Plans are underway to renovate the Science & Engineering complex. The Board of Trustees approved a plan to borrow, in addition to fundraising, in order to begin the gut renovation of the complex. Phase 1 of the renovation, which is currently scheduled to begin in 2017, will include the portion of the complex that houses the organic chemistry labs, as well as other teaching and research labs and offices used by the Department of Chemistry. The Department will have to make do with alternate spaces and teaching schedules during the renovation, which should take about 15 months to complete, but in the end, the space will reflect modern practices in scientific teaching and research, and, importantly, it will be a safer place to conduct these activities.

The College is working with EYP Architecture & Engineering, the same firm the College worked with in the design and construction of the Peter Irving Wold Center, to create design plans for the renovation. The current design plans, though not yet final, depict a space that is more open and inviting, where science is on display, and which fosters collaboration among the science departments at Union College. Fundraising is underway, so stay tuned for future updates as the renovation plans proceed!

WRIGHT SCHOLARSHIP

The W. Howard Wright Chemistry Scholarship was established and endowed by the gifts of William Howard Wright, Class of 1895, and his son, Henry DeForest Wright, in memory of his father. Both the late W. Howard Wright and the late Henry DeForest Wright served with distinction on the Union College Board of Trustees. In addition, Howard Wright’s father, Thomas Wallace Wright, was a Professor of Physics and Mathematics at Union College in the late 1800’s, where he was acclaimed for his excellent teaching at a time when he also became nationally recognized for the textbooks he authored.

The Wright Family Foundation and SI Group, in conjunction with the W. Howard Wright Endowed Scholarship Fund at Union College, provides funding for the W. Howard Wright Chemistry/Biochemistry Scholarship for four awards each year, one for each class. The purpose of this fund is to provide tuition scholarship support to outstanding full-time, undergraduate students majoring in chemistry or biochemistry in recognition of scholastic achievement and leadership in extracurricular activities. Scholarship recipients will be residents of New York (continued on p. 3)
STUDENT SPOTLIGHT:
SUAN QUAH AND TRAVIS BARKER

SUAN QUAH: Originally from Malaysia, Suan came to Queens, NY, when she was 14 and was already fluent in three languages (Malay, English and Chinese). At Union she has pursued a double major in Chemistry and Music, with an emphasis in western music history. Suan is very interested in polymers and nanomaterials and is working with Prof. Hagerman for her senior thesis research making conductive polymer/clay nanocomposites for solar applications. The material she is working toward perfecting is aimed at absorbing visible light that can then serve as an energy source to produce electron flow, ultimately leading to higher efficiency solar cells. She is currently applying to graduate school where she hopes to continue her studies in materials research while earning her Ph.D. Her favorite classes at Union have been Chem 250 (Inorganic Chemistry) and Chem 340 (Instrumentation). Chem 250 gave her the opportunity to study inorganic compounds in a quantitative way and predict behavior that could then be confirmed in class. She also enjoyed the small class size and the particular attention paid to learning scientific writing. In Chem 340, Suan liked having firsthand experience working with the instruments and has found that this was especially useful as she began research. Her favorite instrument is the FT-IR, stating that “it is a powerful yet simple technique that can identify some of the most subtle changes in compounds.” Although Suan’s studies keep her busy, she participates in the Union College Chorale. She is also a member of the Biology club and the Union InterVarsity Christian Fellowship.

TRAVIS BARKER: Travis is originally from the Bozeman, MT, but moved to Maine when he was 13. He is a Biochemistry major and is double minoring in Math and Neuroscience. His three favorite classes have been Chem 382 (Biochemistry), Chem 231/232 (Organic) and Chem 240 (Analytical). Chem 240 gave him the opportunity to see the math behind the chemistry which he greatly enjoyed because it is directly related to his minor and gave him the opportunity to learn things in depth. Travis also enjoyed the challenge of Chem 231/232 and the thinking process involved in solving problems in those courses. Chem 382 presented Travis with a culmination of many of the different topics he had learned throughout the chemistry and biochemistry curriculum, in particular, protein function and structure. His work with Prof. Fox for his senior thesis research has been aimed at expressing and purifying metacaspase, a protein that serves as a signal for cell death in fungi and plant cells. His studies will hopefully yield successful structural data and elucidate how exactly this protein signals cell death. Travis is also an accomplished athlete as a member of the varsity soccer team here at Union. Outside of his strong commitment to his academics and athletics, Travis also is a PALs mentor and senior intern. His work with PALs has given him the opportunity to mentor and support first year students with learning disabilities to help them find ways to succeed in their endeavors at Union and to adjust to the Union Community. As a senior intern, Travis is directly involved with interviewing first year prospective students and also helps during the Open House days, presenting Union to visitors. Travis has also been an RA since his sophomore year and is currently head RA for West. Travis has applied to medical school and is currently in the process of interviewing.

SUMMER@UNION

It was a busy summer in Union’s Chemistry Department. A total of 26 students (11 rising seniors, 10 rising juniors, 2 rising sophomores and 3 recent graduates from the class of 2014) were engaged in research at Union under the direct supervision of a Chemistry Department faculty member. At least 10 additional students were involved in interdisciplinary collaborations with chemistry faculty members but had primary research advisors in other departments. Each student spent 4, 6 or 8 weeks of the summer on a project. Ten Chemistry Department faculty members supervised one or more summer students, and the research projects spanned all of the major sub-disciplines of chemistry – analytical, biochemistry, inorganic, organic and physical chemistry. A sampling of the summer research topics follows:

- “Synthesis of Novel Trehalose Analogues for Cryopreservation of Mammalian Cells” (Phil Kretschmer ’15, BCh major, Paulick lab)
- “High-Performance Supercapacitors Based on Graphene Nanosheets/Polyaniline/Laponite Nanocomposites” (Youyi Hu ’16, CHM major, Hagerman lab)
- “Chemistry Pedagogy, Technology in Chemistry Learning: Solved Problem Mini Webcasts” (Caitlin Lentlie ’15, CHM & English double major, Kehlbeck lab)

Many of the summer research students gave oral or poster presentations on their work as part of the College’s Summer Seminar Series. Student researchers also participated in summer activities outside of the lab, including a kayaking trip (see photo) organized by Prof. Fox and MacManus-Spencer.

We are grateful to have access to funding sources that permit us to support so many student researchers. In 2014 these included the Union College Summer Research Fellowship program, the department’s Kane Fund, and external grants from the National Science Foundation (NSF) and the American Chemical Society Petroleum Research Fund (ACS PRF).

WRIGHT SCHOLARSHIP

(continued)

State: Brazoria County, Texas, Cocke County, Tennessee, and any other specific county locations where SI Group may have a facility.

There are currently four Wright Scholars at Union College:

- Ms. Jennifer L. Sexton ’15 a Biochemistry/French double major
- Ms. Aude M. Bechu ’16 a Chemistry major
- Ms. Jennifer L. Sexton ’15 a Biochemistry/French double major
- Ms. Alexandra E. Pagano ’18 a Chemistry major

All the current Wright Scholars hail from New York state.
GRANTS AND PUBLICATIONS

New peer-reviewed publications:


* indicate student co-authors

New Grants:

Andy Huisman, American Chemical Society Petroleum Research Fund “A Physicochemical Exploration of the Diffusion of Small Molecules in Glassy and Highly-Viscous Materials” $55,000

Ann Anderson, Agnes S. MacDonald Professor of Mechanical Engineering, and Mary Carroll, Professor of Chemistry, together with Dr. Bahram Keramati (GE Global Research, retired), have established Sunthru LLC, a small business concern. Sunthru has been awarded a grant (IP-1415359) from the National Science Foundation’s Small Business Technology Transfer (STTR) program for their project “STTR Phase I: High-Performance Windows for Daylighting.” Anderson and Carroll will provide technical direction and expertise, with oversight of Union’s $134,132 subaward by collaborator Associate Professor of Mechanical Engineering Brad Bruno.

CONFERENCE PRESENTATIONS

In the spring Union Chemistry and Biochemistry students travelled with faculty to both the American Chemical Society National Meeting in Dallas, Texas and the American Society for Biochemistry and Molecular Biology National Meeting in San Diego, California to present their research.

Students Presenting at ACS: Tom Kolb ’15 Paulina Piotrowski’14 Tae Ra Kim ’14 Mike Morris ’14 Courtney Elwell’14 Jared Mondschein’14 Isaac Ramphal’14 Leah Smith’14

Students Presenting at ASBMB: Anne Kaminski’14 Zach Spencer’14 Chelsea Aitken’14

PROGRAM ASSESSMENT

The department routinely reflects on our curriculum, considering the effectiveness of each experience towards achieving our stated student learning goals. This assessment process aids accreditation efforts and helps us make changes that improve outcomes ensuring that our graduates are supremely prepared for life after Union!

We use surveys and collect data on student research experiences and presentations and discuss how topics are woven through our classes in the best way to link learning through our curriculum. Did you have an experience in the department that made a lasting impact on you? Tell us about it!

Email to Kristin Fox at foxk@union.edu

We are currently developing an alumni survey to gather feedback. Stay tuned.

CONTRIBUTORS:

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http://muse.union.edu/chemistry/