Dr. Alan van Giessen was granted tenure and promoted to Associate Professor

Chemistry and Biochemistry Students showcase their research at Senior Symposium

Annual Chemistry Department Luncheon

Award Ceremony in recognition of academic rigor and excellence
Congratulations on receiving a tenure position at Mount Holyoke College, Professor van Giessen!

Professor van Giessen first worked at Mount Holyoke College from 2005-2008 as a laboratory instructor and then as a visiting assistant professor. After a stint at Hobart and William Smith Colleges, Professor Alan van Giessen rejoined the Mount Holyoke College Chemistry Department beginning in the fall of 2014. Since then, Professor van Giessen has been teaching a wide range of courses including both general chemistry, physical chemistry, and a seminar course titled “Poisons: Death by Chemistry”

For his research, Professor van Giessen uses theoretical and computational techniques to understand the structure and thermodynamics of both complex and simple systems. One area of research includes studying the destabilization of a test protein and its potential to provide a mechanism for nucleating misfolded aggregates complicit in diseases such as Alzheimer’s disease and Huntington’s disease. A second area of focus is the energetic properties of curved interfaces, such as liquid drops or micelles. Both projects are supported by research grants from the American Chemical Society ($50,000) and Research Corporation ($35,000).

Thank you so much Dr. Vinita Lukose!

Professor Lukose is a visiting lecturer of Biochemistry at Mount Holyoke College during the 2015-2016 academic year. Even though her stay was brief, she has definitely won the hearts of Mount Holyoke students: The students from BIOCHEM-311 and BIOCHEM-314 decided to present her with a handmade thank-you card as a token of their gratitude. “We have learned so much from you.” – wrote Ha Dang on the card. “It has been such a wonderful year for me to be here at Mount Holyoke College,” said Professor Lukose. We wish her all the best with her future endeavors!

Biography: Dr. Vinita Lukose received her BA in Chemistry from Pomona College and her PhD in Biological Chemistry from MIT. She worked in Dr. E.J. Crane Lab and stayed as a Mellon Post-Baccalaureate Fellow at Pomona College. She completed her PhD at MIT under the supervision of Dr. Barbara Imperiali. Professor Lukose’s research includes enzymology and microbial glycobiology. She is interested in the diverse glycoconjugates found on the bacterial cell surface and the enzymes that synthesize these complex molecules. During her time at Mount Holyoke College, she taught BIOCH-311 (Protein & Cellular Metabolism), BIOCH-314 (Nucleic Acids) and General Chemistry lab. She also offered a seminar in Biochemistry & Molecular Biology (BIOCH-330MB-01), which focuses on antibiotic resistance and the emergence of drug-resistance bacteria.
Dr. Jonathan Ashby will be joining the Chemistry and Biochemistry Department in Fall 2016. Dr. Ashby received his undergraduate degree in Chemistry from Trinity College and his doctorate from University of California, Riverside. In graduate school, Professor Ashby worked on understanding protein components of the nanoparticle-protein corona and using F4 to determine nanoparticle-protein kinetics and affinity, and also to isolate, identify and quantify levels of miRNA bound to various serum carriers for early-stage cancer detection. Professor Ashby is a NIH Postdoctoral Fellow at University of California, Davis as part of the T32 program in Oncology and Cell Signaling Biology, where he investigated on how the levels of a DNA repair enzyme, NEIL1 can be implicated in dysfunctional DNA repair leading to breast cancer and other cancers.

Ashby will be teaching General and Analytical Chemistry courses in the next academic year.

Welcome to Mount Holyoke College, Dr. Katie Berry!

Katie Berry will be joining the Chemistry and Biochemistry Department in Fall 2016. Dr. Berry received her undergraduate degree in Biochemistry from Swarthmore College. In her undergraduate years, she worked in the lab of Prof. Robert S. Paley writing her senior thesis on Stereoselective synthesis of heteropolycycles: Intramolecular pinacol couplings of enantiopure sulfanyl diene iron(0) complexes. She later received her doctorate from University of California, Berkeley where she took part in the laboratory of Prof. Jennifer A. Doudna researching into Molecular mechanisms of mRNA recruitment in eukaryotic and viral translation initiation. Professor Berry is an NIH NRSA Postdoctoral Fellow at Harvard Medical School in the lab of Dr. Ann Hochschild in the department of Microbiology and Immunobiology. Her research focuses on the mechanism of transcription regulation, RNA folding and non-coding RNA function in *E.coli*. Professor Berry will be teaching BIOCH-311 in the Fall 2016 and BIOCH-314 in the Spring 2017.
In recognition of Professor Ken Williamson

The College expresses deep regrets to inform that Professor Kenneth L. Williamson has passed away on August 21, 2015. Professor Williamson started teaching at Mount Holyoke College in 1967 as an Associate Professor. After 3 years of teaching, he went on lecturing in various colleges and universities including Harvard University, Dartmouth College, Oxford University, California Institute of Technology, etc. In 1984, he once again came back to Mount Holyoke College and taught here until his retirement in 1996. For almost 15 years, Professor Williamson taught courses in Organic Chemistry at Mount Holyoke College, where he held the title of Mary E. Wooley Professor of Chemistry. He is the co-author, with Katherine M. Masters from Penn State University, of Macroscale and Microscale Organic Experiments, now in its sixth edition.

Dr. Williamson had a passion for historic preservation. He worked to preserve Sycamores, the 1788 home of Ruggles Woodbridge, and turn it into an historic house. Furthermore, he was a member of Society for the Preservation of New England Antiquities, Historic Massachusetts, Old Sturbridge Village, Historic Deerfield and Boston Atheneum.

Passport to Chemistry

Mount Holyoke College students Kelly Lim, Kristyn Norris, Samantha Rios, Cheng-Yin Eng together with Prof. Maria Gomez and Ashley Figueiredo have been working hard to expand the Passport to Chemistry Adventure Program to new local libraries. These new libraries include Shutesbury, Sunderland, Amherst, and Holyoke. This year, the newly participating libraries have visited currently participating libraries (South Hadley, Wilbraham, Southampton and Easthampton) for interactive workshops on polymers with student-guardian teams.

In addition to working on new kits of experiments the team is working on translating the chemistry kits into Spanish for bilingual families.

Kids Think Big

Kids Think Big is another outreach program started by the chemistry department this year. Dr. Himali Jayathilake has designed and conducted science experiments with groups of kids at Mosier School every month. These experiments are not just limited to cover the topics in the elementary school science curriculum but other science topics that inspire enthusiasm of learning science. “The plan for the next year is to extend the program to more classrooms with the help of our chemistry and education majors” said Himali. Chemistry department outreach funds support the activities.
New Chemistry courses

CHEM 199: Introduction to Research by Professor Wei Chen
This seminar helps to prepare students for scientific research. Through various research topics collected from reading, discussing, presenting, and writing about primary literature and attending selected department seminars as well as one research-style project, students will gain experience with the multifaceted nature of scientific inquiry and jump start their research career on campus.

CHEM 339: The Organic Chemistry of Biological Pathways by Professor Darren Hamilton
This course explores the underlying organic chemistry of biological pathways and thereby seeks to build a framework for understanding biological transformations from the perspective of mechanistic organic chemistry. Beginning with common biological mechanisms, and drawing parallels with their sophomore organic chemistry counterparts, a broad overview will be constructed of the pathways by which the key classes of biological molecules--lipids, carbohydrates, amino acids, nucleotides--are manufactured, modified, and consumed.

BIOCH 330MB: Topics in Biochemistry and Molecular Biology by Professor Vinita Lukose
This course examines a number of important and exciting topics in biochemistry, molecular biology, and other related fields of biology. Discussions emphasize the critical evaluation of experimental techniques, data analysis, and interpretation. Substantial student participation in the form of oral presentation is expected. This course will focus on antibiotic resistance and the emergence of drug-resistant bacteria.

We will miss you, Eric Girard

Eric Girard started working at Mount Holyoke College as the chemical storeroom manager in January 2003. Since then he has been overseeing chemical and nonchemical orders from all the science departments. His duties were not only limited to keeping track of orders from various departments but also to keep the chemical inventory system up to date and to involve in safety training procedures. “As the chemistry department, we order most of the chemicals and Eric has been a tremendous help to the department throughout” say our department resources. Eric retired from his position last January and is planning to travel across the country during his retirement.
Recent publications and presentations

2016 ACS CVS Meeting at Mount Holyoke College

The effect of yttrium concentration on proton binding sites and transition states in barium zirconates – Virginia Blackmer and Audrey Eshun

Factors affecting morphologies and hydrophilicity of poly(vinyl alcohol) thin films spin-cast on polydimethylsiloxane substrates – Kelly Lim

siRNA mediated gene silencing in cancer cells with nanoparticle stabilized nanocapsules – Emily Tetrault

Design and characterization of small heat shock protein dimers – Caley Butler

The shapes of proton conduction channels and water distribution in AM2 and BM2 – Mai Huynh and Truc Huynh

Technologies for studying the physical interactions of cells and multicellularity – Kristyn Norris and her peers

Thiol-functionalized substrates for protein immobilization – Linda (Shuying) Xu

Morphologies of poly(vinyl alcohol) films adsorbed on polydimethylsiloxane

2016 ACS Meeting in San Diego: Computers in Chemistry

Unusual morphologies of poly(vinyl alcohol) thin films adsorbed on polydimethylsiloxane substrates – Professor Wei Chen

Factors affecting morphologies and hydrophilicity of poly(vinyl alcohol) thin films spin-cast on polydimethylsiloxane substrates – Kelly Lim

Thiol-functionalized substrates for protein immobilization – Linda (Shuying) Xu

Morphologies of poly(vinyl alcohol) films adsorbed on polydimethylsiloxane substrates with and without plasma treatment – Yan Yan

Preparation of octanoic acid coated γ-Fe2O3 nanoparticles monolayers using mixed solvent systems – Venky Feng

Student and Faculty Publications


Departmental Seminars

Billions and Billions of Molecules: Exploring Chemical Space for Functional Organic Molecules by Professor Alán Apuru-Guzik from Harvard University – April 14, 2016.

Complex Structures from Straightforward Reactions by Professor Darren Hamilton from Mount Holyoke College – March 10, 2016.

Strained Topologies: Making Molecules with One Side by Professor Michelle Franch from Bryn Mawr College – March 3, 2016.

Senior Symposium

Defining the Role of Autophagy in Anoikis Resistance and in Peritoneal Carcinomatosis/Sarcomatosis by Sydney Catherine Casey.

Investigating the Mechanism of Substrate Delivery by Adaptors during Regulated Proteolysis in Bacteria by Wamiah Parveen Chowdhury.

Investigating the Folding Capacity of the Proteostasis Network in Escherichia coli by Ha Van Dang.

Playing with a Protein in Parts: Seeking Understanding of Protein Aggregation through the Observation of Substrate Interaction with Mini Chaperones derived from HSPB1 by Elizabeth Rose Deleon.


Genetic Regulation of Anti-Sigma Factor CsfB at Late Times in Bacillus subtilis Sporulation: The Search for a Molecular Mechanism by Sarah J. McKay.

Probing the Binding Site of the Folate Pathway Enzyme, Dihydromeopterin aldolase with Small Chemical Fragments by Kristyn Marie Norris.

Investigation of Ketogenic Diets as a Therapeutic for Alzheimer's Disease in a Drosophila melanogaster model by Emma I. O'Leary.


Photo-physical investigations of new BODIPY dyes for use in organic solar cells by Professor Elizabeth Young from Amherst College – October 29, 2015.

Molecular Photography: What Can You Learn From a Handful of Photons? by Professor Michael Barnes from University of Massachusetts, Amherst – October 8, 2015.


A Genetic Screen for Genes Involved in Tissue Remodeling by Patricia Walchessen.

β-Hairpin Crowding Agents Affect α-Helix Stability in Crowded Environments by Pho Tuong Bui.

Pathways through Perovskites: Exploring the Effects of Low Yttrium Concentration in Barium Zirconate by Audrey Veronne Eshun.

Synthesis of Highly Crystalline and Monodisperse Octanoic Acid Coated γ-Fe2O3 Nanoparticles and Preparation of Homogeneous Nanoparticle Thin Films Using a Mixed Solvent System by Jie Feng.

Factors Affecting Morphologies and Hydrophilicity of Poly(vinyl alcohol) Thin Films Spin-Cast on Polydimethylsiloxane Substrates by Kelly Sin Ee Lim.

Synthetic Approaches Towards a Compound that Violates Classical Structure Theory by Xingyou Shi.

Thiol-Functionalized Substrates for Protein Immobilization by Shuying Xu.
The Chemistry and Biochemistry Club encourages students to nurture and share their appreciation of these subjects through casual presentations and group discussions. Additionally, the club organizes events featuring fun activities with educational value to generate interest in these fields within the general student population. With support and guidance from the chemistry department, they hope to promote cooperative learning outside the classroom.

Mole Day Celebration 2015 marked the collaboration between the Chem/Biochem Club and the MHC Biology Club. Various activities including pipetting competition and cookie decoration received the excitement from a body of not only science students but also those from other disciplines of social sciences and humanities. The event took place at Kendade Atrium on November 5.
2015-2016 Awards

**In recognition of student excellence in Chemistry and Biochemistry**

**For Senior Majors:**

**RACHEL BROWN AWARD**
Awarded annually to the outstanding chemistry or biochemistry major.

Venky Jie Feng

**AMERICAN CHEMICAL SOCIETY AWARD—CONNECTICUT VALLEY SECTION**
Two awards, annually, one each to an outstanding chemistry major and biochemistry major.

Audrey Eshun

Linda Shuying Xu

**EDNA H. GRAHAM PRIZE**
Awarded at the department’s discretion, to a chemistry major and a biochemistry major who give promise of continued professional activity in their discipline.

Emily Tetrault

Ha Dang

Pho Bui

**For someone dear to our hearts:**

**CHEMISTRY DEPARTMENT BOOK AWARD**
Awarded at the Department’s discretion in recognition of outstanding contributions to the life and work of the department.

Venky Jie Feng

**For Juniors:**

**LOUISA STONE STEVENSON PRIZES**
Awarded annually to students in their Junior year for excellence in chemistry, as determined by Grade Point Average and/or class rank.

Yan Y., Tasneem J., Este C., Vanbokkelen A., Carter S., Arshinoff D., Sapp K., Shu A., Yavarow Z.

**CHEMISTRY DEPARTMENT TEACHING ASSISTANT AWARD**

Linda Shuying Xu

Felicity Emerson

**For Organic Chemistry (typically sophomores):**

**ALBERT WALTER AWARD FOR EXCELLENCE IN ORGANIC CHEMISTRY**
Awarded annually to an outstanding scholar in organic chemistry.

Abby Candee

Yu Hu

**For First-year students (typically):**

**ALBERT WALTER AWARD FOR EXCELLENCE IN GENERAL CHEMISTRY**
Awarded annually to an outstanding scholar in first year chemistry.

Momal Baloch, Ana Berthel, My Linh Le and Ayla Safran

**TAYLOR FRANCIS CRC AWARD**

Haimi Nguyen
Class of 2016 Graduates

Naa Ankrah - Work in Food Science and later Graduate School in Food Science

Virginia “Lee” Blackmer – MA in Teaching in Residency

Elizabeth Dietrich -

Audrey Eshun – PhD in Chemistry, Michigan University, Ann Arbor

Venky Feng – PhD in Material Science, Oxford University

Kalin Hanson – PhD in Chemistry, University of California Santa Barbara

Gillian Kwan -

Rabeb Layouni – finishing BS in Engineering, UMass Amherst

Donna Huizhu Pan – Working in start up company

Nana Seiwa Sekyere – Masters in Language and Literacy

Emily Tetrault – PhD in Biology, UMass Amherst

Pho Bui – PhD in Chemistry, Pennsylvania State University

Ana Capi - Research Assistant at Boston Children's Hospital; Applying to Medical School

Sydney Casey – Seeking employment as research assistant

Wahmiah Chowdhury – PhD in

Sarah Crocker – Intern at Women’s Sports Medicine Center at the Hospital for Special Surgery

Ha Dang – Ph.D in Biochemistry, University of Washington, Seattle

Elizabeth Deleon – PhD in Biochemistry, University of Wisconsin-Madison

Kelly Lim - Seeking employment as research assistant

Jackie Long – Employment as a medical scribe

Chenyue Lu - Seeking employment as research assistant

Sarah McKay - Seeking employment as research assistant

Maria Montero – Research assistant at Sofregen

Kristyn Norris – PhD in Immunology, University of Massachusetts Medical School

Emma O’Leary – NIH Fellow at the National Heart, Lung and Blood Institute at NIH

Xingyou Shi – University of Detroit Mercy School of Dentistry

Carolyn Teal – Organic Chemist at SPEX CertiPrep

Patricia Walchessen -

Linda Xu – Medical School, Waiting to hear

Stay in touch with the Chemistry Department

Check out the new features on the new department website here

https://www.mtholyoke.edu/acad/chemistry/

Mount Holyoke College Chemistry Alumnae is now on LinkedIn

https://www.linkedin.com/groups/Mount-Holyoke-College-Chemistry-Alumnae-4998186

Send your news or stories to Himali Jayathilake (hjayathi@mtholyoke.edu)