DEPARTMENT OF
Chemistry

2008–10
ANNUAL REPORTS

Bucknell UNIVERSITY
# 2008-09 Annual Report
## Department of Chemistry

## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Report from the Chair</td>
<td>1</td>
</tr>
<tr>
<td>Undergraduate Program</td>
<td>3</td>
</tr>
<tr>
<td>Undergraduates in Academic Year Research Courses</td>
<td>5</td>
</tr>
<tr>
<td>Student Awards</td>
<td>6</td>
</tr>
<tr>
<td>Summer Research Program</td>
<td>7</td>
</tr>
<tr>
<td>M.S. Graduate Program</td>
<td>9</td>
</tr>
<tr>
<td>American Chemical Society</td>
<td>10</td>
</tr>
<tr>
<td>Faculty</td>
<td>11</td>
</tr>
<tr>
<td>New Faculty</td>
<td>34</td>
</tr>
<tr>
<td>M.A. Program for High School Teachers</td>
<td>34</td>
</tr>
<tr>
<td>Visiting Speakers Program</td>
<td>35</td>
</tr>
<tr>
<td>56th Annual Merck – Bucknell Lecture Series</td>
<td>36</td>
</tr>
<tr>
<td>Alumni News</td>
<td>37</td>
</tr>
<tr>
<td>Billy Owens Memorial Breakfast Club</td>
<td>41</td>
</tr>
<tr>
<td>Billy Owens Reunion Breakfast</td>
<td>41</td>
</tr>
<tr>
<td>In Memoriam</td>
<td>43</td>
</tr>
<tr>
<td>A Year in Pictures</td>
<td>45</td>
</tr>
</tbody>
</table>
REPORT FROM THE CHAIR

The format of this report is somewhat different than in the past. The report covers two academic years – 2008-09 and 2009-10.

The class of 2009 included 9 BS chemistry majors, 5 BA chemistry majors, and 17 BS biochemistry majors. Nate Contrella received the Alpha Chi Sigma Award for excellence in chemistry and the American Chemical Society Susquehanna Valley Section Award. Alyson Gaylo was awarded the Bucknell Prize for Cell Biology/Biochemistry. Six chemistry and biochemistry majors were elected to Phi Beta Kappa.

The class of 2010 included 5 BS chemistry majors, 6 BA chemistry majors, and 22 BS biochemistry majors. Tara Pederson received the Alpha Chi Sigma award, Allison Janda received the Susquehanna Valley Section award, and Luke Chohany received the Bucknell Prize in Cell Biology/Biochemistry. Five chemistry and biochemistry majors were elected to Phi Beta Kappa.

Nine students received the MS in Chemistry in 2008 through 2010. In addition, three MS students, one BS/MS student and one MA student completed and defended their theses in the summer of 2010 and received their degrees in January 2011.

The summer research program continues to thrive. The 2008 program included 24 undergraduates, 5 MS students and 4 high school teachers in our MA program. In 2009, we had 20 undergraduates, 8 MS students and one MA candidate.

Professors Karen Castle, Molly McGuire and David Rovnyak were all promoted to Associate Professor with tenure, effective July 1, 2009. All three have excelled both as classroom teachers and as research mentors for our students, and they have each developed high-quality research programs. The department congratulates them on their well-deserved promotions and looks forward to their continued success.

In the fall of 2009, Eric Tillman received a Henry Dreyfus Teacher-Scholar award from the Dreyfus Foundation. In addition to providing much-deserved recognition for Eric’s achievements in teaching and research, the award includes an unrestricted grant for $60,000.

In June 2010, Rob Stockland received the William Pierce Boger Jr., M.D. Award for Excellence in Teaching in the Natural Sciences. The award recognizes Rob’s outstanding teaching at both introductory and advanced levels as well as his excellence as a research mentor.

Tim Strein received the Joseph Priestley Service Award presented by the Susquehanna Valley Section of the American Chemical Society. The award recognizes Tim’s many contributions to the local section and to the chemistry community.

I am pleased to report that Dr. Will Kerber, who served as a Visiting Assistant Professor from 2007 to 2010, was appointed to a tenure-track faculty position effective August 2010. Dr. Kerber teaches both inorganic and organic chemistry, and his research utilizes both of these disciplines to address questions in environmental
chemistry. He recently received a grant from the Petroleum Research Fund to support studies on iron(III) oxidation of carboxylic acids and phenols as models for the abiotic transformation of natural organic matter.

In the fall of 2008, Melinda Van Fleet joined the department as a laboratory director. Lindy has been a big help to us with the organization and teaching of our introductory laboratories.

In spring 2010, faculty associate Bill vandenHeuvel, and his wife Lois, moved from Lewisburg to southern PA to be closer to their children. Both during and after his distinguished career at Merck, Bill has made countless contributions to the chemistry program at Bucknell. In the 1970’s he carried out collaborative research with Hans Veening, Ben Willeford, Harold Heine and their students. From 1979 to 1988, he was a Visiting Scientist in chemistry and came to Lewisburg for a week each year to give lectures and lead laboratory exercises on mass spectrometry and drug metabolism. When Bill retired from Merck in 1994, he and Lois moved to Lewisburg, and Bill became a faculty associate in chemistry. He gave guest lectures in biochemistry and environmental chemistry, taught lab sections in organic and analytical chemistry, and continued to foster strong ties between Bucknell and Merck. The department will miss interacting with Bill on a regular basis, but we look forward to seeing him when he visits the area, and we deeply appreciate everything he has done for us for many years.

In the summer of 2010, George Shields joined Bucknell as Dean of Arts and Sciences and Professor of Chemistry. George is a physical chemist, who has been an outstanding teacher/scholar at Lake Forest College and Hamilton College. He was also a highly successful department chair at Hamilton. George and his students have applied computational methods to a wide range of interesting problems in chemistry, biochemistry and environmental science. George is continuing his research with students at Bucknell with the able assistance of his postdoctoral associate, Dr. Berhane Temelso. We are delighted to have George and Berhane as colleagues.

The department continues to rely on the outstanding work of our support and professional staff: Suellen Beck (academic assistant/department secretary), Margaret Brody (stockroom manager), Peter Findeis (instrumentation specialist) and Brain Breczinski (computer and instrumentation specialist). We are grateful to Suellen Beck for her efforts in compiling this report.

On June 1, 2010, I stepped down as Chair, after serving since 1997. I am enjoying being able to devote full time to teaching and research. Tim Strein has assumed the role of Chair and is off to an excellent start. I have no doubt that the department will prosper in the coming years under Tim’s able leadership.

Charles H. Clapp
UNDERGRADUATE PROGRAM – NAME & STATUS AFTER GRADUATION

B.S. Chemistry Graduates – May 2009

*Keith Brabrook Byers – Commissioned as Second Lieutenant in the U.S. Army, Chemical Corps

*Nathan David Contrella (*summa cum laude*) – Ph.D. program at University of Chicago

*Corey Christopher Dean – Business Analyst for Tradeworx, Inc.

*Joseph Ignatius Foley – Law School, Drexel University

Allison Mackenzie Miles – 11th grade Physics teacher at Newark Collegiate Academy

Norah Susan Patrick – Law School, American University

*Michael William Simione (*magna cum laude*) – Quinnipiac University for MBA

B.S. Chemistry Graduates – July 2009

Christopher Ryan McKnight

B.S. Biochemistry Graduates – May 2009

Andrea I. Asimoglou (*cum laude*) – Ph.D. program at Purdue University

Erika Jean Batzel (*summa cum laude with honors in Cell Biology/Biochemistry*) – Ph.D. program at University of Pennsylvania

Morgan Elysse Berg – Researcher at Walter Reed Army Institute of Research

Gillian Frances Carter (*cum laude*) – Scientist, Share Pharmaceuticals

Ryan Neil Doan – Ph.D. program at Texas A & M

Adam Christopher Ferro (*cum laude*)

Patrick Joseph Gavigan (*magna cum laude*) – Medical school, University of Pittsburgh

Alison Elizabeth Gaylo (*summa cum laude with honors in Cell Biology/Biochemistry*) – Univ. of Rochester School of Medicine

Louise Caroline Giffin (*summa cum laude with honors in Cell Biology/Biochemistry*) – Ph.D. program at University of North Carolina at Chapel Hill

Tyler Edward Githens – Ph.D. program at Texas A&M

Christine Marie Herforth (*magna cum laude*) – Georgetown University Medical School, U.S. Navy

continued
B.S. Biochemistry Graduates – May 2009 continued

Jared Leon Kuhmerker
Alexander Jeffrey Lampley (cum laude) – Medical School, Thomas Jefferson Medical College
Patrick William Lehr (cum laude) – Employed at Precision Therapeutics, Cancer Research
Lurene Jessica Paul (cum laude) – Associate Scientist at Merck
Jacqueline Marie Theis (summa cum laude) – Optometry, University of California at Berkley
Thomas Peter Young (magna cum laude) – Post-baccalaureate pre-med program, Harvard

B.S. Biochemistry Graduates – January 2009
Daniel John Shiwariski – Clinical cancer research in the Otolaryngology Dept. at the University of Pittsburgh and the University of Pittsburgh Medical Center

B.A. Chemistry Graduates – May 2009
Alyson Cobb – Americorp
Kimberly Bo Reynolds – Teach for America
Stephanie Marie Rink – Graduate School at Penn State
Nikitas Alexander Tsirigotis – Seeking employment in production chemistry

B.A. Chemistry Graduates – July 2009
William Tsai – Hoping to attend med school in 2010

* Certified to American Chemical Society
UNDERGRADUATES IN ACADEMIC YEAR RESEARCH COURSES, 2008-2009

First Semester
Brinkman, Chelsea ‘10
BS – Biology
Eric Tillman

Brown, Kristen ‘09
BS – Math
Karen Castle

Carter, Gillian ‘09
BS – Biochemistry
Charles Clapp

Ciolfalo, Whitni ‘10
BS – Chemistry
Tim Strein

Cobb, Alyson ‘09
BA – Chemistry
Tim Strein

Contrella, Nathan ‘09
BS – Chemistry
Eric Tillman

Dean, Corey ‘09
BS – Chemistry
Charles Clapp

Gavigan, Patrick ‘09
BS – Biochemistry
Charles Clapp

Herforth, Christine ‘09
BS – Biochemistry
Eric Tillman

Karchin Joshua ‘10
BS – Biochemistry
Dee Casteel

Mann, Thomas ‘11
BS – Chemistry
David Rovnyak

Marotta, Nicole ‘09
BS – Neuroscience
Eric Tillman

McNeil, Jolinda ‘11
BS – Biochemistry
Eric Tillman

Monk, Ian ‘11
BS – Chemistry
Eric Tillman

Pedersen, Tara ‘10
BS – Chemistry
Karen Castle

Ragard, Stephen ‘10
BA – Chemistry
Karen Castle

Rink, Stephanie ‘09
BA – Chemistry
Karen Castle

Simione, Michael ‘09
BS – Chemistry
Karen Castle

Vogler, Thomas ‘10
BS – Biochemistry
Charles Clapp

Young, Thomas ‘09
BS – Biochemistry
Charles Clapp

Second Semester
Baker, Catherine ‘12
BS – Biology
Tom Selby

Brinkman, Chelsea ‘10
BS – Biology
Eric Tillman

Byers, Keith ‘09
BS – Chemistry
Karen Castle

Carter, Anthony ‘12
BS – Chemistry
Robert Stockland

Ciolfalo, Whitni ‘10
BS – Chemistry
Tim Strein

Cobb, Alyson ‘09
BA – Chemistry
Tim Strein

Contrella, Nathan ‘09
BS – Chemistry
Eric Tillman

Dean, Corey ‘09
BS – Chemistry
Charles Clapp

Gavigan, Patrick ‘09
BS – Biochemistry
Robert Stockland

Guydon, Krista ‘11
BS – Chemistry
Eric Tillman

Herforth, Christine ‘09
BS – Biochemistry
Will Kerber

Kanwal, Jaspinder ‘11
BS – Biochemistry
David Rovnyak

Lenker, Heather ‘12
BS – Chemistry
David Rovnyak

Mann, Thomas ‘11
BS – Chemistry
Eric Tillman

Manning, Lauren ‘10
BS – Biochemistry
Tim Strein

Marotta, Nicole ‘09
BS – Neuroscience
Eric Tillman

McCormack, Shelly ‘10
BS – Chemistry
Karen Castle

Monk, Ian ‘11
BS – Chemistry
Robert Stockland

Reese, Kyle ‘12
BS – Chemistry
Karen Castle

Richard, Marcia ‘12
BS – Chemistry
Karen Castle

Rink, Stephanie ‘09
BA – Chemistry
Dee Casteel

Schaeffer, Jakob ‘10
BA – Physics
David Rovnyak

Stengel, Michael ‘10
BS – Biochemistry
Robert Stockland

Tsai, William ‘09
BA – Chemistry
Charles Clapp

Winter, Eric ‘10
BS – Chemistry
Robert Stockland

Young, Thomas ‘09
BS – Biochemistry
Robert Stockland

Zawisky, Jason ‘10
BA – Chemistry
Robert Stockland
STUDENT AWARDS

THE ALPHA CHI SIGMA FRATERNITY PRIZE
To the most deserving chemistry graduate chosen at the discretion of the Chemistry Department.
Nathan David Contrella

AMERICAN CHEMICAL SOCIETY
SUSQUEHANNA VALLEY SECTION AWARD
Criteria: 1. outstanding scholastic ability, 2. intention to enter the chemical profession
Nathan David Contrella

AMERICAN CHEMICAL SOCIETY
ANALYTICAL CHEMISTRY AWARD
Alyson Cobb

THE BUCKNELL PRIZE FOR CELL BIOLOGY/BIOCHEMISTRY
To the senior demonstrating outstanding academic performance in Cell Biology/Biochemistry
Alison Elizabeth Gaylo

PHI BETA KAPPA
Erika J. Batzel
Nathan David Contrella
Alison Elizabeth Gaylo
Christine M. Herforth
Jacqueline Marie Theis
William Tsai

THE UNIVERSITY PRIZE FOR MEN
To the man, generally excellent in scholarship, who obtains in the courses required for a major in chemistry, or in any subject in the field of biological science, the highest averages in his class respectively.
Nathan David Contrella

THE ELIZABETH M. OLIPHANT PRIZE
To the woman, generally excellent in scholarship, who obtains in the courses required for a major in chemistry, or in any subject in the field of biological science, the highest average in the class respectively.
Alison Elizabeth Gaylo
### Summer Research Program – 2009

<table>
<thead>
<tr>
<th>Name</th>
<th>Mentor</th>
<th>Source of Support</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>M.A. Degree High School Teachers</strong></td>
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<tr>
<td>David Domico</td>
<td>Swan</td>
<td></td>
</tr>
<tr>
<td>Nefertenneken Francis</td>
<td>Kastner</td>
<td></td>
</tr>
<tr>
<td>Alison Kohlhepp</td>
<td>McGuire</td>
<td>Admissions Department</td>
</tr>
<tr>
<td>John Priest</td>
<td>McGuire</td>
<td></td>
</tr>
<tr>
<td>Darrell Kyle</td>
<td>Castle</td>
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<tr>
<td><strong>Bucknell Graduate Students</strong></td>
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<tr>
<td>Labe Black</td>
<td>Castle</td>
<td>Chemistry Research Fund</td>
</tr>
<tr>
<td>George Ettenger</td>
<td>Casteel</td>
<td>Office of Graduate Studies and Graduate Research Fund</td>
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<tr>
<td>David Hunter</td>
<td>Shawe</td>
<td>Office of Graduate Studies and Graduate Research Fund</td>
</tr>
<tr>
<td>Kirsten Kahler</td>
<td>Clapp</td>
<td>Merck Graduate Fund</td>
</tr>
<tr>
<td>Joshua Leasure</td>
<td>Tillman</td>
<td>Office of Graduate Studies and Graduate Research Fund</td>
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<tr>
<td><strong>Bucknell BS/MS Students</strong></td>
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<td></td>
</tr>
<tr>
<td>Tara Pedersen</td>
<td>Castle</td>
<td>National Science Foundation</td>
</tr>
<tr>
<td><strong>Bucknell Undergraduate Students</strong></td>
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<td></td>
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<tr>
<td>Chelsea Brinkman</td>
<td>Tillman</td>
<td>National Science Foundation</td>
</tr>
<tr>
<td>Anthony Carter</td>
<td>Stockland</td>
<td>Hobar Fund</td>
</tr>
<tr>
<td>Luke Chohany</td>
<td>Clapp</td>
<td>Bucknell Program for Undergraduate Research and Kales Fund</td>
</tr>
<tr>
<td>Sarah Findeis</td>
<td>Strein</td>
<td>National Institutes of Health</td>
</tr>
<tr>
<td>Michael Fletcher</td>
<td>Kerber</td>
<td>Hobar Fund</td>
</tr>
<tr>
<td>Colleen Gavigan</td>
<td>Strein</td>
<td>PRF (Strein/Rovnyak)</td>
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<td>Joshua Karchin</td>
<td>Casteel</td>
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<tr>
<td>Thomas Mann</td>
<td>Rovnyak</td>
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<tr>
<td>Shelly McCormack</td>
<td>Strein</td>
<td>National Institutes of Health</td>
</tr>
<tr>
<td>Jolinda McNeill</td>
<td>Tillman</td>
<td>Bucknell Program for Undergraduate Research and Chemistry Research Fund</td>
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<td>Ian Monk</td>
<td>Tillman</td>
<td>Bucknell Program for Undergraduate Research Fund</td>
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<tr>
<td>Erin Mosellen</td>
<td>Selby</td>
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*continued*
### SUMMER RESEARCH PROGRAM – 2009

**Bucknell Undergraduate Students** *(continued)*

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<th>Name</th>
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<tr>
<td>Tyler Moyer</td>
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<td>Bill Napoli</td>
<td>Strein</td>
<td>National Institutes of Health</td>
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<tr>
<td>Amanda Rasbach</td>
<td>Kerber</td>
<td>Hobar Fund</td>
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<td>Kyle Reese</td>
<td>Stockland</td>
<td>Bucknell Program for Undergraduate Research and Chemistry Research Fund</td>
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<tr>
<td>Marci Richard</td>
<td>Stockland</td>
<td>Bucknell Program for Undergraduate Research and Chemistry Research Fund</td>
</tr>
<tr>
<td>Mark Sarcone</td>
<td>Rovnyak</td>
<td>National Institutes of Health</td>
</tr>
<tr>
<td>Jacob Schaeffer</td>
<td>Castle</td>
<td>Hobar Fund</td>
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<tr>
<td>Elizabeth Springer</td>
<td>Kerber</td>
<td>Hobar Fund</td>
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<tr>
<td>Kelly Usenko</td>
<td>Selby</td>
<td>Kales Fund</td>
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<tr>
<td>Andrew Voter</td>
<td>Tillman</td>
<td>Hustler Fund</td>
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<tr>
<td>Jason Zawisky</td>
<td>Stockland</td>
<td>Hustler Fund</td>
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M.S. GRADUATE PROGRAM

Graduates – January 8, 2009

Adam Catherman
“Determination of Total Antioxidant Capacity (TAC) Using In-line Capillary Electrophoresis Assays”
Mentor: Timothy G. Strein
Attending Northwestern University for Ph.D.

Sampath Ranasinghe
“In-line Capillary Assay for Serum Creatinine: Three Experimental Approaches for Enhanced Sensitivity”
Mentor: Timothy G. Strein
Attending Purdue University for Ph.D.

Joseph G. Sokol
“Microwave Assisted Functionalization of Steroids for Organocatalysis and Synthesis of Alkoxy Amines for Nitroxide Mediated Ring-Growing Polymerizations”
Mentor: Robert A. Stockland
Attending University of North Carolina at Chapel Hill for Ph.D.

Students Enrolled in M.S. Graduate Program in 2008-09
James Berstler, Lafayette College – Thomas Selby
Labe Black, Rider University – Karen Castle
George Ettenger, Kalamazoo College – Dee Ann Casteel
Christopher Heist, Lycoming University – Molly McGuire
David Hunter, Lock Haven University – Tom Shawe
Kirsten Kahler, Millersville University – Charles Clapp
Joshua Leasure, Juniata College – Eric Tillman
Michael Mack, Gettysburg University – Thomas Shawe

BS/MS Program

Students Enrolled in BS/MS Program in 2008/09
Tara Pedersen – Karen J. Castel
BUCKNELL STUDENT AFFILIATE OF THE AMERICAN CHEMICAL SOCIETY

Faculty Mentor: Karen Castle

Officers for Fall 2008
Tara Pedersen, President
Mark Sarcone, Vice President
Danielle Glick, Public Relations
Alyson Cobb, Secretary
Nate Contrella, Treasurer

Officers for Spring 2009
Tara Pedersen, President
Allison Posta, Vice president
Liz Springer, Secretary
Steve Ragard, Treasurer
Whitni Ciafalo, Public Relations

Susquehanna Valley Section American Chemical Society
Annual Education Awards
May 2009

JOSEPH PRIESTLEY SERVICE AWARD
Timothy Strein

COLLEGE AWARD WINNER
Nathan Contrella

Joseph Priestley Service Award presentation
CHEMISTRY FACULTY

Sarah Bolton, Ph.D., Syracuse University. Visiting Assistant Professor, Organic Chemistry. Organometallic chemistry or transition metals for molecular wires.

Dee Ann Casteel, Ph.D., University of Illinois-Urbana. Associate Professor, Organic Chemistry. Organic synthesis, synthesis of peroxides, anti-malarial, anti-viral, anti-tumor agents, medicinal chemistry.

Karen J. Castle, Ph.D., Oregon State University. Assistant Professor, Physical Chemistry. Kinetics and dynamics of atmospheric processes.

Charles H. Clapp, Ph.D., Harvard University. Professor, Biochemistry. Enzyme mechanisms and enzyme inhibitors.

Margaret E. Kastner, Ph.D., University of Notre Dame. Professor, Inorganic Chemistry. X-ray crystallography; chemical education.


Molly M. McGuire, Ph.D., Wisconsin-Madison, Assistant Professor. Environmental Chemistry. Environmentally important redox reactions at clay mineral surfaces.

Innocent Pumure, Ph.D., West Virginia University. Visiting Assistant Professor, Analytical Chemistry. Speciation analysis of trace elements in environmental and biological systems. Metal ion mediation of beta amyloid protein conformation.

David Rovnyak, Ph.D., M.I.T. Assistant Professor. Biophysical Chemistry. Application of magnetic resonance techniques to the study of biological macromolecules.

Thomas L. Selby, Ph.D., The Ohio State University. Assistant Professor, Biochemistry. Structure-Function Studies of Signaling Proteins; X-ray crystallography, biophysical characterization, enzymology, computational methods, and combinatorial protein libraries.

Thomas T. Shawe, Ph.D., Emory University. Associate Professor, Organic Chemistry. Organic synthetic methodology: stereoselective reactions and alkaloid synthesis.

Robert A. Stockland, Jr., Ph.D., University of Missouri. Associate Professor, Inorganic and Polymer Chemistry. Design and synthesis of transition metal complexes with useful catalytic properties. Use of transition metal complexes to control polymerization and to modify polymers.

Timothy G. Strein, Ph.D., Pennsylvania State University. Professor, Analytical Chemistry. Capillary electrophoresis of biological fluids, charge transfer reactions at ultrasmall electrodes, GC/MS of environmental samples.

James S. Swan, Ph.D., Pennsylvania State University. Associate Professor, Analytical Biochemistry. Affinity chromatography; conformational changes in proteins.
Eric S. Tillman, Ph.D., University of Southern California. *Associate Professor, Organic Chemistry.* Synthesis and characterization of macromolecules possessing interesting photophysical or electronic properties.

Brian W. Williams, Ph.D., Cornell University. *Associate Professor, Biophysical Chemistry.* Spectroscopic characterization, photophysical processes, and synthesis of micelles, lipid membranes, and vesicles.

**CHEMISTRY PROFESSIONAL STAFF**

Peter M. Findeis, Ph.D., University of Idaho, GC-MS Specialist. Biological Chemistry and Instrumentation, GC/MS, LC/MS and capillary zone electrophoresis of biochemical compounds.

Brian M. Breczinski, M.S., University of Minnesota. NMR/Computer & Instrumentation Specialist.

Melinda Van Fleet, B.S., Biochemistry, Albright College. Lab Director.
SARAH BOLTON, *Visiting Assistant Professor*

**Courses Taught**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Course</th>
<th>Enrollment</th>
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<tbody>
<tr>
<td>Organic Chemistry</td>
<td>CHEM 211-01</td>
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<td>Organic Chemistry Recitation</td>
<td>CHEM 211R-01</td>
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<td>Organic Chemistry Lab</td>
<td>CHEM 211L-61</td>
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<td>CHEM 211L-64</td>
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<td>Organic Chemistry Lab</td>
<td>CHEM 211L-66</td>
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<tr>
<th>Second Semester</th>
<th>Course</th>
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<tr>
<td>Organic Chemistry</td>
<td>CHEM 212-01</td>
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<tr>
<td>Organic Chemistry Recitation</td>
<td>CHEM 212R-01</td>
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<td>Organic Chemistry Lab</td>
<td>CHEM 212L-60</td>
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<td>Organic Chemistry Lab</td>
<td>CHEM 212L-63</td>
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<td>Organic Chemistry Lab</td>
<td>CHEM 212L-64</td>
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**Off Campus Professional Activities**

DEE ANN CASTEEL, Associate Professor of Chemistry

Courses Taught

First Semester
Full-time Associate Dean of the College of Arts and Sciences

Second Semester
Full-time Associate Dean of the College of Arts and Sciences
Undergraduate Research CHEM 376-01 2
Graduate Research CHEM 676-01 1

Summer Research 2009
George Ettenger
Joshua Karchin

Off Campus Professional Activities
ACS National Meeting, Philadelphia, PA, August 2008
ACS Meetings and Expositions Executive Committee Meeting, Phoenix, AZ, Oct. 2008
NSF Grant Review Panel, October 2008
ACS National Meeting, Salt Lake City, UT, March 2009
KAREN J. CASTLE, Assistant Professor of Chemistry

Courses Taught

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Enrollment</th>
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<tr>
<td>Physical Chemistry for Engineers</td>
<td>CHEM 343</td>
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<tr>
<td>Recitation for Phys. Chem. for Eng.</td>
<td>CHEM 343R</td>
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<td>Special Topics (Spectroscopy)</td>
<td>CHEM 347</td>
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<td>Special Topics (Spectroscopy)</td>
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<td>Lab for Physical Chemistry</td>
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<td>Undergraduate Research</td>
<td>CHEM 375</td>
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<tr>
<td>Graduate Research</td>
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Second Semester

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<td>CHEM 676</td>
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Summer Research

Labe Black, MS CHEM ’09. Vibrational Energy Transfer in O₃-O Collisions Using the Temperature-Jump Approach
Tara Pedersen, BS/MS CHEM ’10. Vibrational Energy Transfer in N₂-O-O Collisions
Jakob Schaeffer, BA PHYS ’10. Vibrational Energy Transfer in ¹³CO₂-O Atom Collisions Between 140-500 K

Grants

National Science Foundation RUI Grant through the CEDAR Program, Aeronomy Division (PI, #0640063) August 2007-2010, $167,760. “Quenching of Vibrationally-Excited Ozone by Atomic Oxygen”
NASA Geospace Sciences Program (Co-I, #06-SRT06-0034) July 2007-2010, $208,067. “Temperature Dependent CO₂-O Vibrational Energy Transfer”

Publications


(continued)
Off-Campus Professional Activities
National Science Foundation review panel, April 2009.


Other
Co-Chair of the Honors Council
Member of the Faculty and Academic Personnel Committee
Co-Chair, Board of Review on Academic Responsibility
Advisor of Bucknell’s Student Affiliate Chapter of the American Chemical Society
Chemistry Department Graduate School Advisor
Bucknell Faculty Colloquium Presentation, February 2009
CHARLES H. CLAPP, Professor and Chair

Courses Taught

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Summer Research

Kirsten Kahler, MS Candidate, “Mutagenesis Studies on Lipoxygenase”
Luke Chohany, “Cationic Substrates of Lipoxygenase”

Grants

Merck Graduate Fellowship for Kirsten Kahler, “Mutagenesis Studies on Lipoxygenase” $2008-09, $5,500.

Off-Campus Professional Activities


Other

Nuclear Regulatory Officer
MARGARET E. KASTNER, Professor of Chemistry

Courses Taught

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Summer Research

Neferteneken, Francis, MA CHEM ’10. “Synthesis and crystallographic characterization of zinc complexes as potential 67-Zn Solid State NMR studies”

Publications

Redetermination of cis-diaquadiglycolatozinc(II)
Kennedy, Paul; Francis, Neferteneken; Rovnyak, David; Kastner, Margaret E. Acta Crystallographica, Section E: Structure Reports Online (2008), E64(12), m1635

A 3,5-dinitrobenzoyl derivative of a stereoisomer of glycerol menthonide
Kiessling, Anthony; Campana, Charles; Kastner, Margaret E. Acta Crystallographica, Section E: Structure Reports Online (2009), E65(7), o1540

2-(1,2,3,4-Tetrahydrophenanthren-1-ylidene)malononitrile
Ettenger, George B.; Williams, Brian Wesley; Brillhart, Daniel; Kastner, Margaret E. Acta Crystallographica, Section E: Structure Reports Online (2009), E65(7), o1711
WILLIAM KERBER, Visiting Assistant Professor of Chemistry

Courses Taught

First Semester

- **Inorganic I**
  - Course: CHEM 221-02
  - Enrollment: 26
- **Inorganic I lab**
  - Course: CHEM 211-L60
  - Enrollment: 21
- **Inorganic I lab**
  - Course: CHEM 221-L61
  - Enrollment: 26

Second Semester

- **Inorganic II**
  - Course: CHEM 322/622
  - Enrollment: 11
- **Inorganic II lab**
  - Course: CHEM 322-L61
  - Enrollment: 6
- **Organic II lab**
  - Course: CHEM 212-L61
  - Enrollment: 30

Summer Research


Amanda Rasbach, BSCH ’11 – 2009. “Determination of iron(III)-carboxylate binding constants by potentiometric titration”

Michael Fletcher, BSBC ’11 – 2009. “Photooxidation of carboxylic acids coordinated to iron(III)”
Courses Taught

First Semester

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<td>Capstone: Research in Science</td>
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Summer Research


Publications


Presentations

National Meeting of the American Geophysical Union, San Francisco, CA (December, 2008), invited oral presentation: “Understanding the role of tetrahedral Fe in the reduction of nontronites using visible and infrared spectroscopies”

237th National Meeting of the American Chemical Society, Salt Lake City, UT (March, 2009), oral presentation: “Visible and Infrared Spectroscopic Studies of the Reduction of Tetrahedral Fe in Nontronites ”

Grants Funded

McKenna Foundation Supplemental Grant: “Atomic Force Microscopy for Environmental Research,” collaboration with Timothy M. Raymond, Department of Chemical Engineering, Bucknell University (awarded March, 2009), $3,300.
MOLLY M. MCGUIRE, Assistant Professor of Chemistry – continued

Other
Judge, Finalist selection for Siemens-Westinghouse Science Competition, Princeton, New Jersey, October 2008
Environmental Studies Program Curriculum Committee
Untenured representative on the ad hoc Committee to Review Tenure and Promotion, Fall 2008
Campus Greening Council
Co-director of the Bucknell in Nicaragua Program, May-June 2009
### Courses taught

#### First Semester

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Second Semester

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Summer Research

Mark Sarcone, B.S. BIO ’10
Thomas Mann, B.S. CHEM ’11
Jenna B. Yehl, M.S. CHEM ’10, co-advisor with Prof. Strein)

Publications (* for undergraduate coauthors)


Off-Campus Professional Activities


(continued)
DAVID S. ROVNYAK, Assistant Professor of Chemistry – continued

Grants

2007-2010, Principal Investigator (co-PI: Prof. Timothy G. Strein), American Chemical Society Petroleum Research Fund, “Examining hydrodynamic and solubilization properties of micelles formed by chiral amphiphiles”. $55,000

Other
Awarded tenure and promotion in spring 2009.
Faculty advisor to Ice Hockey Club and Mac Users Group
Department Web Development Liaison.
THOMAS L. SELBY, Assistant Professor

Courses Taught

**First Semester**

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**Summer Research**

Catherine L. Baker, B.S. 2012. Biology, Presidential Fellow
Ariel S. Kniss, B.S. 2011. Mathematics, Presidential Fellow

**Grants**

“Protease Specificity using a DNA Cassette Based FRET Assay”
Sponsor: National Institutes of Health (GM080691) 04/01/07-03/31/10 $202,159.00

**Publications**


**Off-Campus Professional Activities**

Invited Oral Presentation in the “Frontiers in Enzymology” Section at the 237th ACS Meeting
1.2 Å Crystal Structure of a Ca+2 Dependent PI-PLC from *Streptomyces antibioticus.*
237th ACS National Meeting, Salt Lake City, UT, March 22-26, 2009

(continued)
THOMAS L. SELBY, Assistant Professor — continued

Other
Sigma Xi Poster Session (July 2009);
“Crystal Structure of a Metal Dependent Phosphatidylinositol-Specific Phospholipase C from Streptomyces Antibioticus” Michael R. Jackson and Thomas L. Selby
“Purification of the Protein TM0727 from Thermatoga maritima” James D. Berstler and Thomas L. Selby
“Discovering the role of tryptophans in ligand binding of Streptomyces antibiotic phospholipase C using collisional quenching of fluorescence” Tyler C. Moyer, Michael R. Jackson, and Thomas L. Selby
“Expression and purification of TM0516, a putative cysteine protease from Thermotoga maritima” Erin E. Mosellen and Thomas L. Selby
“Optimization of Growth, Expression, and Purification of Protease TM0726 from Thermotoga maritima” Kelly A. Usenko and Thomas L. Selby
Honor’s council defense committee deputy for Dana DiRenzo’s thesis titled “Activation of RhoA GTPase by Serine Proteases Trypsin and Thrombin” (advisor: Novak, Josef, Biology)
THOMAS T. SHAWE, Associate Professor of Chemistry

Courses Taught

First Semester

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Second Semester

On Medical Leave
## Courses Taught

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## Research Students supervised

Marci Richard “Hydrophosphinylation of nitrogen containing heterocycles.”

Kyle Reese “Addition of labile P-H bonds to tetrasubstituted alkenes.”

Heather Lenker “Functionalization of heterocycles.”

Anthony Carter “Hydrophosphinylation of tetrasubstituted alkenes.”

Krista Guydon “Generation of biologically active materials through the functionalization of nitrogen and sulfur containing compounds.”

Jason Zawisky “Reversible hydrophosphinylation as a tool in synthetic organic chemistry.”

Eric Winter “Phospha-Michael additions involving challenging substrates.”

## Publications (Undergraduate coauthors underlined)

Microwave Heating as a Tool for Clean Organic Synthesis, Stockland, R.A. Jr. in *Microwave Heating as a Tool for Sustainable Chemistry*. CRC Press (*accepted, in press*)


TIMOTHY G. STREIN, Professor of Chemistry

Courses Taught

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Summer Research  
Jenna Yehl, MSCI ‘10. “Studies of Bile Salt-mediated Chiral Interactions with MEKC and NMR”

Shelly McCormack, CHEM ’10. “Performing the FRAP Method for Antioxidant Capacity within a Capillary Tube”

Colleen Gavigan, BICH’11. “NMR of Bile Salt Solutions” and “Determining the Mobility of Fluorescently Labeled Dextrans”

Sarah Findeis, BICH ’12. “Optimizing an In-line Capillary Assay for Serum Creatinine”

Bill Napoli, CHEG ’12. “Optimizing the In-line Jaffe Chemistry” and “Investigating Oscillatory Behavior in Capillary Tubes”

Grants  


Publications  
Hebling, Christine M.; Thompson, Laura E.; Eckenroad, Kyle W.; Manley, Gregory A.; Fry, Roderick A.; Mueller, Karl T.; Strein, Timothy G.; Rovnyak, David “Sodium Cholate Aggregation Observed by $^1$H and $^{31}$P NMR Spectroscopy of the Probe Molecule (R,S) 1,1’-binaphthyl-2,2’ diylhydrogenphosphate (BNDHP)” Langmuir, 24, 13866-13874, 2008.


(continued)
TIMOTHY G. STREIN, Professor of Chemistry – continued


Off-Campus Professional Activities

Invited Lectures:
Charles University, Prague, Czech Republic, October 14, 2008
(i) “Using NMR and chiral probe molecules to study bile salt micellar aggregation and chiral selectivity”
(ii) presented by Dr. John Stahl “Improving an EMMA assay for creatinine by using SIMUL 5.0 to understand migration dynamics”

University Gothenburg, Gothenburg, Sweden, October 16, 2008 “Investigating Migration Dynamics During In-Capillary Reactions with Small Ions”

Lycoming College (Susquehanna Valley Local Section ACS meeting), February 11, 2009 “Understanding Migration Dynamics for Nanoliter Volume In-Capillary Reactions with Small Ions”

EAS, November 2008

PittCon’09, March 2009
Organized and Presented in symposium “Electromigration: Back to Basics.” Speakers included: Mark Wightman from UNC, Bob Gas from Charles University(Prague), Steve Weber from Pitt, and Doug Gillman from LSU.


NSF-sponsored workshop

Award Received
Received the 2009 ACS Susquehanna Valley Local Section Joseph Priestley Service Award, May 2009.

Other
Served on University Review Committee, Spring 2009
Member, Bucknell University Graduate Council
Sideline coach in football (October 25, 2008) and softball (April 18, 2009)
Student Presentations at Sigma Xi Poster Session, July 2009: Jenna Yehl (MSCI ’10) and Colleen Gavigan (BICH ’10), Shelly McCormack (CHEM ’10)
JAMES S. SWAN, Associate Professor of Chemistry

Courses Taught

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Second Semester

Sabbatical Research: “Protein Fragmentation in Electrospray Ionization Mass Spectrometry”

Summer Research

The Fragmentation of Serine Containing Peptides in Electrospray Ionization Mass Spectrometry.

Other

Chemistry Departmental Review Committee, September 2008

ABET accreditation visit, October 2008

Directed 4 High School Honors Chemistry classes in gas law experiment, May 12 and May 13, 2008

Director, M.A. Program for High School Chemistry Teachers
ERIC S. TILLMAN, Associate Professor of Chemistry

Courses Taught

First Semester (On Sabbatical)  
Course                      Enrollment  
Undergraduate Research       CHEM 375-12 7  
Graduate Research            CHEM 675-12 1  

Second Semester  
Course                      Enrollment  
Organic Chemistry II         CHEM 212-01 70  
Mechanistic Organic Chemistry CHEM 314 10  
Undergraduate Research       CHEM 376-12 6  
Graduate Research            CHEM 676-12 1  

Summer Research  
Andy Voter “Nitrones as Initiators in Controlled Radical Polymerization”  
Chelsea Brinkman “Silane Radical Atom Abstraction Coupled with Nitroxide Mediated Polymerization as a Means to Produce End-Labeled Polymers”  
Jolinda McNeil “Nitrones as Initiators in Controlled Radical Polymerization”  
Ian Monk “Effect of Reaction Parameters on the Polymerization of t-Butyl Vinyl Ether: Solvent, Lewis Acid, Additives, and Temperature”  
Joshua Leasure “Parameters Affecting the Polymerization t-Butyl Vinyl Ether: Solvent, Lewis Acid, and Temperature”  

Grants  
National Science Foundation  
“RUI: Synthesis of Amine-Terminated Polymers Using Lewis Acid-Induced N-methyleneamines as Cationic Initiators”  
$135,000; 2008-2011  

Publications (*Bucknell Student)  

Invited Lectures  
University of Southern California, June 23, 2009
BRIAN W. WILLIAMS, Associate Professor of Chemistry

Sabbatical leave 2008-2009
Chemistry Department, Brooklyn College, Brooklyn, New York.

Publication

Oral Presentation

Poster Presentation

Other
Member, Education Committee, Biophysical Society
NEW FACULTY

The department conducted searches for two visiting assistant professors.

Sarah Bolton, Ph.D., Syracuse University. Visiting Assistant Professor, Organic Chemistry. Organometallic chemistry or transition metals for molecular wires.

Innocent Pumure, Ph.D., West Virginia University. Visiting Assistant Professor, Analytical Chemistry. Investigation of Selenium and Arsenic in coal-mining associated rocks and sediments using ultrasonic and sequential extraction techniques.

NEW PROFESSIONAL STAFF:
Melinda (Lindy) Van Fleet. B. S. in Biochemistry from Albright College. Visiting Lab Assistant

M.A. PROGRAM FOR HIGH SCHOOL TEACHERS

Teachers Enrolled
David Domico, Clearfield, PA – Mentor: James S. Swan
Alison Kohlhepp, Hawaii – Mentor: Molly McGuire
Darrell Kyle, St. Louis, MO – Mentor: Karen Castle
Neferteneken Francis, Choate Rosemary Hall – Mentor: Margaret Kastner
John Priest, Port Haywood, VA – Mentor: Molly McGuire
VISITING SPEAKERS PROGRAM

ACS Seminar Series

January 27, 2009
Christina (Motzko, BA 01) Mitala, the Children’s Hospital of Philadelphia
“Impact of Microdialysis Probes on Vasculature and Dopamine in the Rat Striatum: A Combined Florescence and Voltammetric Study and The Design and Optimization of a Glutamate Sensor to be used under Hypoxic Conditions.”

February 24, 2009
Dr. Tomislav Pintauer, Duquesne University
“Greening” of Copper Catalyzed Atom Transfer Radical Addition and Cyclization Reactions in the Presence of Reducing Agents.”

March 25, 2009
Labe Black, Bucknell University MS student.
“Vibrational Relaxation of Ozone by Atomic Oxygen.”

March 31, 2009
George Ettenger, Bucknell University MS student.
“Towards the Synthesis of an Alkylated Artemisinin Derivative.”

April 10, 2009
David Hunter, Bucknell University MS student.
“Synthesis of Multisubstituted Indole Rings.”

April 15, 2009
Joshua Leasure, Bucknell University MS student.
“Effect of Temperature, Solvent, Lewis Acid and Additives on the Polymerization of t-Butyl Vinyl Ether Using Lewis Acid-induced N-Methyleneamines as Cationic Initiators.”

April 21, 2009
Kirsten Kahler, Bucknell University MS student.
“Mutagenesis Studies to Probe Substrate Binding and Regiochemical Control by Soybean Lipoxygenase-1.”

Biochemistry/Chemistry Lectures

Tracy Handel ’80, University of California, San Diego
“Chemokine-Receptor Structure and Function; Opportunities for Novel Therapeutic Strategies.”

November 19, 2008
Dr. Robert Danovich, Department of Antiviral Research at Merck.
“Isentress (Raltegravir): Inhibitor of HIV Integrase.”
56th ANNUAL
MERCK BUCKNELL
LECTURE SERIES
2008-2009

Wednesday
November 12, 2008
5PM
Dr. Li Jia
Dept. of Polymer Science at the University of Akron
Rooke Auditorium – Room 116
"By Design and by Accident – Catalytic Carbonylative
Reactions for Polymer and Small Molecule Synthesis"

Wednesday
December 3, 2008
5PM
Dr. Ross Widenhoefer
Duke University
Rooke Auditorium – Room 116
"Gold(I)-Catalyzed Hydrofunctionalization of
C=C Bonds"

Wednesday
April 8, 2009
5PM
Nancy Thornberry
Merck
Rooke Auditorium – Room 116
"Discovery of New Therapies for the Treatment of
Type II Diabetes"

Wednesday
April 15, 2009
5PM
Dr. Kenneth Feldman
Penn State University
Rooke Auditorium – Room 116
"Studies in Natural Products Synthesis"

Wednesday
April 22, 2009
5PM
Dr. Michael Rudd
Merck
Rooke Auditorium – Room 116
"Development of MK-7009 and Bismarocyclic Inhibitors
of HCV NS3/4A Protease"

The lectures are followed by an informal dinner starting at 7PM. A social hour precedes the dinners in the Faculty Lounge, LC Room 240 at 6PM. Persons wishing to attend a particular dinner should contact:

Ms. Suellen Beck, Department of Chemistry, Bucknell University, Lewisburg, PA 17837
Telephone 570-577-3258, E-mail: suellen.beck@bucknell.edu
ALUMNI NEWS

Maurice Mufson, BACH ’53 wrote, “I am professor of medicine emeritus and chair of medicine emeritus at the Marshall University Joan C. Edwards School of Medicine in Huntington, WV. In May of 2007, the School of Medicine and the Alumni Association named me an honorary alumnus. On June 30, 2002, I retired from Marshall University and the next day I was re-employed by the faculty medical practice to teach, mentor and conduct research and clinical trials, mainly on new vaccines…I am aiming to decrease my work days. I juried into membership of the local Tri-State Arts Association, and my photographs have been accepted for juried exhibitions. Occasionally I win an award. My wife, Deedee also has reduced her commitment to her private practice of psychology and writes a weekly op-ed column for the Huntington Herald-Dispatch. We travel widely, including visiting our three children and their families in Boston and Chicago. We went steamboatin’ on the Delta Queen on the Cumberland and Ohio Rivers. During the winter months, we spend some time in south Florida, not quite snowbirds though because our limited time there doesn’t qualify us for that title. We are more “snowflakes.” I also serve on the board of the Huntington Museum of Art and the board of the Huntington Orchestra, having served as president of the orchestra board several years ago. In 2002 I was elected to the City of Huntington Foundation Greater Huntington Wall-of-Fame. Deedee and I are starting our 33rd year in Huntington, three decades of very enjoyable living in small city America.

Peter Love MS ’55 writes that he has been teaching chemistry for thirty years at the satellite campus of the University of Connecticut in Stamford. After leaving Bucknell, Peter went to Penn State to receive his Ph.D.

Harry Bobonich M’58 Author of: The Great Depression: Hard Times in the Coal Region (Infinity). “It is far better to recall the Great Depression than it was to live through it,” Harry Bobonich observes in his memoir of growing up in Schuylkill County, PA. Rugged country settled by European immigrants employed in the coal mines, it offered a hardscrabble life before the economy collapsed. Bobonich mixes personal accounts with newspaper clippings and historic photographs, conjuring old country customs, poverty, mine blasts, bootleggers and lynchings. He is a compelling witness to a time whose ghosts still haunt Route 61 as it cuts from Ashland south to Pottsville, the town that famously inspired native John O’Hara’s fiction.

Harry Bobonich, professor emeritus and dean of research at Shippensburg University, recognizes women who advanced science in the late 19th and 20th centuries in Pathfinders and Pioneers, a book intended for general readers. Of the 11 profiled, Rachel Carson and Admiral Grace Hopper are familiar names, but their careers bear repeating alongside those of the pioneer in chemotherapy, the first person to explain nuclear fission theory, the world’s leading limnologist, a gifted mathematician, a Nobel-winning biochemist and other groundbreakers. Bobonich hopes their stories will inspire more young women to consider careers in mathematics and science.
Linda Hardy O’Connor, BSCH’59 donated one of her kidneys to Jim Snyder. Linda was the president of the women’s student government association her senior year as well as a chemistry major and an Alpha Chi member. Jim is the husband of a former Bucknellian, Ann Norris Snyder ’61, who passed away in March of 2008.

Harold Schobert, BS’65 was honored as a fellow by the American Chemical Society as one of its 192 members in the second year of its fellows program.

Amos B. Smith, BS ’66, MSCI ’67
From CEN
July 27, 2009

FIRST CLASS
Inaugural class of ACS FELLOWS honored for excellence in chemistry, service to society

When it meets next month in Washington, D.C. the society will honor its first class of ACS Fellows. These 162 members “share a common set of accomplishments, namely true excellence in their contributions to the chemical enterprise coupled with distinctive service to ACS or to the broader world of chemistry,” says Immediate Past President Bruce E. Bursten, who championed creation of the program and shepherded it through board approval last year.

Although ACS is late among professional societies in creating a fellows program, “it has many advantages beyond celebrating the excellence of our own,” Bursten says. “It will also provide recognition of our members to constituencies outside ACS, such as employers, other scientific societies, and civic groups.”

Fellows come from the entire breadth of ACS’s membership and the chemical enterprise – including high school teaching, entrepreneurship, government service, and all sectors of industry and academia. Academic chemists make up 72% of the new class of fellows with 15% from industry, 7% retired non-academic, 5% government, and 1% consultants. Three-quarters of the fellows are men.

Included in the program’s design is the provision that all 15 living Priestley Medalists are among the first class of fellows. Two members of the inaugural class, Donald R. Baker and Malcolm L. Sturchio, were nominated and selected as fellows but died before the announcement could be made. They will be honored posthumously.

A ceremony to recognize the fellows will be held on Monday, August 17, 2009. Each person will receive a lapel pin and a certificate.

Dennis Dougherty, BS/MSCI ’74
Elected to NAS. The National Academy of Sciences announced the election of 72 new members and 18 foreign associates on April 28, 2009 during its 146th annual meeting in Washington, D.C. Those elected are chemists or work in areas related to the chemical sciences.
Gail Schneiders, BS ’78, is a chemist with DuPont crop registration. She has three children.

Kathy (Dowler) Murphy, BS ChemEng ’82 received her MS in Mechanical Engineering in 1994 from the University of Akron. As a flutist, Kathy Murphy will be the featured soloist with the Miami Valley Symphony Orchestra at its May 2nd and 3rd concerts. As winner of the annual Clark J. Haines Concerto Competition, Kathy will be performing the gorgeous “Suite Antique” for flute and orchestra by John Rutter. Full concert details can be found at the orchestra’s website, www.mvso.org

Karyn Visscher, BS ’85 writes that in August, 2009 she accepted a position as a Polymer Chemist at International Specialty Products in Wayne, NJ. She’s working with the Performance Chemicals division of the Household, Industrial and Institutional Products division of ISP. She says that it’s good to be “back at the bench!” E-mail: kbvisscher@gmail.com

John Motto, MS ’97. After completing my Master’s with Dr. Dee Ann Casteel I moved to Toronto area and completed a Ph.D. in 2005 in organic chemistry with Dr. Adrian Schwan at the University of Guelph. Since then, I worked for eighteen months at a small pharmaceutical company, then returned to the University of Guelph in September of 2007 and served as a lecturer teaching second, third and fourth year chemistry courses.

Katherine Hicks, BS ’00 earned her Ph.D. in biochemistry at the University of Michigan. She returned to Bucknell in 2006-07 to teach biochemistry as a Visiting Assistant Professor, and she accepted a postdoctoral fellowship at Cornell University.

Susan Senchak, BS ’00 Ishmael earned her Ph.D. in biochemistry and is a postdoctoral fellow at Johns Hopkins University. She lives with her husband, Faoud Ishmael and she gave birth to a healthy baby girl, Safia Marie, on June 4, 2007.

Jim Kraly, BSCH ’01 accepted a faculty position in analytical chemistry at Keene State University in Keene NH. He did his post-doc with Chuck Henry at Colorado State and received his Ph.D. with Norm Dovichi at Washington. His e-mail is jimkraly@lamar.colostate.edu if you want to contact him.

Christina Motzko Mitala BSCH ’01 and her husband, Joe, welcomed their first child, Joseph Michael, on Dec. 3, 2007, born at Magee Women’s Hospital in Pittsburgh. A few months later, Christina received her Ph.D. in chemistry from the University of Pittsburgh. The family resides in Philadelphia, where Christina is a post-doc at UPenn/CHOP.

Brandi Porter Sanders, BICH ’03 and her husband are the proud parents of a son, Joshua Porter Sanders.
Amy Bittner, BSCH ’04 wrote to let us know that after graduating from Bucknell she worked for Merck for three years in Medicinal Chemistry. She is currently working on her Ph.D. in organic chemistry at Princeton University. She intends to return to Merck upon completion of her degree. Amy said that she has been in touch with Jackie (Klock BSCH ’04) Hogan. Jackie finished dental school and joined the Navy as a dentist and moved to Guam to be with her husband. Amy Hasler, BSCH ’04, worked at Merck for a couple of years and then went to business school. She is now living in Chicago working for an airline (US Air?).

Adam R. Hersperger, BS BIOCHEM ’05. Adam presented a Biology Dept. seminar on Nov. 20, 2009. The title of his seminar was “How DS8 T Cells Contribute to the Control of HIV Replication.” Adam is currently a Ph.D. candidate in the Department of Microbiology at the University of Pennsylvania.

Erin Hicks, BSCH ’05. High School sweethearts Erin Hicks and Tom Schaible were engaged on Nov. 24, 2008. The couple lives in West Chester, PA where Erin, who received her master’s in education from Villanova University, is a chemistry teacher. Tom, a graduate of Lehigh University, is a lead software developer for Johnson & Johnson. They plan to wed in October.

Brian Wilson, MS’07 recently passed his Doctoral Candidacy Examination for Notre Dame.

Brian Bzdek ’08 is pursuing his Ph.D. at the University of Delaware’s Center for Critical Zone Research, an interdisciplinary environmental center. His advisor is Murray Johnston, BSCH ’76.

Allyson Cobb, BACH ’09, when Allyson first came to the University, she had been a gymnast for 15 years and wanted to be a doctor. “I just wanted to help people and being a doctor just seemed like the most obvious way to do it,” she said. But after taking several courses, Cobb said she was frustrated with the medical system. “I didn’t want to be a part of it; I wanted to fix it,” she said. “Health care is a human right,” Cobb said. “Medical care is necessary, and if you can’t afford it, it shouldn’t be an issue,” she added. Cobb is preparing to participate in a health-related AmeriCorps program and eventually pursue public health in graduate school. “I really just want to help people. That seems like the most obvious thing to do with your life,” Cobb said.

During the course of her four years, Cobb has studied chemistry, and her interest in universal health care has motivated her to join GlobeMed – an organization educating people about global health care.

George Ettenger, MS’10 is employed by GSK as a synthetic chemist in Hamilton, Montana.
THE BILLY OWENS MEMORIAL BREAKFAST CLUB

The retired Faculty and Staff members of the Chemistry Department continue their practice of meeting for breakfast on the first Monday of each month. These are enjoyable social occasions for each of us. This is one way that we can keep up on the happenings in the lives of colleagues with whom we have worked for many years. Betty Veening has continued to join us on most occasions, something that we appreciate very much.

Current resident members are Betty Veening, Janet Zimmerman, Ben Willeford, Bill VandenHeuvel, Manning Smith, Charles Root, Harold Heine, and John Cooper.

We are still holding our annual Alumni breakfast on Alumni Weekend each year. Invitations go out to Chemistry majors who are in classes that are coming for their class reunions in a particular year. ALL alumni are cordially invited to join us whether their classes are having a reunion or not. Just contact any member of the BOMBC for more information or call Suellen Beck, Academic Assistant, in the Chemistry Department office. The office phone number is 570-577-3258.

Billy Owens Memorial Reunion Breakfast
May 30, 2009

1959
Kay Anthony Yarger, BSCH ’59. Kay is retired and living in Durham, NC. She is married and has three children who are all married and she has 4 grandchildren.

1964
Eric Whitman, BSCH ’64. Eric is retired and living in Ridgewood, NJ. His children, Andrew and Lauren have six grandchildren, three each. Eric is involved in raising funds for the American Liver Foundation and was transplanted May 30, 2006. He likes to travel and spend winters in Naples, FL. eswhitman2@verizon.net

1969
Brandt A. Rising, BSCH ’69. Received his Ph.D. in Geo Chemistry from Penn State in 1973. He currently lives in Brightwaters, NY. He is a chemical consultant – owner and operator of Umpire and Control Services, Inc. Brandt has been married for 40 years to Sandy. They have two children and three grandchildren. braising@aol.com
Other breakfast attendees were:
Reg Blaber ’84, Gregory Blosick ’69, Pat Tinney Fisher ’55, Kay Maddock ’59, Glenn McLaughlin ’74, Janet Salzer ’59

Faculty and emeritus faculty members in attendance were:
Eric Tillman, Charlie Clapp, John and Julie Cooper, Brian Williams, David Rovnyak, Harold Heine, Chuck Root, Ben Willeford
Dr. Joseph Weightman, BSCH ’37, passed away peacefully on May 1 at his home in New London, NH, 2009. He was a member of the Kappa Sigma Fraternity. After serving on active duty in the US Army Medical Corp from 1944 to 1946, he completed his tour as the Commanding Officer of the 360th Station Hospital, Manila, Philippines. After his discharge from the Army, he moved to Lewisburg, PA where he began his private practice as a country doctor and became known as “Dr. Joe”. He accepted a position as an associate physician with the Student Health Services of Bucknell University. As part of his dedicated support to the Bucknell community, he served as team physician for both football and wrestling. He retired from Bucknell as Medical Director in 1981 after 35 years of service to the University.

William Winter, BSCM’40, St. Helena Island, SC on May 13, 2009. A member of Sigma Alpha Epsilon, student government and Alpha Chi Sigma, he retired from E. I. DuPont de Nemours and Co. after 38 years of service and served as a volunteer firefighter. Survivors include a brother, two daughters, eight grandchildren and eight great-grandchildren.

Stanley Kresses, BSCM’43, Buffalo, NY on June 25, 2009. He earned a master’s degree from the University at Buffalo, SUNY and a doctorate from Columbia University. He worked at Hooker Chemical Company, National Lead Company, then taught at Trott Vocational High School until retiring in 1991. Survivors include his wife, two daughters, five grandchildren, three great-grandchildren and nieces and nephews.

Edwin Witman, BSCH ’49, Greensboro, NC on Nov. 19, 2008. After serving as a navigator during WWII in the Army Air Force, he was a research and development chemist for Celanese Corp. and Burlington Industries. Surviving are his wife, two children, two grandchildren and three brothers, including Henry ’50, M’51.

Frank Drout, MSEE ’50, Lancaster, PA on May 11, 2009. A member of Kappa Delta Rho, Phi Eta Sigma and ROTC, he was a member emeritus of the American Chemical Society. He served in the Navy during WWII and was a senior research chemist for Armstrong World Industries. Survivors include his wife, Audrey Coryell Drout ’50, three children, a brother, six grandchildren and two great-grandchildren.

William Bonine, BSCM ’51, Rehoboth Beach, Del., on May 25, 2009. He was a member of Sigma Phi Epsilon, Alpha Chi Sigma, Phi Eta Sigma, Tau Beta Pi, L’Agenda, the American Institute of Chemical Engineers and the American Chemical Society. He served in the Pennsylvania National Guard and worked at the DuPont Company for 37 years before retiring in 1988. Survivors include his wife, Joan Graham Bonine ’51; two children; and seven grandchildren, including Heather Rogers ’07.
Mark Baker, MS ’81, Newark, DE on January 27, 2008. After serving in the Navy, he earned a bachelor’s degree from Old Dominion University and worked as a research chemist. Survivors include his wife, three children, a grand-daughter and a brother.

Michele Suzanne Ceh, BS ’82, Greenville, SC on May 1. She was a member of Delta Gamma. She was a chemist and member of St. Mary Magdalene Catholic Church. Surviving are her mother, two sisters and two brothers.
A Year in Pictures

Tillman’s Research Group

Holiday Baskets
# Table of Contents

- Undergraduate Program .................................................. 1
- Undergraduates in Academic Year Research Courses .................. 3
- Student Awards ................................................................. 4
- Summer Research Program .................................................. 5
- M.S. Graduate Program ....................................................... 7
- American Chemical Society ................................................ 9
- Faculty ................................*********************************** 10
- M.A. Program for High School Teachers .............................. 30
- Equipment ................................************************** 31
- Visiting Speakers Program ............................................... 33
- 57th Annual Merck – Bucknell Lecture Series ....................... 34
- Billy Owens Memorial Breakfast ....................................... 35
- A Year in Pictures ......................................................... 38
UNDERGRADUATE PROGRAM – NAME & STATUS AFTER GRADUATION

B.S. Chemistry Graduates – May 2010

Shelly A. McCormack – Ph.D. program at LSU
Tara J. Pedersen (*magna cum laude*) – Teach for America Corps member and Fordham University for MS in Adolescence Ed.
Allison C. Posta (*magna cum laude*) Applying for med school in fall of 2011
*Elizabeth M. Springer (*cum laude*) – Ph.D. program, Chemistry, Notre Dame
Eric F. Winter

B.S. Biochemistry Graduates – May 2010

Jennifer Arroyo – 1 year Post-baccalaureate program at the Mayo Clinic
Lucas E. Chohany (*magna cum laude*) – Scientist at Onco Health
Anthony R. Cillo (*cum laude*)
Guorui Deng
Danielle R. Glick (*magna cum laude*) – University of Maryland School of Medicine
Joshua M. Karchin – Ph.D. program, SUNY Downstate Medical Center
Nathan J. Lee – Thomas Jefferson Medical School
Lauren E. Manning (*magna cum laude*)
Allyson C. Marshall (*cum laude*) – Grad school at Wake Forest for Physiology and Pharmacology
Erin E. Mosellen (*magna cum laude*) – Illinois College of Optometry
Sean P. Moss (*cum laude*) – Applying to medical schools
Alexander S. Rascoe (*summa cum laude*) – Penn State College of Medicine
Austin G. Ricker
Ryan T. Robinson – Grad school for teaching degree
*Sarah A. Schubert (*cum laude with honors in Chemistry*) – Penn State College of Medicine for cardiothoracic surgeon
Scott B. Shapiro (*summa cum laude*) – University of Maryland School of Medicine
Sarah C. Shulman (*magna cum laude*) – Would like to go to medical school
Michael R. Stengel (*magna cum laude*) – Temple University School of Medicine
Colin J. Thomas (*cum laude*) – Lab tech at Fox Chase Cancer Center. Would like to attend med school at some point.
Natasha A. Vedage
Thomas O. Vogler (*magna cum laude*)
Kimberly N. Weaver (*magna cum laude*)
Whitni H. Ciofalo

Allison M. Janda (*summa cum laude with honors in Economics*) – University of Michigan School of Medicine

Stephen A. Ragard (*cum laude*) – Employment in Finance

Jocelyn R. VanOpdorp (*summa cum laude*) – University of Wisconsin, Pharmacy

Jeffrey D. Williams (*magna cum laude*)

Jason D. Zawisky

* Certified to American Chemical Society
UNDERGRADS IN ACADEMIC YEAR RESEARCH, 2009-2010

First Semester
Domingues, Katelyn ’12 BICH Eric Tillman
Fletcher, Michael ’11 BICH William Kerber
Guydon, Krista ’11 CHEM Robert Stockland
Lenker, Heather ’12 CHEM Robert Stockland
Manning, Lauren ’10 BICH David Rovnyak
McCormack, Shelly ’10 CHEM Tim Strein
Monk, Ian ’11 CHEM Eric Tillman
Mosellen, Erin ’10 BICH Thomas Selby
Ragard, Stephen ’10 CHEM Karen Castle
Reese, Kyle ’12 CHEM Robert Stockland
Richard, Marcia ’12 CHEM Robert Stockland
Springer, Elizabeth ’10 CHEM William Kerber
Usenko, Kelly ’11 BICH Thomas Selby
Winter, Eric ’10 CHEM Robert Stockland
Zawisky, Jason ’10 CHEM Robert Stockland

Second Semester
Carter, Anthony ’12 CHEM Robert Stockland
Chohany, Lucas ’10 BICH Charles Clapp
Deng, Guorui ’10 BICH Brian Williams
Domingues, Katelyn ’12 BICH Eric Tillman
Downey-Zayas, Timothy ’11 CHEM Molly McGuire
Gavigan, Colleen ’11 BICH Tim Strein
Godard, Donald ’12 CHEM Eric Tillman
Guydon, Colleen ’11 CHEM Robert Stockland
Lenker, Heather ’12 CHEM Robert Stockland
Mann, Thomas ’11 CHEM David Rovnyak
Manning, Lauren ’10 BICH David Rovnyak
McCormack, Shelly ’10 CHEM Tim Strein
Mosellen, Erin ’10 BICH Thomas Selby
Pedersen, Tara ’10 BICH Brian Williams
Reese, Kyle ’12 CHEM Robert Stockland
Richard, Marcia ’12 CHEM Robert Stockland
Springer, Elizabeth ’10 CHEM William Kerber
Thomas Colin ’10 BICH Brian Williams
Usenko, Kelly ’11 BICH Thomas Selby
Vogler, Thomas ’10 BICH Brian Williams
Winter, Eric ’10 CHEM Brian Williams
Zawisky, Jason ’10 CHEM Robert Stockland
STUDENT AWARDS

THE ALPHA CHI SIGMA FRATERNITY PRIZE
To the most deserving chemistry graduate chosen at the discretion of the Chemistry Department.
Tara J. Pedersen

AMERICAN CHEMICAL SOCIETY
SUSQUEHANNA VALLEY SECTION AWARD
Criteria: 1. outstanding scholastic ability
2. intention to enter the chemical profession
Allison M. Janda

AMERICAN CHEMICAL SOCIETY/ANALYTICAL CHEMISTRY AWARD
Awarded to the student who displays an aptitude for a career in the field of analytical chemistry.
Sarah A. Schubert

THE BUCKNELL PRIZE IN CELL BIOLOGY/BIOCHEMISTRY
To the senior demonstrating outstanding academic performance in Cell Biology/Biochemistry
Lucas E. Chohany

PHI BETA KAPPA
Danielle R. Glick
Allison M. Janda
Alexander S. Rascoe
Scott B. Shapiro
Kimberly N. Weaver

THE UNIVERSITY PRIZE FOR MEN
To the man, generally excellent in scholarship, who obtains in the courses required for a major in chemistry, or in any subject in the field of biological science, the highest averages in his class respectively.
Alexander S. Rascoe

THE WILLIAM C. GRETZINGER PRIZE
For the highest standing in economics.
Allison M. Janda

THE SAMUAL LEWIS ZIEGLER PRIZE
For best exemplifying the goal of a premedical education
Allison M. Janda
## SUMMER RESEARCH PROGRAM – 2010

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<thead>
<tr>
<th>Name</th>
<th>Mentor</th>
<th>Source of Support</th>
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<td><strong>M.A. Degree High School Teachers</strong></td>
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<td>Tim Bergeron</td>
<td>Stockland</td>
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<td>Dylan Donovan</td>
<td>Williams</td>
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<td>Aravinda Chinthaka</td>
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<td>Christopher Heist</td>
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<td>Catherine Palchak</td>
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<td>Phillip Pickett</td>
<td>Tillman</td>
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<td>Jenna Yehl</td>
<td>Strein</td>
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<td><strong>Bucknell BS/MS Students</strong></td>
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<td>Tara Pedersen</td>
<td>Castle</td>
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<td>Adam Meier</td>
<td>Strein</td>
<td>Strein’s NIH Grant, Rovnyak’s PRF Fund</td>
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<td>Ian Monk</td>
<td>Tillman</td>
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<td>Selby’s NIH Grant</td>
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<tr>
<th>Name</th>
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<tr>
<td>Bill Napoli</td>
<td>Strein</td>
<td>Strein’s NIH Grant, Rovnyak’s PRF Fund</td>
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<td>Mohammad Naqvi</td>
<td>Clapp</td>
<td>Hustler Fund</td>
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<tr>
<td>Kyle Reese</td>
<td>Stockland</td>
<td>Hobar Fund</td>
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<tr>
<td>Marci Richard</td>
<td>Stockland</td>
<td>Hustler Fund</td>
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<tr>
<td>Mark Sarcone</td>
<td>Rovnyak</td>
<td>Rovnyak’s NIH Grant</td>
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<tr>
<td>Kelly Usenko</td>
<td>Selby</td>
<td>Selby’s NIH Grant</td>
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<tr>
<td>Andrew Voter</td>
<td>Tillman</td>
<td>Bucknell Program for Undergraduate Research, Kales Fund</td>
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<tr>
<td>Gar Waterman</td>
<td>Williams</td>
<td>Hobar Fund</td>
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**Bucknell Undergraduate Students continued**

Summer Research Group 2010
Graduates – January 14, 2010

Labe A. Black (B.S., Rider University)  
“Vibrational Relaxation of O₃ (v₃) by Atomic Oxygen Measured by Tunable Diode Laser Absorption Spectroscopy”  
Mentor: Karen Castle  
Graduate school for Ph.D.

George B. Ettenger  
“Towards the Synthesis of 2-allyl-6,7,8-trioxabicyclo[3.2.2]nonane”  
Mentor: Dee Ann Casteel  
Employed by GlaxoSmithKline in Hamilton, Montana

David N. Hunter  
“Synthetic Studies of Indoles and Tetrahydroisoquinolines”  
Mentor: Tom Shawe  
Employed by Merck, Rahway, NJ

Kirsten Kahler (B.S., Millersville University)  
“Mutagenesis Studies to Probe Substrate Binding and Regiochemical Control by Soybean Lipoxygenase-1”  
Mentor: Charles Clapp  
Employed by GlaxoSmithKline, Raleigh, NC

Paul E. Kennedy (B.S., Pennsylvania State University)  
“Structural Investigations of Zinc Containing Compounds Using Solid-State NMR”  
Mentor: David Rovnyak  
Graduate school at Penn State University

Joshua G. Leasure (B.S., Juniata College)  
“Effect of Temperature, Solvent, Lewis Acid and Additives on the Polymerization of t-Butyl Vinyl Ether Using Lewis Acid-induced N-Methyleneamines as Cationic Initiators”  
Mentor: Eric Tillman

(continued)
M.S. GRADUATE PROGRAM

Students Enrolled in M.S. Graduate Program in 2009-10
James Berstler, Lafayette College – Selby
Aravinda Chinthaka, University of Kelaniya, Sri Lanka – Strein
Tim Bergeron, St. Anselm – Stockland
Dylan Donovan, Elizabethtown University – Williams
Christopher Heist, Lycoming University – McGuire
Catherine Palchak, Ursinus College – Clapp
Phillip Pickett, Shippensburg University – Tillman
Jenna Yehl, Ithaca College – Strein/Rovnyak

BS/MS Program

Students Enrolled in BS/MS Program in 2009-10
Tara Pedersen – Karen J. Castle
BUCKNELL STUDENT AFFILIATE
OF THE AMERICAN CHEMICAL SOCIETY

Faculty Mentor: Karen Castle

Officers for Fall 2009
Tara Pedersen, President
Allison Posta, Vice President
Steve Ragard, Treasurer
Liz Springer, Secretary
Whitni Ciafalo, Public Relations

Officers for Spring 2010
Thomas Mann, President
Amanda Rasbach, Vice President
Rebekka Olandt, Treasurer
Will Butcher, Secretary

The Bucknell Student ACS Chapter has received a Commendable Chapter Award for
the 2009-2010 academic year. This is the third straight year that the Bucknell chapter
has received this award.

Congrats to the students!
CHEMISTRY FACULTY

Dee Ann Casteel, Ph.D., University of Illinois-Urbana. Associate Professor, Organic Chemistry. Organic synthesis, synthesis of peroxides, anti-malarial, anti-viral, anti-tumor agents, medicinal chemistry.

Karen J. Castle, Ph.D., Oregon State University. Associate Professor, Physical Chemistry. Kinetics and dynamics of atmospheric processes.

Charles H. Clapp, Ph.D., Harvard University. Professor, Biochemistry. Enzyme mechanisms and enzyme inhibitors.

Margaret E. Kastner, Ph.D., University of Notre Dame. Professor, Inorganic Chemistry. X-ray crystallography; chemical education.


Molly M. McGuire, Ph.D., Wisconsin-Madison. Associate Professor, Environmental Chemistry. Environmentally important redox reactions at clay mineral surfaces.

David Rovnyak, Ph.D., M.I.T. Associate Professor, Biophysical Chemistry. Application of magnetic resonance techniques to the study of biological macromolecules.

Thomas L. Selby, Ph.D., The Ohio State University. Assistant Professor, Biochemistry. Structure-Function Studies of Signaling Proteins; X-ray crystallography, biophysical characterization, enzymology, computational methods, and combinatorial protein libraries.

Thomas T. Shawe, Ph.D., Emory University. Associate Professor, Organic Chemistry. Organic synthetic methodology: stereoselective reactions and alkaloid synthesis.

Robert A. Stockland Jr., Ph.D., University of Missouri. Associate Professor, Inorganic and Polymer Chemistry. Design and synthesis of transition metal complexes with useful catalytic properties. Use of transition metal complexes to control polymerization and to modify polymers.

Timothy G. Strein, Ph.D., Pennsylvania State University. Professor of Analytical Chemistry. Capillary electrophoresis of biological fluids, charge transfer reactions at ultrasmall electrodes, GC/MS of environmental samples.

James S. Swan, Ph.D., Pennsylvania State University. Associate Professor, Analytical Biochemistry. Affinity chromatography; conformational changes in proteins.
Eric S. Tillman, Ph.D., University of Southern California. Associate Professor, Organic Chemistry. Synthesis and characterization of macromolecules possessing interesting photophysical or electronic properties.

Brian W. Williams, Ph.D., Cornell University. Associate Professor, Biophysical Chemistry. Spectroscopic characterization, photophysical processes, and synthesis of micelles, lipid membranes, and vesicles.

**CHEMISTRY PROFESSIONAL STAFF**

Peter M. Findeis, Ph.D., University of Idaho. GC-MS Specialist. Biological Chemistry and instrumentation, GC/MS, LC/MS and capillary zone electrophoresis of biochemical compounds.

Brian M. Breczinski, M.S., University of Minnesota. NMR/Computer and Instrumentation Specialist.

Melinda Van Fleet, B.S., Biochemistry, Albright College. Lab Director.
DEE ANN CASTEEL, Associate Professor of Chemistry

Courses Taught

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<th>First Semester</th>
<th>Course</th>
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Second Semester

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Off Campus Professional Activities

Gordon Research Conference on Natural Products, Tilton, NH, July 2009

ACS National Meeting, Washington, DC, August 2009

Phi Beta Kappa 42nd Triennial Council, Austin, TX, October, 2009

NSF Grant Review Panel, October 2009

ACS Meetings and Expositions Executive Committee Meeting, Washington, DC, December 2009

ACS National Meeting, San Francisco, CA, March 2010
Courses Taught

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Summer Research

Tara Pedersen, BS/MS CHEM ’10 – “Vibrational Relaxation of N₂O(n,) by Atomic Oxygen Measured by Tunable Diode Laser Absorption Spectroscopy”

Grants

National Science Foundation RUI Grant through the CEDAR Program, Aeronomy Division (PI, #0640063) August 2007-2011, $167,760. “Quenching of Vibrationally-Excited Ozone by Atomic Oxygen”

NASA Geospace Sciences Program (Co-I, #06-SRT06-0034) July 2007-2011, $208,067. “Temperature Dependent CO₂-O Vibrational Energy Transfer”

Publications


Off-Campus Professional Activities


(continued)
KAREN J. CASTLE, Associate Professor of Chemistry – continued

Other
Member of the Arts & Sciences Curriculum Committee
Advisor of Bucknell’s Award-Winning Student Chapter of the American Chemical Society
Member of the Board of Review on Academic Responsibility
Science Faculty Representative to the Residential College Advisory Board
Chemistry Department Graduate School Advisor
CHARLES H. CLAPP, Professor and Chair

Courses Taught

First Semester

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Summer Research 2010

Catherine Palchak MS candidate “Linoleoylagarose – a Macromolecular Substrate of Lipoxygenase”

Cody Johnson, BSBC ’13 “Fatty Acyl D-Tryptophan Derivatives as Inhibitors of Lipoxygenase”

Aleem Naqvi, BSCH ’12 “Synthesis of 11, 11-dideuteriolinoleic acid

Rebecca Howell ’13 “Kinetic Studies on Lipoxygenase Mutants”


Other

Nuclear Regulatory Officer
Courses Taught

**First Semester**

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**Summer Research**

Neferternekens Francis MA thesis completed (Jan. 2011 graduation)

Title: Zinc Compounds as Models for Zinc Metalloenzymes.

**Publications**

4-Methyl-2\(\text{H}\)-1,3-oxazine-2,6(3\(\text{H}\))-dione (October 2009) pdf file
D. Parrish, P. Tivitmahaisoon, G. M. Rehberg and M. E. Kastner
*Acta Crystallographica Section E: Structure Reports Online*, 2009, Volume E65, pages o2354

4-Bromo-2\(\text{H}\)-1,3-oxazine-2,6(3\(\text{H}\))-dione (October 2009) pdf file
D. Parrish, P. Tivitmahaisoon, G. M. Rehberg and M. E. Kastner
*Acta Crystallographica Section E: Structure Reports Online*, 2009, Volume E65, pages o2355

4,5-Dichloro-2\(\text{H}\)-1,3-oxazine-2,6(3\(\text{H}\))-dione (October 2009) pdf file
D. Parrish, P. Tivitmahaisoon, G. M. Rehberg and M. E. Kastner
*Acta Crystallographica Section E: Structure Reports Online*, 2009, Volume E65, pages o2356
WILLIAM KERBER, *Visiting Assistant Professor of Chemistry*

**Courses Taught**

**Fall 2009**

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**Spring 2010**

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MOLLY M. MCGUIRE, Associate Professor of Chemistry

Courses Taught

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<td>Advanced Environmental Chemistry</td>
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Summer Research
C.A. Heist, M.S. ’10, “Microscopic and Spectroscopic Methods for Probing the Clay-Water Interface”

Publications

*undergraduate student co-author

Presentations
239th National Meeting of the American Chemical Society, San Francisco, CA (March, 2010), oral presentation: “Redox-Induced Changes in the Mineral/Water Interface of Fe-bearing Clay Minerals”

Other
Presidential Search Committee
Environmental Studies Program Curriculum Committee
Judge, Finalist Selection for Siemens Westinghouse National Science Competition (October, 2009)
Organizer, Redox Chemistry at Environmental Interfaces symposium, Division of Colloids and Surfaces, 239th National Meeting of the American Chemical Society, San Francisco, CA (March, 2010)
DAVID S. ROVNYAK, Associate Professor of Chemistry

Courses Taught

First Semester

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Second Semester

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Summer Research 2010

Mark D. Sarcone, B.S. BIO ’10
Thomas H. Mann, B.S. CHEM ’11
Paris A. Barkan, B.S. NEURO ’12
Jenna B. Yehl, M.S. CHEM ’10, co-advisor Prof. T. Strein

Publications (* for undergraduate coauthors)


Off-Campus Professional Activities


Grants


2007-2010, Principal Investigator (co-PI: Prof. Timothy G. Strein), American Chemical Society Petroleum Research Fund, “Examining hydrodynamic and solubilization properties of micelles formed by chiral amphiphiles”, $55,000

Other

Department Web Development Liaison
Courses Taught

**First Semester**

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**Summer Research**

James Douglas Berstler Jr., M.S. ’10 – Chemistry  
Tyler C. Moyer, B.S. ’10 – Cell Biology/Biochemistry,  
Kelly A. Usenko, B.S. ’11 – Cell Biology/Biochemistry  
Kathleen A. McAvoy, B.S. ’13 – Cell Biology/Biochemistry

**Grants**

Protease Specificity using a DNA Cassette Based FRET Assay, $215,000  
Sponsor: National Institutes of Health (GM080691), 04/01/07-03/31/11

**Publications**

“Characterization of a Randomized FRET Library for Protease Specificity Determination”  
Jonathan F. Fretwell, Shams M. K. Ismail, Jeffrey M. Cummings and Thomas L. Selby.  
Molecular Biosystems 4(8) 862-870 (2008)

“Computational Active Site Analysis of Molecular Pathways to Improve Functional Classification of Enzymes” Ozyurt, A. and Selby, T.L. Proteins-Structure Function and Bioinformatics, 72(1) 184-196 (2008)  

(continued)
THOMAS L. SELBY, Assistant Professor of Chemistry – continued

Off-Campus Professional Activities
“Ligand Induced Conformational Changes within the Metal-Dependent PI-PLC from *Streptomyces antibioticus*” Thomas L. Selby. 2010 American Society for Biochemistry and Molecular Biology (ASBMB) National Meeting April 24-28, Anaheim, CA

“Structure-function studies of the putative protease TM0727 from *Thermotoga maritima.*” James D. Berstler Jr. and Thomas L. Selby. 2010 Middle Atlantic Regional Meeting (MARM) of the American Chemical Society (ACS) April 10-13, 2010, Wilmington, DE

“Active site conformational changes in the metal dependent phosphatidylinositol-specific phospholipase C (PI-PLC) from *Streptomyces antibioticus*, Thomas L. Selby 2010 Middle Atlantic Regional Meeting (MARM) of the American Chemical Society (ACS) April 10-13, 2010, Wilmington, DE

Other
James Douglas Berstler Jr. successfully defended his M.S. thesis during the summer of 2010 and began his industrial career at Novartis pharmaceuticals in Boston, MA

“Fluorescence Anisotropy Studies of the TM0727 Protein to Understand Rotational Dynamics and Stability in Solution”, James D. Berstler and Thomas L. Selby, Ph.D. Sigma Xi Poster Session, Bucknell University, Summer 2010

“Purification, Maturation, and Kinetic Analysis of the Green-Orange (GFP-mKO) Fusion Protein as a Model Substrate for Proteases” Kathleen A. McAvoy and Thomas L. Selby, Ph.D. Sigma Xi Poster Session, Bucknell University, Summer 2010

“Mutational Analysis of the Phosphatidylinositol-Specific Phospholipase C (PLC) from *Streptomyces antibioticus*” Tyler C. Moyer and Thomas L. Selby, Ph.D. Sigma Xi Poster Session, Bucknell University, Summer 2010

“Exploration of the Protease Activity for the TM0516 Protein from *Thermatoga maritima*; Determining the Optimal Assay Methods and Elucidation of the Active Multimeric State.” Kelly A. Usenko and Thomas L. Selby, Ph.D. Sigma Xi Poster Session, Bucknell University, Summer 2010
### Courses Taught

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</table>
ROBERT A. STOCKLAND JR., Associate Professor of Chemistry

Courses Taught

First Semester

<table>
<thead>
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Second Semester

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<td>Undergraduate Research</td>
<td>CHEM 376-08</td>
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<td>CHEM 676-02</td>
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Research Students supervised

Marcia Richard, BS/MS Chemistry
Kyle Reese, BS/MS Chemistry
Heather Lenker, BS/MS Chemistry
Anthony Carter, BS Chemistry
Eric Winter, BS Chemistry
Krysta Guydon, BA Chemistry
Jason Zawisky, BA Chemistry
Timothy Bergeron, MS Chemistry

Publications (Undergraduate coauthors underlined)


Courses Taught

**First Semester**

<table>
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<td>Analytical Chemistry II</td>
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<td>Analytical Chemistry II</td>
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<td>Forensic Chemistry</td>
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**Second Semester**

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<td>Analytical Chemistry I Lab</td>
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<td>CHEM 376-11</td>
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**Summer Research (2010)**

- Jenna Yehl, MSCI ’10, “Diffusion NMR of bile salt micelle systems”
- Bill Napoli, CHEG ’12 “Dynamic simulations of CE processes using SIMUL” and “Ferric Reducing Antioxidant Power (FRAP) assay in a capillary”
- Adam Meier, BICH ’13 “Chiral CE separations with cholate and deoxycholate”
- Aravinda Seneviratne, MSCI ’12, “Optimizing an in-capillary Jaffe reaction assay on the short end of the capillary”

**Honor’s Thesis**


**MS Thesis**


**Grants**

- NIH AREA Grant #1 R15 EB003854-02 “Bioanalytical CE: Mixing, Reacting, Separating, Stacking” 2007-2011, $218,899
- ACS-PRF “Examining hydrodynamic and solubilization properties of micelles formed by chiral amphiphiles with NMR” with David Rovnyak, 2007-2011 $55,000

**Publication**

Off-Campus Professional Activities

ACS Fall Meeting, Washington, DC, August 16-20, 2009


Also, research posters presented by undergraduates Shelly McCormack (Abstract #1690-14P) and Sarah A. Schubert (Abstract #1320-5P).

ACS Middle Atlantic Regional Meeting (MARM), Wilmington, DE, April 12, 2010

Oral presentations given in the Student Awards Symposium by Shelly A. McCormack (Abstract #270), Sarah A. Schubert (Abstract #269), and Jenna B. Yehl (Abstract #268).

NSF-sponsored workshop


Other

Chemistry Department Admission Liaison

BU Graduate Council

Sideline coach for softball (April, 2010)

Student Presentations at Sigma Xi Poster Session, July 2009: Jenna Yehl, MSCI ’10 and Colleen Gavigan, BICH ’10, Shelly McCormack, CHEM ’10

Student Presentations at Sigma Xi Poster Session, July 2010: Aravinda Seneviratne, MSCI ’12, Bill Napoli, CHEG ’12, Adam Meier, BICH ’13.
JAMES S. SWAN, Associate Professor of Chemistry

Courses Taught

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Second Semester

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Summer Session 2010

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Summer 2010

- HPLC separation of Beverage Additives
- Environmental Connections course development
- College Core Curriculum Learning Outcomes Assessment

Other

- “Collision-Induced Dissociation Studies of Deprotonated Serine-Containing Dipeptides after Electrospray Ionization,” James S. Swan, Peter M. Findeis, Ashley L. Shamansky, and David S. Domico, presented at the 48th Annual Eastern Analytical Symposium, November 18, 2009
- Biology Departmental Review Committee, Fall 2009
- Admissions Open House, April 10, 2010
- Director, M.A. Program for High School Chemistry Teachers
Courses Taught

**First Semester**

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<td>Polymer Chemistry</td>
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**Second Semester**

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**Summer Research 2010**

Katelyn Domingues ’12: “Green” Polymer Coupling Reactions

William Butcher ’13: Synthesis of Chromophore-labeled Polymers Using Nitroxide Mediated Polymerization

Andrew Voter ’12: Cyclization of Biradical Polymer Chains

Ian Monk ’11: Cation-pi Interactions in Atom Transfer Radical Polymerizations

Phillip Pickett MS ’11: Effect of Pi-pi stacking on the Atom Transfer Radical Polymerization of Styrene

**Publications** (*Bucknell Student*)


Tillman, E.S.; Contrella, N.D.*; Leasure, J.G.* “Monitoring the Nitrooxide Mediated Polymerization of Styrene Using Gel Permeation Chromatography and Proton NMR” Journal of Chemical Education 2009, 86, 1424-1426.


Invited Lectures
University of Southern California June 23, 2009
Invited lecture entitled “Synthesis of End-Labeled Polymers Using Controlled Radical Polymerization”

Honors and Awards
Henry Dreyfus Teacher Scholar Award
$60,000 (2009-2013)

Off Campus Presentations
Attended ACS conference Washington DC August 2009

Attended and presented two papers (with students, listed below) at ACS conference in Boston, August 2010

Synthesis of Macrocyclic Polystyrene Using Intramolecular Atom Transfer Radical Coupling. Andrew F. Voter presenting.

Effect of Hexafluorobenzene on the ATRP of Styrene. Phillip D. Pickett presenting
Courses Taught

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<td>Research in Science: Chemistry</td>
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Summer Research
Dylan Donovan, Master’s Candidate, “Examining the TICT Hypothesis for an Aromatic Dicyanovinyl Solvatochromic Fluorophore”

Publications

Oral Presentation
“A Chemist’s (Mis)adventures with the Lambert Function W(x)-Mathematics Department, Bucknell University, January 2010.

Poster Presentation

Other
Member, Education Committee, Biophysical Society
Library Representative, Chemistry Department
M.A. PROGRAM FOR HIGH SCHOOL TEACHERS

Teachers Enrolled

Nefertenneken Francis
Choate Rosemary Hall
Mentor: Margaret Kastner
Enraf-Nonius FR504B5 Precession Camera with Philips PW17299 X-Ray Generator, Source: NSF/Bucknell, Date: 1987

Perkin-Elmer 3D HPLC, Source: Gift from Perkin-Elmer, Date: 1987

Nicolet 5 DXC FTIR Spectrometer, Source: Fairchild Foundation, Date: 1987

2 Hewlett-Packard 8452 Diode Array UV/Vis Spectrometers, Source: NSF/Bucknell Date: 1988

Beckman HPLC with Data System, Source: National Science Foundation, Date: 1988

Hansatech DW-1 Polarographic Oxygen Analyzer, Source: National Science Foundation, Date: 1989

Perkin-Elmer Luminescence Spectrometer Model LS-50, Source: Howard Hughes Med Institute, Date: 1989

Siemens R3 Diffractometer, Source: NSF-ILI/Bucknell, Date: 1989

Extrel ELQ 400 LC/GC/MS Quadrupole, Gas-Chromatograph-Mass Spectrometer, Sources: W. M. Keck Foundation, The Ira DeCamp Foundation, Bucknell University, Date: 1989

Spectra-Physics SP8800 LC with UV Detector and Integrator, Source: Howard Hughes Med Institute, Date: 1990

ISCO 2350 and 2360 LC with Gradient Programmer, Source: The Ira DeCamp and Keck Foundation, Date: 1990

Hewlett-Packard 5890 GC with Auto Sampler, Source: W. M. Keck Foundation, Date: 1990

Rudolph Autopol III Polarimeter, Source: Bucknell University, Date: 1992

Hewlett-Packard Capillary Electrophoresis System, Source: NSF/Bucknell, Date: 1993

Shimadzu HPLC, Source: Bucknell University, Date: 1994

Bioanalytical Systems “CV50/W” Voltammetric Analyzer, Source: Bucknell University, Date: 1994

Hewlett-Packard HPLC 1090 Win System and PV5 Ternary Pump, Source: Gift from Hewlett-Packard, Date: 1995

Hewlett-Packard GCD Series – Bench Top GC/MS and Dynatherm ACEM 900 thermal desorption injection system, Source: NSF-ILI/Bucknell, Date: 1995

Nicolet FTIR Upgraded 5DXB with software to OMNIC Impact 410, Source: Fairchild/ Bucknell, Date: 1995

Hewlett Packard HPLC, Source: Hewlett-Packard, Date: 1997

Beckman DU 640 Spectrophotometer, Source: Bucknell University, Date: 1998

Hewlett-Packard HPLC, Source: Bucknell University, Date: 1998
Sciex AP-III+ Electrospray Mass Spectrometer, Source: Gift from Merck, Date: 1999
Agilent 6890 Gas Chromatographs (3 systems), Source: Bucknell University, Date: 2000
INUS b-Ram Model 2 Radioisotope Flow-through Detector, Source: Bucknell University, Date: 2000
Waters Alliance Liquid Chromatography System, Source: Clare Boothe Luce Grant, Date: 2000
Agilent 5973 GC/MS, Source: Bucknell University, Date: 2001
Agilent G1601A Capillary Electrophoresis System, Source: Bucknell University, Date: 2001
Bioanalytical Systems RDE-2 Rotating Disk Electrode, Source: Bucknell University, Date: 2001
Surelite 1-10 Oscillator (Nd:YAG Laser), Source: Bucknell University, Date: 2002
Waters Breeze Gel Permeation Chromatography System, Source: Bucknell University, Date: 2002
CME Discover Microwave Reactor, Source: Bucknell University, Date: 2003
Gen Tech Scientific TU 1901 Double-Beam, uv-visible Spectrophotometer, Source: Bucknell University, Date: 2003
Spex Fluorolog-3 Fluorescence Spectrometer, Source: Bucknell University, Date: 2004
Agilent G-1600 Capillary Electrophoresis (2 systems), Source: National Institutes of Health, Date: 2005
Anasazi FT 60 NMR Spectrometer, Source: Bucknell University, Date: 2005
Nicolet 4700 FT-IR, Source: Bucknell University, Date: 2005
Varian 600 MHz NMR spectrometer, Source: NSF/Bucknell, Date: 2006
Varian 400 MHz NMR spectrometer, Source: NSF/Bucknell, Date: 2006
2 Alpha Purifier Systems, Source: Bucknell University, Date: 2008
Veeco Multimode V Atomic Force Microscope, Source: NSF, Date: 2008
Q-TOF Micro Mass Spectrometer, Source: Bucknell University/Geisinger Medical Center, Date: 2008
Hitachi U-2900 UV-Visible Spectrophotometer, Source: Bucknell University, Date: 2009
CME Discover Focused Microwave Reactor, Source: Bucknell University, Date: 2009
Perkin-Elmer API 150EX LC/MS System, Source: Bucknell University, Date: 2010
Perkin-Elmer Tri-Carb 2910 Liquid Scintillation Counter, Source: Bucknell University, Date: 2010
VISITING SPEAKERS

ACS Seminar Series

September 8, 2009
Dr. Rory Waterman from University of Vermont.
“Zirconium-Mediated Bond Formation: Stripping off Hydrogen to Make Sigma- and pi-Bonds”

October 20, 2009
“From Lab to the Field: The Journey of a Forensic Scientist”

March 2, 2010
Dr. William Fowlkes from Eastman Kodak Company
“Statistical Design of Experiments in Industrial Research”

April 6, 2010
Jim Berstler, Grad Student
“Purification and Preliminary Characterization of the TM0727 Protein from Thermotoga Maritima”

April 13, 2010
Jenna Yehl, Grad Student
“Investigating Chirally Selective Interactions of Binaphthyl Compounds by Bile Salt Micelles: Understanding Micelle Formation and Chiral Resolution Using NMR and CE”

April 15, 2010
Dr. Chad Testa, Echelon Biosciences, Inc.
“Antimicrobial Discovery at the Interface of Chemistry and Biology”

April 20, 2010
Chris Heist, Grad Student
“Spectroscopic and Microscopic Methods for Probing the Clay Water Interface”

April 21, 2010
Paul Tarves, Grad student from Boston University
“Using Synthetic Models to Understand Structure/Function Relationships of Mononuclear Non-Heme Iron Monooxygenases”

April 27, 2010
Tara Pedersen, BSMS student
“Vibrational Relaxation of N2O (ν2) by Atomic Oxygen Measured by Tunable Diode Laser Absorption Spectroscopy”

April 28, 2010
Dr. Katherine Hicks ’00, Post-doc at Cornell University
Structural and Biochemical Characterization of Novel Purine Catabolic Enzymes in Klebsiella Pneumoniae”
Wednesday  
Sept. 9, 2009  
7:30 PM  
Dr. Dennis A. Dougherty  
California Institute of Technology  
Rooke Auditorium – Room 116  

“Chemistry on the Brain: Understanding the Nicotine Receptor”

Wednesday  
Oct. 21, 2009  
5PM  
Dr. David MacMillan  
Princeton University  
Rooke Auditorium – Room 116  

“Photoredox Catalysis in Chemical Synthesis”

Wednesday  
November 11, 2009  
5PM  
Dr. Dennis Curran  
University of Pittsburgh  
Rooke Auditorium – Room 116  

“Radical, Ionic and Organometallic Reactions for N-heterocyclic Carbene Boranes”

Wednesday  
April 7, 2010  
5PM  
Dr. Lesley Davenport  
Brooklyn College of the City University of New York  
Rooke Auditorium – Room 116  

“DNA Knots and Tumorigenesis: Folding and Conformation of Quadruplex-DNA”

Ms. Suellen Beck, Department of Chemistry, Bucknell University, Lewisburg, PA 17837  
Telephone 570-577-3258, E-mail: suellen.beck@bucknell.edu
Karyn Visscher, BSCH ’85
E-mail: kbvisscher@gmail.com
In August I accepted a position as a Polymer Chemist at International Specialty Products in Wayne, NJ. I’m working with the Performance Chemicals division of the Household, Industrial and Institutional Products division of ISP. It’s good to be “back at the bench”!

Robert Erdahl, BSCH ’60
Received his Ph.D. in chemistry from Princeton University in 1966
He is currently Chair of the Math Dept. at Queens University in Canada

Nancy Spencer Moore, BSCH ’60
Retired managing editor of *The Freelance Star* in Fredericksburg, VA
E-mail: atacama2@verizon.net
Although my career path diverged to journalism in 1969, my Bucknell science and math training were essential to my success. One of the highlights of my 50th Bucknell reunion was breakfasting with former chemistry professors and classmates. They are amazing!
Bill Owens Memorial Breakfast

Karen Visscher and Charlie Clapp

Nancy Spencer Moore and Roger Engels

Pat (Shapor) Garrigues ’60 and BSCH and Manning Smith
A Year in Pictures

Professor Tillman’s Research Group 2009

Eric Tillman and Chelsea Brinkman ’10
BS in Biology, Phi Beta Kappa

Holiday baskets in 2009
Heather Lenker — Poster sessions 2010

Kyle Reese — Poster Sessions 2010
Dear Professor and Mrs. Tillman,

Thank you so much for coming to our class and teaching us about Chemistry. We think being a Chemistry Professor is a cool job. The ice cream was really yummy!

Love,
Mrs. Jamieson’s Class

Makena Sieha
Mark Julien
Gabe
Maggie
Jack
Belle
Dillon Back
Rachel
Carter Lord