

OPEN READING FRAME

Department of Biology Newsletter



The Biology Department Congratulates the Class of 2012!

In This Issue

Message from the
Chair

p.p. 1 - 2

Biology Major
Graduation

p.p. 3 - 5

Undergraduate
Research

p.p. 5 - 14

Life-shaping
Experiences

p.p. 15 - 21

Faculty Highlights

p.p. 22 - 23

Howard Bryant
Memorial Golf

Tournament

p.p. 24 - 25

Message from the Chair



Dr. Gloria Culver
Professor and Department Chair

Dear Students, Families, Alumni, Friends & Colleagues,

Congratulations to the University of Rochester's graduating Class of 2012!!! Well done, you should feel joy and pride at your accomplishments. It is my great pleasure and privilege to acknowledge, on behalf of the Department of Biology, the hard work, determination and effort that reaching this achievement required. We applaud your successes and promise. We also wish each of

you continued realization of your goals and potential. It has been a wonderful experience to have each of you as a member of our Departmental community.

This year we have 204 students graduating with degrees in areas that are covered under the umbrella of the Undergraduate Program in Biology and Medicine. These include majors earning a B.A. in Biology, or a B.S. in Molecular Genetics, Cellular and Developmental Biology, Ecology and Evolutionary Biology, Microbiology, Neuroscience or Biochemistry. Our majors continue to be very popular and strong. Details regarding Department of Biology research, faculty and courses can be found at the Departmental webpage (<http://www.rochester.edu/College/BIO/index.php>). At this website information about our undergraduate student society (SUBS: Society of Undergraduate Biology Students) is also available. Many students and faculty participate in SUBS sponsored events. This year volleyball and reading week study breaks continued. These events bring faculty and undergraduates together for friendly competition, casual conversation, and food. The

Editors: Tara & Justin Ramsey and Brenna Holik

Photography: Cheeptip Benyajati

Phone: 585/275-8837

Fax: 585/275-2070

email: brenna.holik@rochester.edu

Available Online At:

www.rochester.edu/College/BIO/newsletter.html

strength of the Department of Biology is exemplified by the strength of our undergraduates. The graduating class of 2012 is no exception. Congratulations again.

As in the past, this year found many of our undergraduates working in laboratories throughout the University of Rochester. We feel particularly grateful that we can offer our students this wonderful and unique opportunity to experience research firsthand in world-class laboratories. Whether students work in the Department of Biology or in a Department from an allied field, it is clear that the students relish these opportunities and many keep coming back. It is not only a wonderful experience for our undergraduates but also for our talented graduate students, whom often mentor their junior colleagues, and for the faculty members. Working one on one with undergraduates is one of the most satisfying experiences in academia.

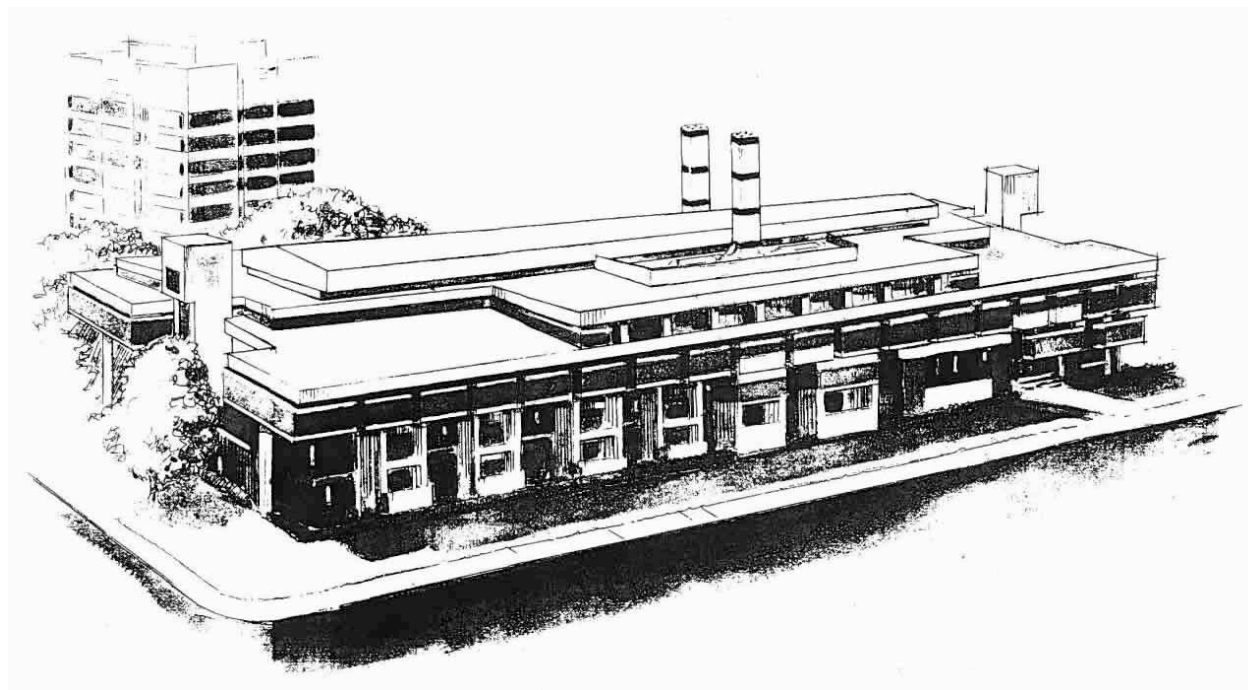
In the summer of 2011, Drs. David Lambert and Michael Welte were both promoted to Associate Professor with tenure. The Department and University are thrilled that both Dr. Lambert and Dr. Welte will continue their primary, novel research here in Rochester. Moreover, both professors are actively involved in courses, curriculum and our undergraduate population. Congratulations to Drs. Lambert and Welte and to the Department for recruiting and retaining such talent.

The Department offers particular thanks to one of our alumnus, Dr. Nathaniel Wisch. Dr. Wisch is currently on the Board of Trustees for the University of Rochester. Dr. and Mrs. Wisch continue to fund scholarships to outstanding undergraduates in the Undergraduate Program in Biology and Medicine (UPBM) and thus are highly committed to the Department of Biology and the University as a whole. This year Dr. Wisch (1955) and his wife Helen have endowed a Professorship in Biology. Dr. Jack Werren was named the first recipient of the Nathaniel and Helen Wisch Endowed Professorship in Biology. Drs. Wisch and Werren will participate in an inaugural ceremony later this summer. Congratulations to Dr. Werren and many, many thanks to Dr. Wisch and his family.

Transitions can be exciting, difficult and demanding. Make sure you take time to reflect and to enjoy your accomplishments. Also, make sure that you keep in touch, as you will be missed.

Best wishes,

Gloria Culver



Biology Department Diploma Ceremony 2012 One Hundred Twenty One Biology Majors Graduate

The Department of Biology will be holding the 2012 Diploma Ceremony on Sunday, May 20th, 2012 at 1:30 p.m. in the Palestra at the Goergen Athletic Center. Approximately 94 students will be participating in this year's event.

The Biology Department's senior class is made up of 121 students including those who are participating in U of R's Take-5 and various fifth-year programs. These students have chosen to major in one of the following biological science tracks: Bachelor of Arts in Biology (BA BIO), Bachelor of Science in Cell and Developmental Biology (BS BCD), Bachelor of Science in Ecology and Evolutionary Biology (BS BEB), and Bachelor of Science in Molecular Genetics (BS BMG). This year's senior class consists of 78 women and 43 men. Fifteen students have earned double majors.

Dr. Gloria Culver, Professor of Biology and Department Chair, will begin the festivities by welcoming graduates and guests.

This year's faculty speaker is Dr. Elaine Sia.

The Biology Department class of 2012 will be represented by two student speakers, Audrey Kelly (BS BEB) and Elizabeth Landzberg (BS BEB). The class speakers are chosen by department faculty for excellence in academics, research, and for service to the department. Audrey Kelly will be introduced by Dr. Richard Glor and Elizabeth Landzberg will be introduced by Dr. John Jaenike.

Dr. Cheeptip Benyajati, the Director of the Undergraduate Program in Biology and Medicine, will present: The Donald R. Charles Memorial Prize, The Wendy Jill Fread Prize, The Janet Howell Clark Prize, and the students who have earned Degrees with Distinction in Research. Dr. Benyajati will also pay a special tribute to the seniors who served as teaching assistants / workshop leaders in Biology Department courses.

The Donald R. Charles Memorial Prize is given annually by the Biology Department to students who show great potential and have exhibited excellence in science. The recipients for 2012 are: Justin Anderson (BS BCD), Hannah Cavallo (BA BIO), Hyein Jeon (BS BCD), Audrey Kelly (BS BEB), Elizabeth Landzberg (BS BEB), Ryane Logsdon (BS BEB), Brian Shafer

(BS BMG), Lindsay Stolzenburg (BS BMG), Elise Van Pelt (BS BCD), Nan Zhu (BS BMG/SA).

The Wendy Jill Fread Prize is a college-wide award that is presented to the member of the senior class who, during four years as a student, has given the greatest service and shown the greatest concern for fellow students. This award was established in memory of Wendy Jill Fread, Class of 1975. The 2012 recipient of the Wendy Jill Fread Prize is Audrey Kelly.

The Janet Howell Clark Prize is a college-wide award that is given to a 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. The recipients of this year, Janet Howell Clark Prize, are Elizabeth Landzberg (BS BEB) and Emily Redman (BA BIO/CHM).

A Degree with Distinction in Research is an honor that recognizes a student for their outstanding accomplishments in scientific investigation. Students who apply for candidacy have developed a novel body of work to compose and successfully defend a senior thesis. The graduates within the Biology Department who have earned honors in research are: Hyein Jeon (BS BCD), Nicholas Jacobs (BS BMG), Lindsay Stolzenburg (BS BMG), and Elise Van Pelt (BS BCD). For more details about the Degree with Distinction in Research see page 5.

The ceremony will culminate in the awarding of diplomas. Personalized messages written by graduates will be announced. Dr. Anthony Olek will present the diplomas for the Bachelor of Arts in Biology. Dr. James Fry will present the diplomas for the Bachelor of Science in Ecology and Evolutionary Biology. Dr. Cheeptip Benyajati will present the diplomas for the Bachelor of Science in Cell and Developmental Biology and the Bachelor of Science in Molecular Genetics.

A reception will be held immediately following the ceremony in the Field House located in the Goergen Athletic Center.

The Undergraduate Program in Biology and Medicine (UPBM)

About the UPBM and the Bigger Picture



The Biology Department together with Departments of Biochemistry, Microbiology, and Neuroscience produce the framework of the Undergraduate Program in Biology and Medicine also known as UPBM.

The Undergraduate Program in Biology and Medicine combines the College of Arts and Sciences and the School of Medicine and Dentistry to provide courses for undergraduate students with lectures, laboratory work, specialty seminars and research experiences. The Program provides academic year opportunities to do independent research for credit as well as DeKiewiet Summer Fellowships which support summer research by outstanding University of Rochester undergraduate students.

The Program is made possible by the close proximity of the Medical Center and the River Campus and by the enthusiasm of the faculty for cooperative teaching aimed at providing the most up-to-date education in biomedical science.

Undergraduate Program in Biology and Medicine (UPBM)

Class of 2012 List of Graduating Seniors

Bachelor of Arts Biology (BA BIO):

Natalia Aldrich	Alexandra Goodman	Allison Marsh	Leah Spungen
Komi Attitso	Anay Gurme	Julia Militar	Andrea Stewart
Nikita Bourque	Richard Gustin	Maryam Mohammed ^{ΦBK}	Neil Suryadevara
Corey Brizzee	Ashley Haluck-Kangas	Gabriella Morris	Miss Tanni
Hannah Cavallo	Allyson Jordan	Jessica Nemeth	Jacob Taylor
Catharine Chu	Angelica Kanganis	Thomas O'Toole	Mackenzie Tsang-Lee
Alyssa Cohen ^{ΦBK}	Benjamin Kellman	Da Hye Oh	Justin Tu ^{ΦBK}
Suparna Dang	Lily Kim	Alana Owens	James Vavra
Robert Eberhardt	Jill Kulla	Seong Eun Park	Katharine Weber
Ahmed Faisal	Anthony La Fache	Francisco Ramirez	Belinda Weinberg ^{ΦBK}
Clayton Falzone	Alexandra Lang	Emily Redman ^{ΦBK}	Robin Wilson
Ian Feurtado	Ho Lee	Anna Richlin	Danique Wortel ^{ΦBK}
Lynn Fryer	Gabriella Logrono	Dustin Singer ^{ΦBK}	Jason Zayac ^{ΦBK}

Bachelor of Science Cell and Developmental Biology (BS BCD):

Birx Allen	Jessica Finkielstein	Camille Leong	Priyanka Shetty
Justin Anderson	Conor Flynn	Diana Lien	Sebele Sibhat
Robert Bauer	Cailin Henley	Lauren Montemorano ^{ΦBK}	Casey Storme
Antonio Calascibetta	Hyein Jeon ^{★★}	Adriana Palacio	Han Wool Sung
Rebecca Donnelly	Julie Kim	Ei Phyu	Elise Van Pelt ^{★★}
Nicholas Drago	Sungmin Kim	Nicholas Runeare	Katherine Vermilye
Jessica Eno	Andrew Kirkley	Rosemary Savage	Weisi Zeng

Bachelor of Science Ecology and Evolutionary Biology (BS BEB)

Michelle Chuang	Audrey Kelly	Jeremy Mongiovi	Alex Yanai
Marissa Eccleston	Emily Kraus	Christopher Nelson	Choongnam Yoon
Nathan Green	Elizabeth Landzberg ^{ΦBK}	Christine Reinhardt	
Kindred Harris	Ryane Logsdon ^{ΦBK}	Emilia Sola Gracia	
Dana Isaacs	Marcus Mazurowski	Rebecca Watro	

Bachelor of Science Molecular Genetics (BS BMG):

Lynn Benson	Rachel Harney	Jodie Luther	Brian Shafer ^{ΦBK}
Sarah Catheline	Margaret Hill	Deborah Miller	Lindsay Stolzenburg **
Faith Childers	Nicholas Jacobs **	Emily Pape	Peter Tai ^{ΦBK}
Emily Claffey	Ilya Kostyukovskiy	Sneha Rath	Yanling Tang
Yelaine Fernandez	Nam Lee	Justin Rosati	Erica Wilson
Dongdong Han	Irina Lerman	Brittany Ross	Nan Zhu ^{ΦBK}

Bachelor of Science Biochemistry (BS BBC):

Patrick Abbott	Sthuthi David	Jacob Hyer	Joseph Shapiro ^{ΦBK}
Carrie Babcock	Matthew Demars ** ^{ΦBK}	Liyi Jiang	Bradley Wasser
Rachel Blomberg	Colin Desrosiers	Alanna Orr	
Kieran Chacko	Benjamin Green **	Jonathan Pinto	
Alison (Lai) Chan ^{ΦBK}	Layla Hatem ^{ΦBK}	Brandon Podyma ** ^{ΦBK}	

Bachelor of Science Microbiology (BS BMB):

Ingrid Carvo	Lubaba Hasan	Cameron Ovandipour	Shufan Sun
Courtney Diamond	Christopher Indovina	Chia Hua Pai	Vinh Thai
Matthew Foley	Yunseop Kim	Sempian Sooriakumar	Alexander Wei
Lauren Forbes	Stephanie Kwakye	Kayla Spring	Elizabeth Wojakowski
Kristen Frantz	Andy Lee	Catherine Stevenson **	Roslyn Yi
Elizabeth Grosz	Maksym Marek	Dorota Stobierska **	

Bachelor of Science Neuroscience (BS BNS):

Naomi Ahsan	Nikki DiSalvio	Sudhir Kunchala ^{ΦBK}	Rachel Shiver
Neha Ahuja	Donias Doko	Theresa Kurtz **	Emily Slack
Ashley Alex ^{ΦBK}	James Eles	Mallory Laboulaye	Hannah Spungen
Jacob Baritz	Aditya Eturi	James Lagas	Sarah Taylor ^{ΦBK}
Jamie Bow	Jonathan Grima **	Ya Lai	Ellen Tran
Gregory Bryman ** ^{ΦBK}	Jenny Ha	Megan Leyrer	Alexis Vangellow
Liana Buniak	John Herbst	Kyung Park	Taylor Wolfgang
Kimberly Campbell	Neha Jain ^{ΦBK}	Olga Pikul	Michelle Zaso
Gao Xiang Chen	Maria Janda	Samuel Potter	Howard Zhang
Kathryn Cooper	Joshua Jensen	Erin Ricci	
Meredith Cusick	Amanda Kamarck	Eloise Rogers	
Chanise Cyrus	Sukriye Kara	Alex Sargent	
Nicholas DaPrano	Olga Karlinskaya	Molin Shi	

Degree with Distinction in Research **
Phi Beta Kappa ^{ΦBK}

Twelve Graduates Earned Degrees with Distinction 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 distinction 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 distinction have worked on a research project for a year or more and have achieved significant results. They then immerse themselves in the time-consuming process of writing the thesis. Those who successfully complete their research and then push on to write the required paper are rewarded with the phrase “Distinction in Research” added to their transcripts. The twelve members of the class of 2012 who have earned the honor of “Distinction in Research” are:

Continued...

Gregory Bryman BNS

Dissertation: "Investigation of GDP Regulation of Agonist and Inverse Agonist Properties at the μ Opioid Receptor by [35S]GTP γ S Binding"
Mentor: Dr. Jean Bidlack

Matthew Demars BBC/CHM

Dissertation: "Engineering P450 Catalysts for Efficient and Selective Hydroxylation of Artemisinin"
Mentor: Dr. Rudi Fasan

Benjamin Green BBC

Dissertation: "Implicating Ribosomal Stalk Proteins in Translation of the Inhibitory Yeast CGA Codon"
Mentor: Dr. Elizabeth Grayhack

Jonathan Grima BNS

Dissertation: "Therapeutic Potential of Blocking Dynamin-Related Protein-1 (DRP1) Function in the R6/2 Mouse Model of Huntington's Disease"
Mentor: Dr. Kim Tieu

Nicholas Jacobs BMG

Dissertation: "Computational Methods to Identify Transposable Elements in the rRNA Genes of Animals"
Mentor: Dr. Thomas Eickbush

Hyein Jeon BCD

Dissertation: "Effects of Localization of CD45 on Proximal T-Cell Signaling"
Mentor: Dr. Jim Miller

Theresa Kurtz BNS

Dissertation: "Magnitude Judgments in the Intraparietal Sulcus of Mathematical Experts"
Mentor: Dr. Jessica Cantlon

Brandon Podyma BBC

Dissertation: "Genetic Analysis of Factors Required for 2'-O-Methylation of the tRNA Anticodon Loop"
Mentor: Dr. Eric Phizicky

Catherine Stevenson BMB

Dissertation: "ELMO1-Dock2 Signaling During Lymphocyte Chemotaxis"
Mentor: Dr. Michael Elliott

Dorota Stobierska BMB

Dissertation: "CD40L Induces Growth of NHL Cells: Investigating the Role of Xc⁻-Antiporter in HIV-Associated Malignancy"
Mentor: Dr. Sanjay Maggirwar

Lindsay Stolzenburg BMG

Dissertation: "Identification of Gene Activities Linking Heat Shock Factor and Insulin-Like Signaling to Proteostasis and Longevity"
Mentor: Dr. Andrew Samuelson

Elise Van Pelt BCD

Dissertation: "Analysis of Potential Genetic Causes of Diffuse Large B-Cell Lymphoma and the Application of Drug Screens in Search of Possible Treatment"
Mentor: Dr. Jiyong Zhao

Independent Research

Graduates Pushing the Boundaries of Knowledge

In addition to being an outstanding undergraduate institution, the University of Rochester is also a major research university. One of the Rochester Advantages is the opportunity for undergraduates to gain hands-on experience doing modern biological research. Research opportunities are made possible by the enthusiasm of faculty for cooperative learning. A student's opportunity to do research is limited only by their talent and persistence to find faculty to sponsor research projects within their area of interest.

One way students may gain research experience is through registering for Independent Research (395) Courses. Several members of the 2012 Undergraduate Program in Biology and Medicine graduating class have done one or more semesters of Independent Research for credit. The following is a list of 2012 graduates and faculty sponsors who have taken one or more semesters of independent research courses:

Patrick Abbott BBC

Faculty Sponsor: Dr. Yi-Tao Yu
Biochemistry and Biophysics

Justin Anderson BCD

Faculty Sponsor: Dr. Elaine Sia
Biology

Continued...

Robert Bauer BCD (2)

Faculty Sponsor: Dr. Thomas Mariani
Pediatrics / Neonatology

Rachel Blomberg BBC

Faculty Sponsor: Dr. Gail V.W. Johnson
Anesthesiology

Corey Brizzee BIO

Faculty Sponsor: Dr. Gail V.W. Johnson
Anesthesiology

Gregory Bryman BNS (4)

Faculty Sponsor: Dr. Jean Bidlack
Pharmacology and Physiology

Liana Buniak BNS

Faculty Sponsor: Dr. Cynthia Howard
Pediatrics

Ingrid Carvo BMB

Faculty Sponsor: Dr. Jose Lemos
Center for Oral Biology

Sarah Catheline BMG

Faculty Sponsor: Dr. Patricia Hinkle
Pharmacology and Physiology

Kieran Chacko BBC/FEC (2)

Faculty Sponsor: Dr. Mark Dumont
Biochemistry and Biophysics

Alison (Lai) Chan BBC (2)

Faculty Sponsor: Dr. Vera Gorbunova
Biology

Gao Xiang Chen BNS/PSY

Faculty Sponsor: Dr. Bogdan Polevoda
Biochemistry and Biophysics

Sthuthi David BBC (3)

Faculty Sponsors: Dr. Vera Gorbunova (2) and
Dr. Xin Bi (1)
Biology

Matthew Demars II BBC/CHM (2)

Faculty Sponsor: Dr. Rudi Fasan
Chemistry

Colin Desrosiers BBC (2)

Faculty Sponsor: Dr. Alan Grossfield
Biochemistry and Biophysics

Courtney Diamond BMB (2)

Faculty Sponsor: Dr. Harris Gelbard
Neurology/ Neural Development and Disorders

Rebecca Donnelly BCD/SP (2)

Faculty Sponsors: Dr. Vera Gorbunova and
Dr. Jeff Wyatt
Biology and Comparative Medicine

Ahmed Faisal BIO

Faculty Sponsor: Dr. Archibald Perkins
Pathology and Laboratory Medicine

Matthew Foley BMB (2)

Faculty Sponsor: Dr. Steven Gill
Microbiology and Immunology

Lauren Forbes BMB

Faculty Sponsor: Dr. Jose Lemos
Center for Oral Biology

Kristen Frantz BMB

Faculty Sponsor: Dr. Minsoo Kim
Microbiology and Immunology

Alexandra Goodman BIO (2)

Faculty Sponsors: Dr. Archibald Perkins and
Dr. Laura Calvi
Pathology, Endocrinology

Benjamin Green BBC

Faculty Sponsor: Dr. Elizabeth Grayhack
Biochemistry and Biophysics

Jonathan Grima BNS (2)

Faculty Sponsor: Dr. Kim Tieu
Neurology

Faye Gura CHM/APM

Faculty Sponsor: Dr. Edward Brown
Biomedical Engineering

Anay Gurme BIO

Faculty Sponsor: Dr. Robert Quivey
Center for Oral Biology

Richard Gustin BIO

Faculty Sponsor: Dr. Eun-Hyung Lee
Pulmonary/Critical Care

Ashley Haluck-Kangas BIO

Faculty Sponsor: Dr. Paul Dunman
Microbiology and Immunology

Continued...

Dongdong Han BMG (2)

Faculty Sponsor: Dr. Vera Gorbunova
Biology

Rachel Harney BMG (2)

Faculty Sponsor: Dr. Margot Mayer-Proschel
Biomedical Genetics

Lubaba Hasan BMB

Faculty Sponsor: Dr. Paige Lawrence
Environmental Medicine

Layla Hatem BBC (3)

Faculty Sponsors: Dr. Robert Minckley (1) and
Dr. Archibald Perkins (2)
Biology, Pathology

Jacob Hyer BBC (2)

Faculty Sponsor: Dr. Joseph Wedekind
Biochemistry and Biophysics

Nicholas Jacobs BMG (4)

Faculty Sponsors: Dr. Xin Bi (2) and
Dr. Thomas Eickbush (2)
Biology

Joshua Jensen BNS (2)

Faculty Sponsor: Dr. Suzanne Karan
Anesthesiology

Hyein Jeon BCD (3)

Faculty Sponsor: Dr. Jim Miller
Microbiology and Immunology

Liyi Jiang BBC (2)

Faculty Sponsor: Dr. Patricia Hinkle
Pharmacology and Physiology

Olga Karlinskaya BNS/HLS (4)

Faculty Sponsor: Dr. Suzanne Haber
Pharmacology and Physiology

Benjamin Kellman BIO/BCS

Faculty Sponsors: Dr. Mark Noble and
Dr. Ibro Ambeskovic
Biomedical Genetics

Audrey Kelly BEB (2)

Faculty Sponsor: Dr. Richard Glor
Biology

Julie Kim BCD (3)

Faculty Sponsors: Dr. Vera Gorbunova (2) and
Dr. Marlise Klein / Dr. Robert Quivey (1)
Biology and Center for Oral Biology

Lily Kim BIO

Faculty Sponsor: Dr. Yi-Fen Lee
Urology

Sungmin Kim BCD (2)

Faculty Sponsors: Dr. Berislav Zlokovic /
Dr. Robert Bell and Dr. Maiken Nedergaard
Neurodegenerative and Vascular Brain Disorders,
Translational Neuromedicine

Yunseop Kim BMB

Faculty Sponsor: Dr. Dwight Hardy
Microbiology and Immunology

Andrew Kirkley BCD (2)

Faculty Sponsor: Dr. Laura Calvi
Endocrinology/Metabolism

Jill Kulla BIO, HLS

Faculty Sponsor: Dr. Ian Dickerson
Neurobiology and Anatomy

Theresa Kurtz BNS/MTH (5)

Faculty Sponsors: Dr. Jessica Cantlon (2) and
Dr. Bradford Mahon (3)
Brain and Cognitive Sciences

Stephanie Kwakye BMB (2)

Faculty Sponsor: Dr. Stephen Dewhurst
Microbiology and Immunology

Mallory Laboulaye BNS

Faculty Sponsor: Dr. Michael Welte
Biology

Ya Lai BNS, PSY (2)

Faculty Sponsor: Dr. Lin Gan
Ophthalmology

Elizabeth Landzberg BEB

Faculty Sponsor: Dr. John Jaenike
Biology

Alexandra Lang BIO/PSY

Faculty Sponsor: Dr. Matthew Hilton
Center for Musculoskeletal Research

[Continued...](#)

Andy Lee BMB (2)

Faculty Sponsor: Dr. Minsoo Kim
Microbiology and Immunology

Nam Lee BMG

Faculty Sponsor: Dr. Andrew Samuelson
Biomedical Genetics

Camille Leong BCD

Faculty Sponsor: Dr. David Goldfarb
Biology

Irina Lerman BMG/CHM

Faculty Sponsor: Dr. Angela Glading
Pharmacology and Physiology

Ryane Logsdon BEB (2)

Faculty Sponsor: Dr. Richard Glor
Biology

Samuel LoPresti BME

Faculty Sponsors: Dr. Edward Schwarz /
Dr. Jennifer Jonason
Musculoskeletal Research

Maksym Marek BMB

Faculty Sponsor: Dr. Robert Quivey
Microbiology and Immunology

Allison Marsh BIO

Faculty Sponsor: Dr. Douglas Portman
Biomedical Genetics

Julia Militar BIO, ENG

Faculty Sponsor: Dr. Michael Welte
Biology

Maryam Mohammed BIO/CHM (2)

Faculty Sponsors: Dr. Constantine Haidaris and
Dr. David Goldfarb
Microbiology and Immunology, Biology

Chia Hua Pai BMB (3)

Faculty Sponsors: Dr. Hyun Koo (1) and
Dr. Michelle Dziejman (2)
Microbiology and Immunology

Seong Eun Park BIO (2)

Faculty Sponsor: Dr. Henri Jasper
Biology

Brandon Podyma BBC

Faculty Sponsor: Dr. Eric Phizicky
Biochemistry and Biophysics

Eugenia Prezhdo APM

Faculty Sponsor: Dr. Tatiana Pasternak
Neurobiology and Anatomy

Sneha Rath BMG (4)

Faculty Sponsors: Dr. Henri Jasper (2) and
Dr. Andrew Samuelson (2)
Biology, Biomedical Genetics

Emily Redman BIO/CHM

Faculty Sponsor: Dr. Paul Brookes
Anesthesiology

Brian Shafer BMG (2)

Faculty Sponsor: Dr. Rudi Fasan
Chemistry

Joseph Shapiro BBC (4)

Faculty Sponsors: Dr. Vera Gorbunov(2) and
Dr. Mark Dumont (2)
Biology and Biochemistry and Biophysics

Dustin Singer BIO/ECO (2)

Faculty Sponsor: Dr. Matthew Hilton and
Dr. David Goldfarb
Orthopaedics, Biology

Sempian Sooriakumar BMB

Faculty Sponsor: Dr. Craig Mullen
Pediatrics: Pediatrics: Hematology/Oncology

Kayla Spring BMB

Faculty Sponsor: Dr. Ignacio Sanz and
Dr. Andrea Bottaro
Immunology / Rheumatology

Catherine Stevenson BMB (6)

Faculty Sponsors: Dr. Stephen Dewhurst (4) and
Dr. Michael Elliott (2)
Microbiology and Immunology

Dorota Stobierska BMB

Faculty Sponsor: Dr. Sanjay Maggirwar
Microbiology and Immunology

Lindsay Stolzenburg BMG (2)

Faculty Sponsor: Dr. Andrew Samuelson
Biomedical Genetics

Continued...

Shufan Sun BMB (5)

Faculty Sponsors: Dr. Robert Freeman (2),
Dr. Xia Jin / Dr. Carrie Dykes (1) and
Dr. Melanie Wellington (2)
Pharmacology and Physiology, Infectious Diseases,
Pediatrics

Han Wool Sung BCD (2)

Faculty Sponsors: Dr. Fred Sherman and
Dr. Elena Bulgac
Biochemistry and Biophysics

Patrick Sweeney PSY

Faculty Sponsor: Dr. Julie Fudge
Neurobiology and Anatomy

Elise Van Pelt BCD (2)

Faculty Sponsor: Dr. Jiyong Zhao
Biomedical Genetics

Steven VanDeWalle BCS

Faculty Sponsor: Mahlon Johnson
Neuropathology, Pharmacology

Bradley Wasser BBC (2)

Faculty Sponsor: Dr. Jeffrey Hayes
Biochemistry and Biophysics

Alexander Wei BMB (3)

Faculty Sponsors: Dr. Vera Gorbunova (2) and
Dr. Andrei Seluanov
Biology

Taylor Wolfgang BNS

Faculty Sponsor: Dr. Edward Freedman
Neurobiology and Anatomy

Roslyn Yi BMB/AH

Faculty Sponsor: Dr. Michael Welte
Biology

Weisi Zeng BCD

Faculty Sponsor: Dr. Yi-fen Lee
Urology

Ting Zheng BME

Faculty Sponsor: Dr. Stephen Dewhurst
Microbiology and Immunology

De Kiewiet Summer Research Fellowship

Class of '12 Fellows

The Undergraduate Program in Biology and Medicine (UPBM) has been awarding de Kiewiet Summer Research Fellowships since 1983 to UR students majoring in UPBM tracks. The fellowship is designed to give University of Rochester students an opportunity to obtain substantial research experience in the laboratories of Program Faculty. Students in their junior year are invited to submit competitive applications. The Class of 2012 graduates who participated in the deKiewiet fellowship are:

Kathryn Cooper '12, BNS

Title: *"Quantifying the Effect of Eye Position on the Localization of Sounds"*

Faculty Sponsor: Dr. William O'Neill, Neurobiology and Anatomy

Sthuthi David '12, BBC

Title: *"Functions of the Chromatin Remodeling Factors Isw1 and Fun30 in Transcriptional Silencing"*

Faculty Sponsor: Dr. Xin Bi, Biology

Matthew DeMars '12, BBC/CHM

Title: *"Multivariate P450 Fingerprint Analysis for P450 Function Prediction"*

Faculty Sponsor: Dr. Rudi Fasan, Chemistry

Layla Hatem '12, BBC

Title: *"Role Of Protein PR Domain In Leukemogenesis"*

Faculty Sponsor: Dr. Archibald Perkins, Pathology and Laboratory Medicine

Hyein Jeon '12, BCD

Title: *"Effects of Localization of CD45 on Proximal T-Cell Signaling"*

Faculty Sponsor: Dr. Jim Miller, Microbiology and Immunology

Continued...

Brandon Podyma '12, BBC

Title: *"Identification of Pathways Involved in Trm7 Function"*

Faculty Sponsor: Dr. Eric Phizicky, Biochemistry and Biophysics

Joseph Shapiro '12, BBC

Title: *"Spectroscopic Studies on the Folding and Unfolding of the Anion Exchange Protein, OxlT"*

Faculty Sponsor: Dr. Mark Dumont, Biochemistry and Biophysics

Catherine Stevenson '12, BMB

Title: *"Functional Analysis of the Interaction Between Apoptosis Inducing Factor (AIF) and Influenza Virus Polymerase Subunit PA"*

Faculty Sponsor: Dr. Stephen Dewhurst, Microbiology and Immunology

National Honors & Awards

Received by UPBM Majors and Alumni During the 2011 - 2012 Academic Year

Ayman Amin-Salem Memorial Award

The Ayman Amin-Salim Memorial is a college-wide award which is 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.

- * Brandon Podyma '12, BS BBC

Benjamin A. Gilman International Scholarship

The scholarship, which provides financial assistance to students who are enrolled in study abroad programs worldwide, is sponsored by the U.S. Department of State, Bureau of Educational and Cultural Affairs, and the Institute of International Education. "Rochester students have studied in 26 different countries through the scholarship," said Jacqueline Levine, director of Rochester's Center for Study Abroad and Interdepartmental Programs.

- * Donias Doko '13/T5, BS BNS/HIS - United Kingdom Spring 12
- * Ashley Haluck-Kangas '12 BA BIO - Finland Fall 11
- * Kindred Harris '13/T5, BS BEB - United Kingdom Fall 11

German Academic Exchange Service Research Internships in Science & Engineering (DAAD-RISE)

RISE is a summer internship program for undergraduate students from the United States, Canada and the UK in the fields of biology, chemistry, physics, earth sciences and engineering. It offers unique opportunities for undergraduate students to work with research groups at universities and top research institutions across Germany for a period of 2 to 3 months during the summer. RISE interns are matched with doctoral students whom they assist and who serve as their mentors. The working language will be English. All scholarship holders receive stipends from the DAAD to help cover living expenses, while partner universities and research institutes provide housing assistance

- * Ashley Haluck-Kangas '12, BA BIO - Greifswald Summer 2011
- * Katie Bredbenner '13, BS BMG/PHL - Goettingen Summer 2012
- * Justin Roncaioli '13, BS BMG - declined Summer 2012

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Handler Scholarship

The Alan and Jane Hander Scholars Fund provides scholarship support for undergraduate students at the University of Rochester. Handler Scholars are selected for this highly competitive endowed award based on outstanding scholarship and potential as future leaders.

- * Alison (Lai) Chan '12, BS BBC

National Science Foundation Graduate Research Fellowship Competition

The National Science Foundation's Graduate Research Fellowship Program (GRFP) helps ensure the vitality of the human resource base of science and engineering in the United States and reinforces its diversity. The program recognizes and supports outstanding graduate students in NSF-supported science, technology, engineering, and mathematics disciplines who are pursuing research-based master's and doctoral degrees at accredited US institutions. The NSF welcomes applications from all qualified students and strongly encourages under-represented populations, including women, under-represented racial and ethnic minorities, and persons with disabilities, to apply for this fellowship.

Undergraduate Fellows:

- * Emilia Sola-Gracia, '12, BS BEB

Recent UPBM Alumni Honorable Mentions In Graduate School Elsewhere

- * Emily (Grzybowski) Dennis '11, BS BMG, SA
- * Kathleen Mulvaney '10, BS BMG
- * Alison Ossip-Klein '10, BS BEB
- * Maria Strangas '10, BS BEB

Graduate Student Honorable Mentions

- * Adam B. Johnson, doctoral degree candidate in Ecology and Evolutionary biology

Student Life Awards / Individual Leadership 2012

Transfer Student Award

This award, recognizing the unique role of transfer students to the campus community, is given to a student who transferred with sophomore standing or above, and has completed a full year of study at the University. The recipient will have demonstrated a quick, successful, and seamless transition to the institution and will have taken full advantage of his or her time spent at the University.

- * Ahmed Faisal, '12, BA BIO

Logan Hazen Award for Outstanding Contributions to Residential Life

This Award is given annually to the student who has "made significant contributions to the community and experience of students living in undergraduate residence halls. This student, through his or her actions, leadership, and innovation has promoted community through respect, fairness, and inclusion.

- * Becky Donnelly '12, BS BCD/SP

Award for Athletic Leadership

This award recognizes the positive contributions athletes make to the campus community. It is awarded to a student athlete who has demonstrated leadership within their club or varsity sport while also making significant contributions to other aspects of campus life.

- * Jamie Bow '12, BS BNS/PSY

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Undergraduate Research Expo Awards

University Communications – 53 University of Rochester students recently presented their research at the 2012 Undergraduate Research Exposition on April 20th. The Expo included a speaker's symposium, poster fair, and awards ceremony. Awards were given to the top symposium and poster participants and were chosen by a panel of faculty judges.

The Undergraduate Research Exposition is a College-wide event that gives undergraduate students the opportunity to present the academic research they've conducted throughout the year. The Expo showcases the passion that both professors and students have for investigative, creative research.

The symposium allowed fifteen students representing the four distinct disciplinary sections of the College: Humanities, Natural Sciences, Social Sciences, and Engineering, to present their research topics and take questions from fellow students. The poster presentation fair then served as a venue for all presenters to showcase their findings to the College community. It was immediately followed by the awards ceremony, which included the presentation of the President's Award, the Deans' Prizes and the Professors' Choice Awards.

President's Award:

- * Benjamin Green '12, BS BBC, *Effects of Ribosomal Proteins on the Translation of the Inefficient CGA Codon in Yeast*

Deans' Award:

- * Jonathan Grima '12, BS BNS, *Therapeutic Potential Of Blocking Dynamin-Related Protein-1 (Drp1) Function In The R6/2 Mouse Model Of Huntington's Disease*
- * Theresa Kurtz '12, BS BNS/MTH, *Magnitude Judgments In The Intraparietal Sulcus Of Mathematical Experts*

Professors' Choice Award:

- * Megan Leyrer '12, BS BNS, *Electrical Coupling Synchronizes Motor Neuron Activity in the Crustacean Cardiac Ganglion*

Selected to Present Research in Expo Poster Session:

- * Allyssa Abel '13, BS BNS, *Expression and Localization of Stress-Regulated Carbonic Anhydrases VI and IX*
- * Enoch Chan '13, BS BCD, *EVI1 is Critical in Myeloid Leukemia Cell Apoptosis*
- * Alisa Johnson '14, BA BIO, *Investigation Of The Role Of Abnormal Laminin-332 Expression In ARPKD*
- * Chong Li '14, BS BBC, *Receptor-Mediated Endocytosis: The Interaction Between an Antibody and a Receptor on a Cell Surface*
- * Morgan Preziosi '13, BS BBC, *Discovering Genes Important for Melanoma Metastasis*
- * Yanhan Ren '14, BS BBC, *Matrix Metalloproteinase As A Novel Biomarker In Chronic Wound Healing*
- * Shouling Zhang '13, BS BMB and PSY, *Vaccine Immune Responses and Illness Frequencies Among Children of High and Low Socioeconomic Status Backgrounds*
- * Benjamin Kellman '12, BA BIO BCS, *Pipeline Formulation for Bayesian Cell Line Characterization from Micro Arrays: Unique Glioma Characterization from Unique Progenitors*

Undergraduate Writing Colloquium Contest

The College Writing Program holds an annual undergraduate writing contest to recognize and celebrate outstanding student writing and to share that writing with the University of Rochester community. Each spring the College Writing Program accepts submissions from students in four categories: Humanities, Social sciences. Natural and applied sciences, WRT 105/E. Submissions are reviewed by graduate

Continued...

student writing consultants and faculty members from across the disciplines. Prizes are awarded for the best paper in each of the four categories.

- * Philip Cistrone '13 BBC - Honorable Mention

Dr. Nathaniel and Helen Wisch Endowed Scholarship

The Dr. Nathaniel and Helen Wisch Endowed Undergraduate Scholarship provides income that supports a promising junior or senior undergraduate student or students majoring in Biology at the University of Rochester. The recipient(s) is selected in consultation amongst the chair of the Biology Department, the Department of Financial Aid, and the Dean of the College Faculty. This award should be made to a new junior each year, and renewed for the senior year of the previous year's recipient, regardless of the senior's financial need, and provided that the recipient is still enrolled as a full-time student majoring in Biology.

- * Alison (Lai) Chan '12, BS BBC
- * Katie Bredbenner '13, BS BMG/PHL
- * Sudhir Kunchala '12, BS BNS
- * Diana Pratt '13, BS BCD

Women's Basketball Coaches Association All-American

The WBCA Coaches' All-America Teams honors the 10 best collegiate women's basketball players at each collegiate level (NCAA Divisions I, II, III, NAIA, JC/CC). All academically eligible collegiate women's basketball players are eligible. The athlete's head coach must be a WBCA member in order for their players to be eligible for the WBCA Coaches' All-America Team award.

- * Jodie Luther '12, BMG, ECO - Luther is the first WBCA First Team All-American for Rochester since Erika Smith earned the same honor in the 2002-03 and 2003-04 seasons. Luther was selected as an All-East Region player in voting by the WBCA East Region coaches in March.



Life-Shaping Experiences and Future Plans

Jessica Eno (BS BCD)



Before even coming the U of R, I knew that I wanted to pursue a degree in biology, but like most freshman, that was pretty much all I knew. My passion for biology was always evident, but when thinking about what to do with a biology degree, I was completely stumped. Whenever I asked family or friends what they thought of when they thought of a biology degree, I

usually received the same two responses: research or medical school.

At first, both of these seemed like solid (and daunting) options, so I decided to try both options and see if either was a fit for me. The summer after freshman year, I began working as a nursing assistant at a pediatrician's office. I immediately loved working with the kids and interacting with different people every day. However, I also began to question whether being a doctor was the right step for me to take. As much as I loved seeing all of the patients and helping the nurses, I didn't want to have to be on call nights and weekends, and the more I looked into it, the prospect of medical school became less appealing.

So, after one summer I had crossed off medical school, and by sophomore year it was time to try my hand at research. Right at the beginning of sophomore year I got a job as a lab technician in Dr. Gorbunova's lab, where she focuses on studying cancer and aging. Now this seemed promising. Unfortunately, after a few months of splitting and counting cell cultures, my enthusiasm was waning, to say the least. Then, second semester sophomore year, Bob Minckley hired me as a Bio 111 teaching assistant, and the difference in job happiness was astounding. While I spent most of the time in the lab by myself, as a teaching assistant I was able to interact with multiple different people and help others understand biology. Although I had always known it, by the end of sophomore year it became official—I am a people person and research was definitely not for me. Back to square one.

Needless to say, I stopped doing research, and in the following years I went on to TA for Bob two more times, as well as for two other courses. But, while I enjoyed being a teaching assistant, becoming a teacher was still not appealing to me, so I continued to search for a path to follow after graduation. That is when the U of R's open

curriculum became my saving grace. Fall of junior year I took two Health, Behavior, and Society classes that sounded interesting, and I absolutely fell in love with them. By the next semester, I had declared an HBS minor, and I could not have been happier.

For the first time since freshman year, I felt like I was heading towards a life decision. I then used the U of R's open curriculum as an example of how to look at life in general: take the aspects of careers (or classes) that you like and combine them to fit your needs. Now, I am taking a year off to continue working in the medical field as I look into physician's assistant programs and dual PA and masters in public health degrees. Thanks to a lot of opportunities and experimentation at the U of R, I am going to combine my passion for biology, medicine, and teaching into something that works for me.

Conor Flynn (BS BCD)

I worked for the biology department's graduation ceremony in the spring of 2010. It was held in the Interfaith Chapel, and I was charged with helping the families of those graduating find their seats. It was an incredibly hot and humid day, and at that period in time I was even more overweight than I am today. Needless to say, my perspiration was becoming excessive and I employed a copy of the Open Reading Frame as a fan to ameliorate this issue. Once I returned home, I decided to leaf through the ORF out of pure curiosity. The senior profiles read much like a listing of "Who's Who" in UR science, with various accolades being disbursed to a class of seniors that had succeeded academically and had conducted considerable independent research. That day, I was convinced that I too would one day write an outstanding, self-serving, melodramatic piece for the ORF citing my many wonderful accomplishments and discoveries in the biological sciences that everyone would read on the day I graduated.



Outside of helping out Holly Kuzmiak in Dr. Bi's lab last summer, I have to this date not conducted a single minute of real independent research, nor have I attained any Latin honors. Even while performing excellent in a few classes, the law of averages has landed me where I am today, which is an average to slightly above average student of biology. Those graduating with me this year who are at the top of the class should be commended for their efforts. UR's undergraduate education in biology and

medicine is incredibly rigorous and time-consuming. These students, who have excelled under such arduous conditions ought to continue on and serve humanity by curing disease or discovering the truth about the biological world, and UR has certainly imparted them with the skill set to do so.

A career in biology or medicine is not for me. I find the discipline truly fascinating, yet I could never envision myself working day-in and day-out in a laboratory setting. Some may suspect that this decision is based on the lack of daylight within the cold, unforgiving innards of Hutchinson Hall. However this could not be further from the truth: Hutchinson is filled with many smiling faces. Not once have I seen Marianne Arcoraci so much as hint at a frown. Fact of the matter is, my fascination with biology does not imply that I would be a successful biologist any more than my fascination with the stars implies that I would be a good astronaut. I find enjoyment and satisfaction in writing and arguing about law and public policy, whereas the lab bench leaves me wanting. Indeed, law and policy are what my heart burns for, but this does not entail an abandonment of biology. This fall I will begin my studies at University at Buffalo's School of Law with the intent of concentrating in Intellectual Property and Biotechnology. I hope to utilize my technical background to help catalyze a renaissance of the United States as the singular world leader in science and technology—whether that be through assisting in the patent process to bring ideas to market, or by helping to effectuate the implementation of policies favorable to the development of scientific initiatives. In this capacity I hope I can serve well. Congratulations to all those who are graduating with the class of 2012, and when you are finished reading through this edition of the ORF, allow me to suggest it as a more than capable cooling device. *Meliora.*

Kindred Harris (BS BEB, Take 5 scholar)



I came to the University of Rochester because I wanted to move away from my familiar surroundings, see something different, and work towards becoming a future medical student and physician who was compassionate, empathetic, and knowledgeable about individuals and their cultural and religious backgrounds. I always knew that I wanted to major in science, but I still did

not decide on the perfect major until I took Biology III – Principles of Biology II. This course was a brief introductory course to my major, Ecology and

Evolutionary Biology. My love for this major was enhanced when I took Tree of Life taught by the admirable Professor Richard Glor. I loved this major because it was science and anthropology, all at the same time; it provides me with the science background that I will need to excel in medical school while it also helps me to learn about new cultures and environments (the culture and environment of all organisms, not just humans). Thus, this major taught me to think outside of the box and to see how everything in the world is connected.

Moreover, I have gained a lot of additional knowledge from research experience. I started working in the Sherman Laboratory at the University of Rochester School of Medicine and Dentistry the spring semester of my sophomore year. My job was to help assign contigs on chromosome 5A of the yeast, *Candida albicans*. *Candida albicans* is found in most humans and is not harmful, but it is very harmful in immune-compromised individuals, such as those who are HIV-positive. The goal was to help decode the yeast's genome. Currently I am working to amplify open reading frames (ORFs) in genes of *Candida albicans*. I am working with a team of individuals to see if and how ORFs play a role in fluconazole resistance in patients with Candidiasis. This summer I will conduct research on ethnobotany, tropical infectious diseases and vectors, and health disparities in the Dominican Republic through Cornell University's MHIRT Program.

Overall, my science and research-enhanced education has been supplemented by other areas of concentrations and experiences. I have a cluster in Spanish, am creating a minor in Native American Studies, and will be concentrating in Anthropology and African American Studies during my Take Five year. I was able to study abroad in London and be immersed in Malawian culture through the Malawi Immersion Seminar in Malawi, Africa. The University of Rochester has ultimately provided me with the education and life experiences that will allow me to become the compassionate and understanding physician that I aspire to be.

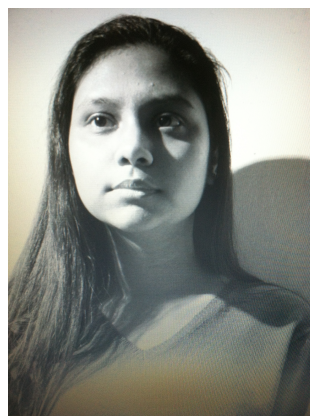
Neha Jain (BS BNS)

Life experiences as a child living in an orphanage and then immigrating to the United States have provided me with unique social, academic and spiritual challenges, allowing me to be different from other students of my age. I dreamt of achieving something important which was based on an evolution of my thought patterns, self-discovery, and passions. Although several individuals have impacted my life, none has influenced me as much as my mother. The early influences by my mother laid the foundation of my interest in the biology and society.

During my early childhood, my mom had instilled in me

a sense of responsibility to impact society and a fascination with the life sciences. I relished my classes in biology, chemistry, physics, and public health. During my subsequent school years, I became more and more interested in human biology. Thus, I carried my growing interest to study biology at University of Rochester. Here at University, I found a very unique academic environment with an open curriculum which allowed me to explore different biology classes. This helped me pick and choose the most appropriate major that suits my interest. I decided to pursue my major in Neuroscience with the future aspiration of becoming a neurosurgeon.

I was satisfied with my decision of doing Neuroscience major the moment I registered for the intro neurobiology course. While other courses also made me even more



interested in Neuroscience, another course that stood out at me the most was the neurobiology lab course, in which we studied the role of basal ganglia in motor movements by unilaterally lesioning the rats. This was very exciting for me as I performed my first neurosurgery on a rat while carefully lesioning substantia nigra pars compacta in the basal ganglia.

While learning from my academic experience, I also opted to sharpen some of my leadership skills. Thus, I participated in Compass to Personal Success program, emerging leader's program, UR Paychex leadership internship, etc. My involvement in these programs prepared me well to become the residential advisor and the president of Community Service Network. I learned to be organized and quick while solving problems at hand. I unearthed the importance of initiative, motivation and persistence, the necessary ingredients for success and for achieving something important. Moreover, through this I have come to develop a strong work ethic that I know will serve me well in future endeavors. As a result of my involvement in extracurricular activities on campus, and my academic achievements I was elected to Phi Beta Kappa in my junior year. This was a very rewarding experience for me as I thought that college community has recognized my hard work and involvement.

Besides pursuing my interests in Neuroscience and Leadership, I pursued my interest in Studio Arts, thinking that painting particularly will sharpen my motor skills for performing surgeries when I become a physician. I started connecting the science and painting together. I found the two subject areas similar in that they both require critical thinking skills and an ability to think ahead.

All these experiences at the University of Rochester have added to my unique experience of life. I am thankful to all my teachers, peers, the community and my family members who have facilitated my acceleration towards my goals and have inspired me to move ahead always. In embarking on my future career, I will carry with me the blessings of everyone in the college community and my family with the confidence to handle whatever the future might bring.

Elizabeth Landzberg (BS BEB)

I realized how fond I was of *Drosophila* when I brought home a vial of my fruit flies for observation over the weekend and was insulted by my roommate's shrieks. Even after spending 2 weeks covered in DEET and sweat while collecting fruit flies across Canada, I liked these buggers! And I have Rochester to thank for my love of fruit flies.

I came into the University of Rochester knowing that I had a passion for science, but not knowing what I wanted to focus on. I spent my first 3 years swaying between biology and chemistry because of the amazing teachers and experiences I had in both departments. I particularly enjoyed Professor Olek's BIO110, Professor Frontier's CHM204, and Professor Farrar's CHM251 courses.

My experiences in the Jaenike lab are what ultimately decided my major in Ecology and Evolutionary Biology. I met with Dr. Jaenike after hearing about his research from upperclassmen and from the Biology website. After our first meeting I knew I had found the lab for me! Dr. Jaenike not only answered my questions, but he also encouraged them! He sat with me for over an hour as he helped me devise an independent project and took a genuine interest in what I was doing around campus.



Over the next 2 years, Dr. Jaenike was fantastic at checking up on my progress and making time to help me with my projects. When I expressed interest in working in the lab over the summer, Dr. Jaenike helped me receive funding from the National Science Foundation for an REU internship. I also found great mentorship and friendship in the lab from Dr. Tammy Haselkorn (better known as the "Tamminator"). Tammy and I became especially close after spending 2 weeks on a road trip across central to western Canada to collect fruit flies.

In addition to the research at UR, I was a workshop leader (TA) for 4 courses, played 2 years of varsity volleyball, participated on intramural sports teams, was a member of

the Phi Sigma Sigma sorority, and studied abroad in Ecuador and on Semester at Sea. The UR curriculum allowed me to find my own niche and balance on campus, and it makes our university unique.

As excited as I am to attend medical school in Manhattan this fall, I am sad to be leaving Rochester. Rochester has become my home and I will miss the people I have become close to here, as well as the institution and city. Every time I swat away a fruit fly, I will smile as I think back to my undergraduate years.

Sneha Rath (BS BMG)

A young sapling was planted on the grounds of UR four years ago. It has thrived in the care of several cautious, experienced gardeners. Abundant space and nutrients have rendered its potential for growth virtually limitless. Other taller plants have extended out to lend it refuge under their cool shade time and again and butterflies have adorned its branches.



This sapling's journey through Rochester resonates quite strikingly with mine. My gardeners have been mentors who channeled my strengths and ambitions purposefully much like pruning would shape a sapling's growth. Their guidance has not tempted me to ape their ways but inspired me to pave my own, allowing me to feel ownership of my education.

In high school, I taught at a local Kumon Math and Reading center. While conversing casually with one of my students' parents, I spoke fondly of my interest in science. Little did I know, the parent happened to be Dr. Senthil Muthuswamy, then an investigator at Cold Spring Harbor Laboratory, who offered me my first research internship! Working alongside his graduate student, Marissa Nolan, studying polarity genes in breast cancer piqued my interest in biology.

Pursuing a BS in genetics was thus an easy decision, and compelling lectures from Drs. Platt, Gorbunova and others reinforced this. However, lessons from these courses would've quickly faded to trivia had it not been for several independent research opportunities. I started working with Dae Sung Hwangbo in the lab of Dr. Heinrich Jasper, characterizing a novel gene in the insulin signaling pathway in flies, summer after freshman year. A year later, Dr. Andrew Samuelson allowed me to continue pursuing my interest in aging through the lens of a

different model organism, *C. elegans*. Both Jasper and Samuelson have instilled a realization that intellectual merit lies not in good memory of facts from courses, but in creativity and intuition to see utility in them – something I will take with me as I embark on a Ph.D. in Molecular Biology at Princeton University.

The equivalent of the sapling's space and nutrients for me has been opportunities to travel and appreciate a common curiosity that weaves through the greater scientific community. I have enjoyed presenting and meeting peers at national conferences in Missoula, Ithaca and Boston. I also had a chance to intern with a UR alumnus, Dr. Adam Giangreco, at University College London who guided me in exploring novel stem cells in lung cancer. The following summer, in the lab of Dr. Keith Blackwell at Harvard Medical School, then postdoc Prashant Raghavan helped me expand my competencies in the *C. elegans* model system as I continued to delve deeper in the field of aging research. It is such enriching experiences from coupling learning with travel that take me on to an internship at Max Planck Institute of Immunobiology and Epigenetics this summer as well.

Finally, like butterflies beautifying the sapling, my extra-curricular activities have added colorful dimensions to my undergraduate experience – three terms as Student Government senator have honed my communication skills; Rochester Indian Association and Hindu Students' Association have provided me avenues to perform, plan events and cherish my culture. Lastly, I am in debt to TAs, friends and parents in whose calming 'shade', I have found undying support without which I would not be here.

Today as I walk the stage, that four-year-old sapling in me is being displaced to 'bear fruit' elsewhere but it shall always be 'rooted,' in a metaphysical sense, in fond memories, a company of scholars and the warmth of friendships here at Rochester.

Brandon Podyma (BS BBC)

Coming to Rochester my first semester I was the typical wide-eyed freshman, ready to take on the world. While I knew which door I was walking in through, I had no idea what door I'd walking be out of. So I dived in, figuring out as I went what was interesting, what I was passionate about, and what challenges awaited. What I soon came to learn, however, was how much there was out there. I would never have anticipated that freshman year just how much I would be able to do, what unexpected changes would come my way, and how many great friends and mentors I would find along the way.

If I were to sum up my involvement in biochemistry, it would fall into two ideas that many could readily relate to: teaching and research. The various experiences in relation to these are in themselves important and interesting

and have caused the greatest transformational moments for me during my time in Rochester. Even more important than the experiences, however, were the people that supported them, and hence in turn, supported me. Whether it was the first semester in BIO112 when Dr. Platt started learning your name, when students in the workshop you were leading track you down with cheesecake in hand, or when your research mentor Dr. Phizicky tells you for the fifth time to just call him Eric, you start to feel this warm sense of belonging, in addition to the seriously fun work being done in the classroom and in the lab.



In short, I would never have imagined all that I would be able to accomplish here, the great relationships I've developed along the way, and the ideas and skills that I will be taking away with me. Next year I will be taking these skills with me as a high school science teacher in North Carolina as a part of Teach For America, and after spending some time there, I plan to one day return to biochemistry for doctoral study. As I've seen and done here, I hope to bring the importance of science research to future students, the importance of teaching to developing my own research skills, and the importance of supporting others and giving back wherever I can to all those around me. Thank you, to staff, to faculty, to friends, to family, for a phenomenal journey. I've learned a lot.

Brian Shafer (BS BMG)



Four years ago, I thought the field of biology was static and that the study of it only entailed reading the information that existed in textbooks. Textbooks present knowledge clearly and concisely, and

consequently portray life, and more specifically the cell, as intensely orderly. I came into college thinking that DNA in the cell is "naked" and pent up in a holding tank in the nucleus courtesy of Osmosis Jones. I thought that proteins "talk" to one another and direct each other where to go. Then, I started college and the oversimplified view of the cell turned into chaotic bowl of alphabet soup ruled by the laws of probability more than organization. Except, instead of 26 letters in the alphabet, consider there to be over 100,000 letters. Now, try to coordinate

those 100,000 letters to carry out the countless functions of our cells. If not for you, this is mind-blowing for me. To engage with biology at the University of Rochester is to set course on a dynamic stream of information. My professors taught me that the tripartite responsibility of a scientist is to inquire about new information, push the field forward through research, and to train the future scientists who will be able to carry on the dynamic stream. The Biology Department at the University of Rochester afforded me the opportunity to access each of these three parts. In and out of class, I was always pushed to ask questions. Importantly, classes such as Molecular Biology and Eukaryotic Gene Regulation taught me how to think forward and how to think experimentally. Additionally, I acquired a 2-year position as a research assistant in Dr. Rudi Fasan's lab which helped cultivate my approach to pushing the forefront of science through research.

Though the inquiry and research were deeply satisfying, the highlight of my biology career at the University of Rochester has been teaching. Since sophomore year, I have held seven different T.A. or Workshop Leader positions. Most rewarding of them was the position I held as a T.A. to Dr. Cheeptip Benyajati in the new course BIO 101, Intro to Biology for non-majors. Tip and I started from scratch and worked together to find a way to present molecular biology to students with little to no background in biology. Watching the students evolve from fumbling over the concept of the nucleus to being able to discuss gene regulation by the end of the course sent shivers down my spine. Only the U of R could have presented me with this opportunity.

Next year I will embark on a new journey at Temple University School of Medicine, and thanks to the Biology Department I feel fully equipped and ready to tackle the new challenge. Thank you to all of my professors, classmates, and my wonderful family for pushing me to become the person I am today. Much love to you all.

Emilia Sola Gracia (BS BEB)

Before coming to the University of Rochester I knew I wanted to be a professor and work with animals. However I really did not know how to get there. During my first week of classes freshman year I realized that my goal was pretty big and I was going to have to challenge myself. As any science major will tell you, freshman year was rough, especially my first winter.

Coming from a tropical island, dealing with snow eluded me. During that summer I went to an REU in Minnesota and worked with fathead minnows and their parasite *Ornithodiplostomum ptychocheilus*. I had never done research before that experience and it was quite the eye opener. It was exciting and new, and it made me question a lot of things we say we know. After this summer and the



conferences I went to during my sophomore year, it was clear to me that I was made for research in animal behavior.

The University of Rochester has challenged me in

many ways and thanks to that I have grown. The course work alone has made me become a much better scientist. During my sophomore year I took Dr. Werren's animal behavior research course where we worked with *Nasonia*, something entirely new to me. Being in the lab was relaxing, yet at the same time it was challenging to manage both class work and research. Thankfully I was able to find a happy medium. Never had I imagined writing a 37-page paper on my research; it still amazes me that I was able to do that much. After finishing that paper, however, I was able to appreciate what my life will be during graduate school.

During my years here at the U of R, I have been prepared for what my future has in store for me. Attending another REU program in Michigan and studying abroad in Australia have also taught me important lessons in life. The most important one is to never give up. For those of you are reading this I would like to pass on this lesson. Many people back home thought I would not get far, but the reality is I will be attending Penn State University to get my PhD in ecology. I plan to work with death grip fungus and observe changes in behavior in individual ants and their colonies. I am also currently an NSF graduate research recipient and have no plans of slowing down. I am proud to say that I have become a better scientist because of the hard days of labor and challenges the University of Rochester faculty has given me.

Lindsay Stolzenburg (BS BMG)

Ever since learning about Punnett squares in middle school I have known that I wanted to be a geneticist. After taking Genetics with Dr. Sia, I couldn't have been more positive of this. I declared my major in Molecular Genetics as soon as possible and planned out my schedule for the next 2 years so that I could take all the classes offered that had anything to do with genetics. The problem was that all of my goals up to this point had been all about learning as much as I could – I didn't really have a plan as to how I would continue with my passion (other than becoming a professional student!).

One of my favorite parts about the Biology Department is the number of opportunities they offer their students. I

knew I liked genetics, so I figured I would try doing some research in a lab at the medical center. Turns out that I love it. I knew I liked Dr. Sia's Genetics class, so I applied for a teaching assistant position and she accepted me. Turns out that I love teaching too (and have since TA-ed for Dr. Benyajati's Bio 268 class). Because of the opportunities the Bio Department has afforded me, I have grown so much as a student, teacher, and scientist, and have discovered amazing ways in which I can now apply my interests.

However, it wasn't until this year that I really realized how much of the Biology Department I had not discovered yet. Due to unforeseen circumstances, I needed to shuffle my class schedule around just before senior year. The only class that could be applied to my major that would also fit in my schedule was Cell Biology. I reluctantly registered and told myself to make the best of it. I'm not sure if it was Dr. Goldfarb's meditation sessions or his 10-minute-long tangential stories, but I found myself becoming increasingly fascinated with cell bio. Because of his class, my eyes were opened to other parts of biology that I had never considered before, and I liked this a lot.



Since then, I have decided to forgo a career set strictly on genetics, and rather, am offering myself the opportunity to explore other subjects within biology. I am very excited to be embarking to Chicago next year to pursue a Ph.D. in Life Sciences at Northwestern University. I plan on utilizing the practical skills as well as the lessons in mindset that I have learned from the Bio Department. Thank you to Dr. Sia, Dr. Goldfarb, and Dr. Benyajati.

Elise Van Pelt (BS BCD)

If someone told me today that I was a freshman, I would believe it. Time has truly flown by these past four years. However, in what feels like such a short time, I have grown so much and learned more than I could have ever imagined.

I have always been interested in biology. I mean, after all, what's more intriguing than life itself, right? From the first day I stepped foot on this campus as a freshman, I knew I wanted to major in biology and be on the "pre-med" track. What I didn't know though was that Cell & Developmental Biology would open my eyes to a whole new world.



I have learned so much about life at the cellular level such this interest in Dr. Jiyong Zhao's lab at URMC studying misregulations associated with Diffuse Large B-Cell as how cells develop into tissues, organs, and organisms, how cell processes are regulated, and even how flaws in these regulations can lead to cancer. These misregulations and their

implications quickly became the focus of my interest. My junior year I was lucky enough to explore Lymphoma and possible novel treatments. This was the most rewarding and influential academic experience of my college career. I am so grateful to Dr. Zhao and his lab for taking me under their wings and teaching me so much with such passion and patience.

Working for the Biology Department as a TA for the past three years has also been an incredible opportunity. I have loved helping my peers learn the joys of biology, while

learning more about myself in the process.

This is the paragraph that I tell you that I am planning on attending medical school in the fall to pursue a career in pediatric oncology, or so I would have thought. Not only have I learned so much about biology, but I have also learned that as important as it is to follow your dreams, it is equally as important to not be afraid to change your dreams. Following graduation I plan on continuing to explore the medical field to see where I fit in, and also continuing to pursue my interest in behavioral therapy for autistic individuals. I am confident that wherever I choose to apply the knowledge and skills that I have learned, that I will be able to make a difference.

I am so grateful for the diverse "real-world" education that I have obtained here and would like to thank all those that have made that possible: all of the amazing professors that have taught with such passion, Jenn Baylark for somehow keeping the entire Biology Department organized, and my family and friends for loving and supporting me along the way. Mom, Dad & Bobby, thank you for making it possible for me to pursue my dreams. Mark, thank you for keeping me sane; I am so happy that not only did I find friends and an education here at Rochester, but I also found the love of my life.

Congratulations to the following students for defending their PhD theses this past year!

Victoria Cattani (Advisor Daven Presgraves):

Genetic analysis of postzygotic isolation and recombination rate differences in *Drosophila*.

Adam Green (Advisor Justin Ramsey):

Ploidy and invasion among the ivies.

Christine Hochmuth (Advisor Henri Jasper):

CncC/Keap1 signaling pathway in the regulation of intestinal stem cells in *Drosophila*.

David Loehlin (Advisor Jack Werren):

Genetics of size and shape evolution in *Nasonia* (winner of School of Arts and Sciences outstanding dissertation award in the natural sciences).

Li-Ka Liu (Advisor David Goldfarb):

A direct role of the nuclear pore complex in the regulation of nuclear import pathways.

Faculty Highlights

Xin Bi continues to focus his lab's research on chromatin-mediated gene regulation in eukaryotes. His lab recently examined the functions of enzymes that remodel chromatin in the formation and maintenance of condensed heterochromatin, and received funding from the National Science Foundation for conducting further mechanistic studies. **Holly Kuzmiak-Nagiam**, a Biochemistry student working in the Bi lab, defended her Ph.D. thesis in autumn 2011. Xin visited China last December and presented seminars at five universities, including Peking University.

Gloria Culver and her group continued their work to understand ribosome biogenesis in bacteria with another year of funding from the National Institutes of Health (NIH). Graduate student **Keith Connolly** defended his PhD thesis and recently departed Rochester for a post-doctoral position at Harvard University. Gloria continued to review grants for the NIH and was named as a standing member of the Molecular Genetics A study section. Gloria gave several invited talks and worked with students and collaborators to publish manuscripts. Another busy year in the Culver Lab!

Stan Hattman published a major review article on DNA methyltransferases in the February 2012 issue of *Critical Reviews in Biochemistry & Molecular Biology*, with co-author E.G. Malygin. Stan became Professor Emeritus in 2003, and the publication of the review article reminds him of his early days in research when he was a graduate student in the 1960s at MIT. There, Stan described the chemical basis of the first-known epigenetic signal, which was associated with host-induced modification of T-even bacteriophages (he showed that it was due to their loss of DNA glucosylation following growth in bacteria deficient in UDP-glucose synthesis). As a P.I. at the U of R, during the 1980s and 1990s, Stan led his group to discover an unusual series of transcriptional and translational control mechanisms regulating expression of the Mu mom operon. Over the years, the Hattman lab combined a variety of genetic, molecular, and biochemical methods to study DNA modification systems in prokaryotes and lower eukaryotic organisms, which made for ever-changing and interesting research experiences. Stan notes that his lengthy review paper (almost 100 pages!) probably represents the "swan song" of his scientific publications. Stan thanks Department Chairs **Tom**

Eickbush and **Gloria Culver** for their support during his last few years of lab work and writing.

John Jaenike was awarded new grants from NSF and the Gates Foundation to continue study of interactions between symbiotic *Spiroplasma* and parasitic nematodes. John gave several invited talks at universities and conferences, and his lab group published papers in *Trends in Ecology & Evolution*, *Ecology Letters*, *Evolution*, and *Molecular Ecology*. On campus, John became the chair of the College Curriculum Committee.

Bob Minckley spent summer 2011 studying vegetation change in an area of the Chihuahuan Desert where intensive ecological restoration is underway. In this same region, research has continued on the interesting bees that pollinate an endangered species of cactus; one bee species is as rare as the plant it visits! Other ongoing projects in the Minckley lab include understanding why dry areas of western North America have an unusually diverse fauna of solitary bees, and why bee species differ in the number of plants they visit for pollen (from few floral hosts to many). Teaching has been a constant in Bob's schedule, with classes this year including a second semester general biology course and the labs associated with them (spring and summer) as well as the upper division lab for ecology and evolution majors and a course in conservation biology (fall).

Terry Platt expanded his efforts as Co-Director (with Dean **Vicki Roth**) of the Center for Workshop Education beyond the college-wide Workshop Program, under the new umbrella of the Center for Excellence in Teaching and Learning. In new semester-end sessions, Workshop Leaders presented 20-24 posters on their research in education, catalyzing lively interactions among students and faculty. Terry continues in other student and faculty development programs, including the "Future Faculty Initiative Series" (for current graduate students, on interactive lecturing, mentoring and faculty roles), the "UR Year One" initiative (for new faculty members), and the "Sharing of Innovations in Education" program (for campus-wide faculty). He was also a faculty judge for the Writing Colloquium Awards, the Undergraduate Research Exposition, and the Susan B. Anthony Institute national "Kafka Award" for best American women's fiction. Terry is involved in four national grants: an NIH-funded study ("Researcher Resilience through Multidimensional Mentoring," with **Vivian Lewis**), as Co-P.I. on two NSF awards to

increase the number of qualified STEM teachers for high-need schools (“The Noyce Scholars Program - Phase II” with **Raffaella Borasi**, and “The Noyce Master Teachers' Program” with **Judi Fonzi**), and a multi-institutional NSF grant to define and disseminate “Core Concepts in Biochemistry and Molecular Biology.” In July, Terry will co-present a 3-hour workshop session on “Active Learning Strategies in Biochemistry” at the 2012 Biennial Conference on Chemical Education, focusing on how (rather than what) is taught, shifting the emphasis from teaching to learning and knowing to understanding. This year Terry’s co-authored 2008 paper on this topic became the most highly cited paper in its journal, and the 10th most often downloaded (Eberlein et al., *Biochem. and Mol. Biol. Ed.* 36, 262-273).

Daven Presgraves and his lab published five papers focused on the regulation, evolution, and evolutionary consequences of sex chromosomes during the 2011-2012 academic year. Daven and Assistant Professor, **Dan Garrigan**, landed a big NIH grant to study the evolutionary genomics of complex speciation in a group of three closely-related fruitfly species from islands in the Indian Ocean. Daven was invited to present research from the lab at the Marie Curie Speciation Network’s symposium on Progress in Understanding the Origins of Biodiversity in Jyväskylä, Finland, and at the Eighth Okazaki Biology Conference on Speciation and Adaptation in Okazaki, Japan (birthplace of the great population geneticist, Motoo Kimura). **Colin Meiklejohn** has moved on to a new Research Scientist position at Indiana University, and **Victoria Cattani** defended her PhD dissertation in February 2012 and moved on to a postdoc position at New York University.

Justin Ramsey and his lab published several studies of polyploidy (genome duplication), including papers in *Biological Invasions* and *Systematic Botany*. Graduate student **Adam Green** defended his PhD research (“Systematics & Invasion Biology of Ives”) and is now

continuing studies of polyploid evolution in Brian Husband’s lab at the University of Guelph, Ontario. The Ramsey lab extends best wishes to its current and recent undergraduates who are moving to new positions, including **Aviv Brokman** (grad student, University of Kentucky); **Caitlin Smigelski** (med student, Physical Therapy program, Upstate Medical, NY); **Maria Strangas** (grad student, City University of New York); and **Laney Widener** (grad student, Northwestern University/Chicago Botanical Garden). The Ramsey lab is wrapping up conservation and research activities in Rochester forests, funded by an NSF CAREER award, and in summer 2012 will focus on estimating forest stand ages by tree coring.

Jack Werren was both appointed as the first Nathaniel and Helen Wisch Chair in Biology and elected a fellow of the American Academy of Arts & Sciences. Graduate student **David Loehlin** defended his Ph.D. research, for which he was selected for a School of Arts & Sciences Outstanding Dissertation Award. Dave and Jack had a paper come out in *Science* this year on genes responsible for growth differences between species, and Dave recently started a prestigious postdoctoral position with Dr. Sean Carroll at U. Wisconsin. Last summer, Jack received an NIH Eureka (Exceptional, Unconventional Research Enabling Knowledge Acceleration – say what?) grant award to explore the function, evolution, and drug discovery potential of venoms of parasitoid insects. Two new postdoctoral researchers (**Mrinalini** and **Jeremy Wright**) will join the lab group spring and early summer 2012 to investigate these venoms and their properties. Jack did a bit of touring around, with talks at the International Social Insects Genome meeting in Shenzhen, China; Gordon Conference of Ecological and Evolutionary Genomics in Biddeford, Maine; *Nasonia* Meeting in Nashville, Tennessee; and seminars at NC State, Arizona, Michigan State, and Texas A&M. He was selected to give the Alfred Boyce Lecture in Entomology (UC Riverside), which included a coffee mug.



Howard Bryant Memorial Golf Tournament

June 16, 2011





Howard Bryant Memorial Golf Tournament

Please join us!

Friday, June 22, 2012

Registration: 10:00 AM
Shotgun Start: 11:00 AM
Dinner: 5:30 PM

Registration Fee:
\$90.00/person

Fee includes golf, lunch, chicken wing appetizers, and chicken/beef dinner.

Prizes!

- Closest to Pin
- Longest Drive
- Raffles
- Doorprizes

Chili Country Club
760 Scottsville-Chili Road
Scottsville, NY 14546
www.chilicountryclub.com

Unable to join us?
Direct Donations to the Howard Bryant Memorial Scholarship Fund are welcome and can be mailed to the address below.
If you wish to remain anonymous, please write "anonymous" on the memo line of your check.
Thank you for your support!

Not a golfer?
"Dinner Only" fee
is \$35.00
Kids under 10 get
in free!

Howard Bryant

Howard was a beloved member of the Biology Department at the University of Rochester for over 40 years.



All proceeds from this tournament benefit The Howard Bryant Memorial Scholarship Fund. The Fund was established in 2004 to honor Howard's legacy of caring and support by providing aid to students in need of financial assistance and who are interested in pursuing a career in Science or Engineering.

Registration

Please send checks & form to:

Kathy Giardina
University of Rochester
Department of Biology
487 Hutchison Hall
Rochester, NY 14627

Checks made payable to:
University of Rochester

All registered golfers will receive one free golf pass for the Chili Country Club!!!

Name: _____

Name: _____

Name: _____

Name: _____

No. of Golfers _____
x \$90.00 ea=(Total _____)

Dinner Only _____
x \$35.00 ea=(Total _____)