.

- **Evelyn Matei** '21 BNS/CHM
- **Yongsoo Ra** '20 BNS/CSC

Goldwater Scholarship Recipients
The scholarships are awarded by the Barry Goldwater Scholarship and Excellence in Education Foundation, established by Congress in 1986 and endowed with federal funds to encourage the nation's most outstanding college students to pursue research careers in the sciences, mathematics, and engineering.

- **Jocelyn Mathew** '23 BMG
- **Tyrone Nieves** '22 BIO, PSY

2021 Commencement and Diploma Ceremony

Celebrating the Class of 2021!

The University of Rochester's College in Arts, Sciences & Engineering conferred degrees to 1,360 students in four ceremonies on May 20. The multiple events were held on the Eastman Quadrangle, respecting social distancing guidelines and gathering limits due to the COVID-19 pandemic.

The Department of Biology and the UPBM office held two Biology diploma ceremonies. Over 100 students, faculty, and staff attended to celebrate the great accomplishments of the class of 2021. Students who were remote were able to participate via Zoom. During the diploma ceremony, they were announced and were able to say a few words to their fellow classmates and instructors. Please visit the commencement website to find more information, or to watch the recorded ceremonies.

Sarah Mangelsdorf, PhD

President of the University of Rochester

"You've chosen lives immersed in the humanities, exploring the sciences, and developing the building blocks upon which future generations will stand. Whether that's curating great art, researching the secrets of the universe, or solving the world's environmental, biomedical, or mechanical problems, you carry your unique life experience, the enduring wisdom of this campus, and the guiding light of our Meliora ideals."

Biology Diploma Ceremony Speakers

Due to the CDC guidelines, many were not able to physically attend the diploma ceremony this past May 20th, 2021. Our UPBM office has included the commencement speakers from this years ceremony on the following pages.

Dr. Michael Welte, PhD

Professor, Chair

Mairead Bresnahan BMG/PSY
Syed Arsalan Ghani BCB
Alydia Meinecke BIO
Emily Schiller BCD

Dr. Michael Welte

2021 Commencement/ Diploma Ceremony Speech

"You're one of us now."

Dr. Michael Welte PhD
Professor and Chair

Welcome to the Diploma Ceremony of the Department of Biology. I am Michael Welte, chair of the department.

On behalf of the students, faculty, and staff of our department, I would like to extend a warm welcome to all of you who are joining us for this celebration of the Class of 2021.

Somewhat fittingly, our ceremony this year reflects the way of life our graduates and faculty have come accustomed to for the last thirteen months.

We are conducting it in hybrid mode, with many graduates and faculty here in the room in person, and many more people participating live via zoom or watching a recording of the ceremony later.

Although I would have much preferred to see the smiles of the graduates and the beaming faces of proud family members in person, the hybrid mode allows many more people to join us virtually than would have been possible in person,

and so we have the opportunity to join in celebration across the country, the continent, and even the world.

The reason for our celebration is obvious: you, our graduating students.

First and foremost, this ceremony is to celebrate

- you and your accomplishments
- your skills and love of learning
- your hard work and perseverance
- your abilities as thinkers and as doers
- as well as the great promise of your future.

Therefore: a heartfelt congratulations to the members of the class of 2021.

I am sure that if those of you watching on zoom could have joined in, the applause would have been deafening.

Even though we cannot hear the clapping of your hands, I know that you are here in spirit and are eager to celebrate with us virtually.

It is wonderful and immensely meaningful that you are sharing this moment since you have been instrumental in the success of our graduates.

- You are parents, family, and friends.
- You have supported these students throughout their college career.
- It is your countless influences and contributions that have helped these students reach this milestone.
- Thank you for this support and for joining the celebration today

In any year, successfully graduating from college is a major life achievement that our graduates can truly be proud of.

But as we all know too well, this was not a normal year, and you had you grapple with unprecedented challenges and stresses, on top of the usual demands of a rigorous academic education.

The COVID pandemic has made living and studying so much harder, with all of us isolated from each other, with the loss of human interactions, with the quirks and limitations of online learning. You saw, more so than in other years, that we faculty and staff also have our limits and struggle with stress, anxiety, and the challenge of having to adapt to new ways of doing things.

But you persevered and made it across the finish line despite these difficult conditions. Thus, you can be especially proud of your achievements. I, certainly, am very proud of you.

And, with luck, the challenging last year also brought opportunities for unusually deep human connections to your fellow students, to staff, and to faculty. Going through a crisis together is a great motivator for cultivating empathy, mutual understanding, and solidarity, and I hope the lessons you learned, in and out of the classroom, will be a strong foundation for success in the future.

Emily Schiller [BCD]

2021 Commencement/ Diploma Ceremony Speech

So, some of you may not know this, but I came to the University of Rochester convinced that I would graduate as a chemical engineer. And since I am standing here at the biology diploma ceremony, I think its clear to everyone here that that didn't work out for me. Being first-gen, I had absolutely no idea what I was doing, I hated all my classes and I just couldn't get myself to care about how water behaves as it flows through a pipe. I started to think that college wasn't for me. But then I took a course that you all are probably familiar with.

BIO 110 with Professor Clark was the first time I actually enjoyed going to class. I was telling anybody who would listen about mucins and antifreeze proteins. It was like I turned into a science-nerd over-night.

And Class of 2021, I know I am not the only person in this room who nerds out to their friends over lunch at the Pit. Whether it is about your classes, research, or just something interesting you read on PubMed, many of us in this room are excited by biology and we have several people to thank for fostering and supporting this passion.

First, we must thank our professors and PIs who not only taught us biological concepts, but who pushed us to think like scientists and whose love for biology inspired us every day. Fellow graduates, I challenge you to look at either a biology test or paper you wrote during freshman and sophomore year and compare that to your assignments now, or your senior thesis, or even the publications some of you helped to write. It is incredible the amount that we have grown academically in just four years. Professors, thank you for teaching, mentoring, and challenging us. You have been an essential part of our journey here.

We also have our families to thank. Whether you are first-generation or come from a long line of biologists, our families have always found a way to support us.

And to our friends, whether it was bringing Starbucks to late night study sessions, taking a much-deserved break together at the Distillery, or helping each other interpret NMRs (which I am so happy we don't have to do anymore, by the way), we owe much of our success these past four years to the friends who by our side.

This is a really exciting time in our lives. I love checking LinkedIn and Facebook these past few weeks because every day I see you all sharing your next steps. For some of you it is working for a cool company while others are pursing education at amazing graduate programs or traveling to new places. And while we thank our friends, families, and professors, it is also important to take a moment to be proud of ourselves. We did not only receive a biology education during our time here. Some of us worked in labs, worked on-campus jobs or at the medical center, led workshops, volunteered at the hospital, joined student organizations, and much more all while studying and building friendships. I think this goes without saying but that is no easy feat.

I was recently talking to an alumnus you might be familiar with: he goes by Ed Hajim. And I told him that I was going to be giving this speech. He told me that I really had to inspire this room today and let you know that what often seems like a dead end is really just a turn in the road. And I think that perfectly sums up what I learned during my time here. Although I was not at all interested in understanding how water flows through a pipe, I was fascinated by how water can drive biological reactions. And so, it was not that college was not for me but that I had not found my place in college. As we all take our next steps, we are bound to hit these dead ends and some of us might even feel like we are currently at one. But these are not dead ends. They are opportunities for us to stop and reflect on the path that has led us to where we are and to carve a new path that we are eager to go down. I wish everyone the best of luck as you continue your journey and encourage you to take a moment today to reflect on the sacrifices and hard work that got you here. Congratulations everyone!

Syed Arsalan Ghani BCB

2021 Commencement/ Diploma Ceremony Speech

Our graduation, and generally our time in this University, has truly been miraculous. It took a change of presidents, many, many rainy D-Days, going from loving iZone to absolutely detesting it, a pandemic, **and worst of all**--transitioning from Blackboard to UR Student-- but class of '21, it's worth repeating: we actually made it!

I asked around to gather some themes of our past 4 years, and here are some highlights. We will really miss how Dr. Goldfarb gave us high-fives as we turned in exams. Apparently, turning in a horribly done exam, with an extremely wrong application of the Hardy-Weinberg equilibrium just does not feel the same on Gradescope. We also learnt how to calculate the buoyancy of hot air balloons in CHEM131. **I always wondered when we'd ever need this information in real life;** and then we were told the school was getting hot air balloons for D-day-- **BUT** like our organic chemistry grades that plan failed. Speaking of organic chemistry, an old classmate mentioned that Orgo was when we learnt the meaning of "receipts", either you take a picture of your equipment drawer, or simply get 10% knocked off of your lab report. Yet still we survived, from repeating the mantra that the *"curve will serve"* in Anatomy, to meeting that random girl from INTRO TO BIOCHEM in a fraternity basement and hitting it off because she, too, was on Quizlet memorizing the functional groups of the million amino acids as No Tears Left to Cry by Ariana Grande played in the background. She's still my best friend.

Aside from classes and wishing how we should've just been REMS students, we went through so much in real life. Let's use this time as a healing circle, and vent: The administration changed Starbucks, and turned it into a weird-looking Apple store, which serves bean juice and never has their GrubHub on. Someone started a rumor that Smashmouth was coming for D-Day and who did we get? Neon Trees. Brues across the street shut down, and so did Tilt, Peets, and Optikale.

But while we may have had these ups and downs: one theme remained constant in my conversations with y'all: **OUR** strive for social justice. In fact, social and academic justice was inoculated in us when Dr. Goldfarb actively and unequivocally explained on the very first day of intro to Biology that our conception of the modern DNA was actively "borrowed" from the incredible work of Rosalind Franklin without credit, and associated with Watson & Crick. We like to joke about how these times are "unprecedented" but pandemic or no pandemic, our generation actively realized that bigotry was the real pandemic all along and that we are living in it-- some benefiting from the lopsided social structures while some getting crushed under them. In this same vein, Class of 2021, *We* stood in solidarity with the Black communities of the world and proudly proclaimed that Black Lives Matter. We defended and elevated rigorously our peers and colleagues when they were demonized for being Asian. We believed in the *Me Too Movement* and in the survivors of sexual assault and we supported them unambiguously: all because we realize that bigotry and prejudice need to be removed and eliminated at a grassroots level. Our activism is an incredible reason to believe that the future is bright. We are moving forward in great numbers in degrees like Neuroscience, Genetics, and Evolutionary Biology and actively making the world more just and fair by simply refusing to gloss over the inequalities that happen around us. And sometimes when you and I, whether it be med school, grad school, PA school, or just a gap year or two, feel afraid that we're unable to speak up or are overwhelmed with the pressure of work, activism, and further education: I offer the concluding couplet of Amanda Gorman's poem, The Hill We Climb: ***For there is always light****, if only we're brave enough to see it. If only we're brave enough to* ***be*** *it.*

Alydia Meinecke BIO

2021 Commencement/ Diploma Ceremony Speech

Good afternoon everyone, thank you Dr Welte for that introduction and for inviting me to speak here today. As Dr. Weltie said, I am not from Rochester, I am from Lake George, New York, up in the Adirondack Mountain. So, who else is from no from around here and coming here was your first time leaving home to live on your own? And how many of you all are first generation college students, the first in your family to do anything like this? I too am a first-gen and I am so proud to be up here representation my family.

But coming here as first-gen to this university, it was very new and intimidating terrain to explore. But, one of my mentors here always told me Not to Live Life Alone… Because, there are so many beauties in the world that we experience, academic accomplishments that we have, research discovers that we make, and personal milestones to celebrate that without anyone or any community to share it with those successes can begin feel more and more minuet.

But we all still decided to come her alone and risk that sense of comfort and community. It was not guaranteed that we would make friends, bond with our professors, or form a cohort in the department… And yet we will still came, because we had the desire to achieve more, become something greater, and challenge our minds.

And as we stand here today I can confidently say at least for myself and many of you who I have connected over the past four years, that risk was well worth it…. However, like one of our professors likes to say, let me pull back the curtain and share a bit of my story. I came in as a first-generation college student, intimidated by the intelligence of the people around me. I always waited until office hours to ask questions in fear of sounding dumb for not understanding something. I spent hours on the third floor of Carlson, in absolute silence, completely alone. I was determined to prove I was at the same level as all of my peers. I am sure you all have heard of imposter syndrome, and at times have felt it too… Thinking that at any moment someone could call you out as a fake, as less than, or tell you that you do not belong… So, I put everything I had into my academics to ensure if I were ever to get called out, I had a case to prove them otherwise. But by doing this I was shutting myself off everyone, my family and friends at home, my peers, any potential friendships I could be forming here. I would go a whole day and realize I had to even speak yet. I was in fact living life here alone.

It was not until my junior year when I realized what I needed was right in front of me. You all, the faculty and staff, this department as a whole, that was community I needed. The community that would make this risk worth it. We all have and will continue to celebrate each other's successes, as we are living this here life together. So, as you go forth, find your next community that will be there to support you and celebrate with you… but keep in touch with this one, because we will always be here for you. So, today as we stand here living in this moment together, congratulate yourselves, yours peer, and each of your personal communities that you have created here at the University of Rochester as they have helped make our success possible and make that risk worth it. Thank you.

Mairead Bresnahan BMG/PSY
2021 Commencement/ Diploma Ceremony Speech

Sociologists tell us that even the most introverted of people will influence 10,000 others in their lifetime. Think about that for a second... you alone will make some sort of impact on the lives of at least 10,000 people. Every person that you come in contact with is influenced in some way, shape, or form, big or small, whether you are conscious of it or not. How many of those 10,000 have you met so far, how many of those people are sitting in this room?

In reflecting back at my time here at the University of Rochester, I came to the realization that despite our innovative cluster system curriculum and endless research opportunities advertised on our website, it is truly the people in this community and the influence that they have that makes U of R so unique. It is evidently clear the professors, advisors, and most importantly - fellow students of UR, and more specifically of this department sitting here in this room and joining us on Zoom have had a profound influence on my University of Rochester experience.

Immediately, a few key people come to mind - the professors that gave me the opportunity to work as one of their teaching assistants, the classmates and lab partners that grew into my close friends who I can't imagine life at Rochester without, and the advisors who ensured that I made it successfully to graduation today. These people have influenced my life in major ways, for which I am incredibly thankful.

But recently, what I have come to appreciate more about my time here at the University of Rochester are the little moments of influence from others that I have experienced within this department. The brief interactions with someone blissfully unaware of the impact that their existence has had on your day - from the person who helped you mid orgo lab when it felt like the world was ending to the classmate that wished you good luck when passing you your final exam to the workshop group that made overwhelming amounts of material digestible to the professor that tried their best to make sure the transition to virtual learning was a smooth one. I would like to thank each and everyone one of you for providing me with these positive little moments that have had the biggest impact.

With this in mind, think about the power you could hold in a complete stranger's life. Each day we have the opportunity to influence the lives of others and the best part is, we alone can ensure that this impact is a positive one. There is no doubt in my mind that the influence of the Class of 2021 will be a great one - that each of you will far surpass this 10,000 person average. It could be in a big way by discovering a treatment for incurable disease, solving a problem once deemed impossible, or saving a life when all hope was lost or it could be through these little unconscious moments that I have come to cherish the most.

Congratulations to the Class of 2021, I cannot wait to watch you influence the world.

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