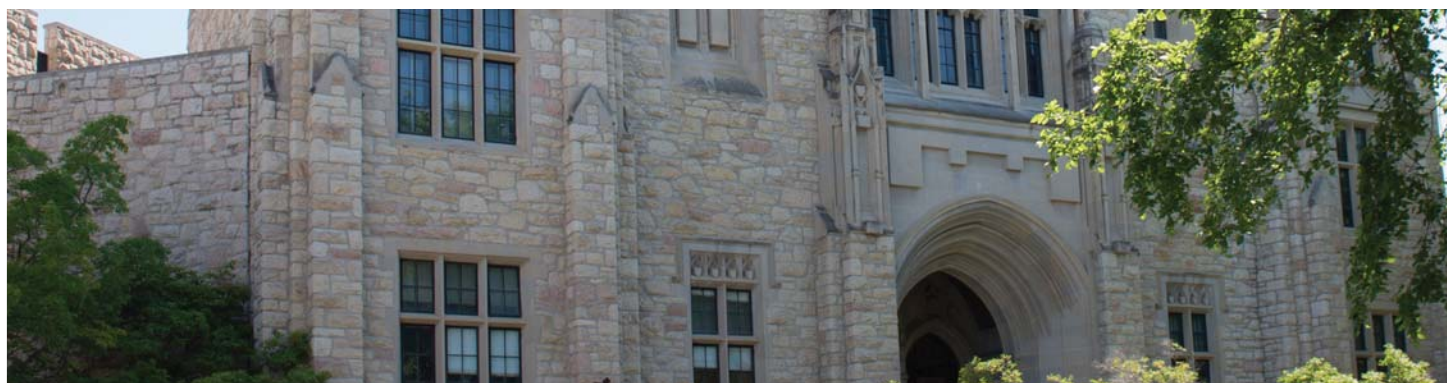


Department of Chemistry Newsletter



Dr. Thomas Ellis
Acting Department Head

As Acting Head, I'm pleased to be writing the introduction to this year's newsletter. Prof. Palmer has been taking a well-deserved

six month leave, and will be back at the helm on July 1 to guide the department in future years. In fact, it was Prof. Palmer who instituted the newsletter a few years ago, one of his many important contributions to the department. In my role over the last six months I have certainly enjoyed the opportunity to get to know the people who continue to make this department such a special place – the faculty, students, staff and alumni.

I believe that, as a department, it is important for us to celebrate our successes, and to take action to move forward. This newsletter provides an opportunity to showcase both of these aspects. This year we are high-

lighting graduate students Dr. Concepcion Ponce and Naheda Sahtout, the Chemistry Graduate Symposium, our student societies, and the accomplishments of many individuals.

I would like to take this opportunity to carry this idea forward in two particular areas, under the theme of diversity and inclusion. I always smile when I see the world map in Leah's office showing the diversity in international backgrounds of our students. We all benefit when we expand our worldviews, something that is particularly important today. At the same time, we recognize that action is needed to improve diversity in a number of areas. Our department illustrates a well-known issue for women in STEM (science, technology, engineering and math) disciplines – the pyramid. While we are justifiably proud of the number of women in our undergraduate program, the numbers drop off precipitously at the higher levels. We are not alone, and the Government of Canada just released an Equity, Diversity and Inclusion Action Plan. While this is a positive step, it's discouraging that society hasn't made more progress at this point of time. But that should provide even more motivation to take action.

I was pleased to see our department well represented at the LOGIC (Leaders Overcoming Gender Inequality in Chemistry) Retreat in Toronto, and perhaps we can look forward to a Women in Chemistry chapter in our department. We all have a role to play in understanding and removing the barriers that are still impeding the progress for women in our field.

I believe that another important and timely theme for us is indigenization and reconciliation. As President Stoicheff has stated: "We cannot deem our role in the fostering of a civil society a success unless we become demonstrably and with commitment the best place we can possibly be for the Aboriginal people of this province and this country. None of the rest of it matters—at this point in our nation's history—if we do not achieve this." This is an exciting time for all of us, full of hope and possibilities. I look forward to seeing what we can achieve as a department working with the indigenous students of today and of the future.

As we move forward individually and collectively, my best wishes to everyone for a successful year ahead.



Faculty in the News

Stephen Foley and his PhD students, **Hiwa Salimi** and **Loghman Moradi**, won a 2017 SABEX (Saskatoon Achievement in Business Excellence) award for developing a new process for selectively removing gold from electronic waste, such as printed circuit boards. This is the fastest method known for leaching gold into solution, and is also selective for gold and requires no energy input. The reagents used are cheap, recyclable, and environmentally benign. A company has been formed to operate a pilot plant in Saskatoon. Once this pilot facility is operational, the process can be replicated at sites around the world. Prof. Foley was featured on Global News in February.



Dr. Stephen Foley, Hiwa Salimi and Loghman Moradi



Dr. Timothy Kelly

Tim Kelly was awarded the U of S New Researcher Award at the Fall 2016 Convocation. Research in the Kelly group focuses on the development of emerging photovoltaic technologies. They study perovskite solar cells, organic photovoltaic devices and dye sensitized solar cells, and use a combination of organic and inorganic synthesis, nanotechnology and photophysics to more efficiently absorb light and convert it into electrical energy. Current research projects focus on improving the efficiency and longevity of perovskite solar cells, the synthesis of new organic semiconductors, polymers and dyes, and the development of plasmon-enhanced solar cells through the use of anisotropic metal nanoparticles.

Eric Price was featured on Global News in January and he hosted the Hon. Kirsty Duncan, Canadian Minister of Science for a tour of his lab. His research group is focused on multidisciplinary research, spanning the fields of chemistry, cancer and disease biology, radiochemistry, molecular imaging, nuclear medicine, and clinical translation. The overarching goals of his research group are to improve early detection of a variety of cancers and multi-drug resistant bacterial infections using molecular imaging techniques such as near-infrared and positron emission tomography (PET) imaging, and then to treat them using "smart drugs" that harness therapeutic radioactive metals. To quote from his interview, "We're really at a take-off point where we're growing in the field and it's going to explode in the next five to ten years."



Dr. Eric Price and Science Minister Kirsty Duncan

Faculty Research Updates

Faculty members in the Department of Chemistry operate very successful research programs, providing a rich training environment for students, postdocs and research associates. All of this requires funding, and this was another successful year in that regard. After the 2017 competition, the Department of Chemistry faculty hold a total of 18 Discovery Grants, another new record for the department. Official announcement of the awards by NSERC will not occur before September 2017. **Chris Phenix** received a SHRF Establishment Grant for his work on Parkinson's disease, one of several new grants for him. **David Palmer** was part of a research team that received the Saskatchewan Health Research Foundation Award of Excellence for the Top Collaborative Innovation Development Grant of the year, presented December 1, 2016. Collaborative research from the labs of **David Palmer** and **David Sanders** was featured as a highlight by the Canadian Light Source in their [Annual Research Report](#). The X-ray photoelectron spectrometer (XPS) purchased with CFI funding secured by **Andrew Grosvenor**, **Rob Lamb** and Ajay Dalai arrived in January. It is now running, and we have collected our first set of spectra.

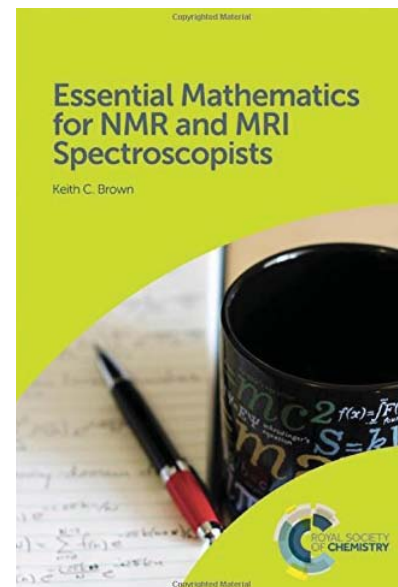
New Lab Manager

We were pleased to welcome **Adrian Clark** to the Department as an undergraduate laboratory manager in July 2016. Adrian received his B.Sc. from the University of Regina in 2009 before obtaining a Ph.D. from the University of Calgary under the supervision of Dr. Kevin Thurbide. His role in our Department includes managing the labs for Chem 115 and 375 as well as lecturing one course per year.



Essential Mathematics for NMR and MRI Spectroscopists

In January, the department celebrated an important book launch – **Keith Brown's** "Essential Mathematics for NMR and MRI Spectroscopists". To quote from Amazon: "The author is an NMR laboratory manager and is sympathetic to the frustrations of trying to understand where some of the fundamental equations come from hence his desire to either explicitly derive all equations for the reader or direct them to derivations. This is an essential text aimed at graduate students who are beginning their careers in NMR or MRI spectroscopy and laboratory managers if they need an understanding of the theoretical foundations of the technique." Rated at 4/5 stars - congratulations Keith!



Faculty Promotions & Milestones

The University's Board of Governors granted **Ian Burgess'** promotion to Full Professor effective July 1, 2017.

Matthew Paige has been a faculty member in our Department for fifteen years as of July 1st!

2017 Taube Medalist - Dr. Concepcion Ponce

The Taube Medal is an annual award given to the graduate student in the Department of Chemistry who is judged to have made the most significant overall contribution to research and scholarly activity. The 2017 Taube Medal was awarded to Concepcion



(Conie) Ponce who recently completed her Ph.D. degree under the supervision of Dr. Matthew Paige. Conie's primary research project was aimed at understanding and controlling non-coherent photon upconversion (NCPU) in solids and in thin films. In addition, Conie also worked on a number of side-projects, including the synthesis of gemini surfactants and measuring photocatalytic properties of titanium dioxide nanoparticles. Her

research has led to 4 publications in the peer-reviewed literature. Conie's research contributions have been in the field of NCPU, a "hot", cutting-edge area of spectroscopy research that is also a very challenging one. The challenges in this field are unusual because the optical signals that are being detected are quite small and the kinetics of the spectroscopic processes involved in the energy transfer are very fast. While not directly related to her research, Conie's contributions to the scientific enterprise extend well beyond her immediate research. During her PhD program, she made outstanding contributions to science outreach activities. She played a leadership role in the "Let's Talk Science" and "Science Rendezvous" programs, both major outreach activities, throughout her time at the U of S. She was also the Department's first lab demonstration assistant, a new position that required her to carry out live chemistry demonstrations to large first year classes. Preparing and presenting these demonstrations was a huge undertaking, particularly given that this was the first time the Department had attempted such an exercise. Her efforts raised the profile of the Department dramatically, and we have all benefitted enormously from her efforts.



2016/17 Graduate Student Award Recipients

Congratulations to the following members of the Chemistry Department who were recipients of awards or scholarships this past year:

Sheida Ahmadi (Ph.D. Student, Bowles Group) - won 2nd Prize in the Student Poster Competition at CSTCC2016

Burke Barlow (B.Sc. Hons '07, M.Sc. '16, Burgess Group) - was awarded a University of Saskatchewan Graduate Thesis Award (Master's) in the Physical & Engineering Sciences at Spring 2017 convocation for his thesis, "*Reducing Residue In Nickel Electroplating Operations*"

Hridaynath Bhattacharjee (Ph.D. Student, Mueller Group) - Best Oral Presentation Award at BORAM 2016

Leila Dehabadi (Ph.D. Student, Wilson Group) - Best Graduate Poster Award at the Women in Physics Canada Conference

Kyle Fransishyn (M.Sc. student, Kelly Group) - won a graduate student poster

award for the materials chemistry division at the 2017 CSC

Carly Olafson (M.Sc. student, Phenix Group) - awarded a U of S Dean's Scholarship

Naheda Sahtout (Ph.D. Student, Sanders Group) - Provost's Outstanding Graduate Student Teacher Award

Quang Huy To - (Ph.D. Student, Pedras Group) Best Oral Presentation Award at the 2016 Saskatchewan Regional Group of the Canadian Phytopathological Society

Inimfon Udoetok (Ph.D. Student, Wilson Group) - 2017 GSA Innovative Research Award and the Jean-Denis Carette Prize for Best Student Poster Presentation at Surface Canada 2017

Hiwa Salimi and Loghman Moradi (Ph.D. students, Foley Group) - along with their supervisor they were awarded a 2017 SABEX (Saskatoon Achievement in Business Excellence) Award for their work developing a new process for selectively removing gold from electronic waste, such as printed circuit boards

Osai Clarke (Ph.D. student, Burgess Group), **Mohadeseh Majdi Yazdi** (Ph.D. student, Palmer Group) along with incoming student **Ahmadreza Nezamzadeh Ezhieh** (Ph.D. student, Mueller Group) have been awarded 2017 Saskatchewan Innovation and Opportunity Scholarships

Chemistry Students' Society (CS2) Update

The Chemistry Students' Society (CS2) consists of an executive with twelve members, five members not majoring in Chemistry, as well as general members who pay an annual membership fee. This diverse group of individuals come together to organize great events, offer academic help to other undergraduate students and offer members access to our lounge to further their experience in the Chemistry department. There was a total of 63 members for the 2016/17 academic year.

This past year, the CS2 had put on a number of different events. These events consisted of a 'Burger and Beer Night', a trivia night and a bowling party. These events allowed students and staff to come out and mingle with each other. Some events offered prizes including CS2 shirts, Thirsty Scholar glasses and beer jug, as well as gift cards. Other events included a number of midterm help sessions for first year and various second year chemistry courses as well as a Research Night, where students could learn about the different areas of research happening in the department as well as what kinds of opportunities a Chemistry degree can offer. The event was marketed by offering free pizza to attendees, and we saw an excellent turnout of over 45 students for the first-ever Research Night.

This year the outstanding teaching award went to Dr. Michel Gravel. Dr. Gravel's interests consist of research into different types of organic catalysts. His enthusiasm in organic chemistry as well as his efforts in teaching was appreciated by all his students.

The CS2 has elected its new Executive, and has already begun planning various events for the upcoming academic year. These events provide undergrad students the opportunity to meet other undergrads in the department as well as graduate students and faculty. This also gives students the opportunity to explore different areas in chemistry as well as other science-related fields.

2016/17 CS2 Executive
President: Melissa Shaw
VP Internal: Brandon Chivers
VP Financial: Shivani Tauh
VP External: Zachary Huschi
VP Academic: Jenny Panchuk
VP Social: Bryden Hughton
VP Admin: William Barrett
4th Year Representative: Anthony Ojukwu
3rd Year Representative: Lais Gomes
2nd Year Representative: Kathleen Coyne
1st Year Representatives: Mars Zhao and Michael Roy Durr

Recent Graduates

Fall 2016

Master of Science
 Burke Barlow
 Michael Lardner
 Mohammad Hasan Mahaninia
 April Woods

Doctor of Philosophy
 Jijin Raj Ayanath Kuttiyatveetil
 Subhayan Dey
 Concepcion Ponce

Spring 2017

**Bachelor of Science
 3 Year**
 Alexandra Wallace

**Bachelor of Science
 4 Year**
 Max Adolph
 Qing Liu
 Anthony Ojukwu
 Linda Vogt

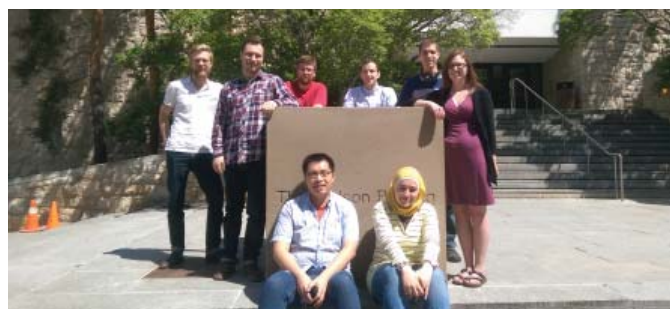
**Bachelor of Science
 Honours**
 William Barrett
 Brandon Chivers
 Zachary Huschi
 Hammond Miri
 Theophilus Olumirin
 Melissa Shaw

Master of Science
 Aarti Bhagwat
 Savi Bhalkaran
 Curtis Senger
 Bipinlal Unni

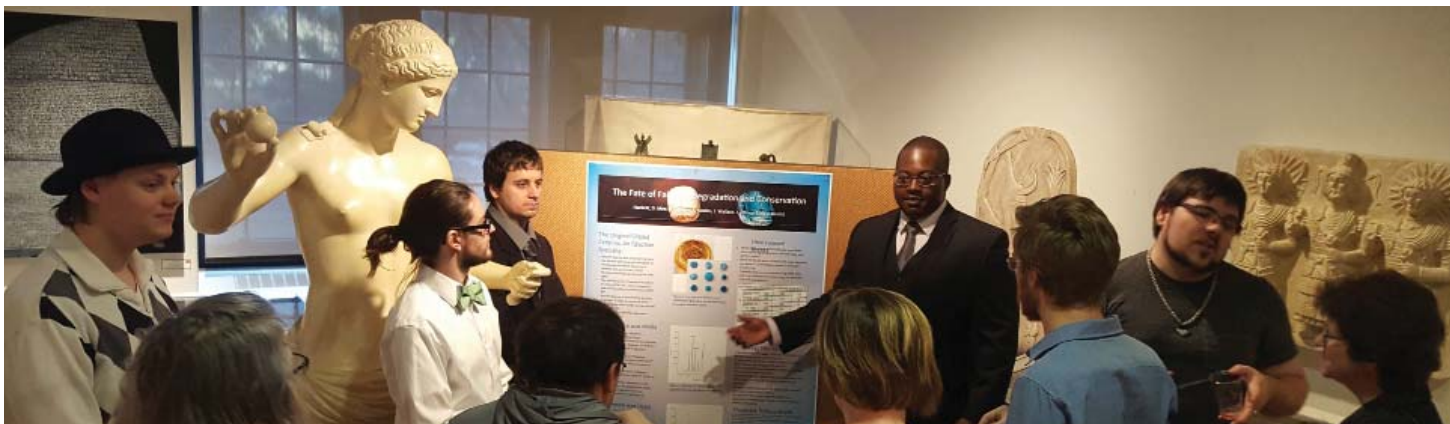
Doctor of Philosophy
 Mahesh Gangishetty
 Elaheh Khozeimeh Sarbisheh

Chemistry Course Council (CCC) Update

With another busy year passed, the CCC would like to thank you all for participating in our series of events. Special thanks to our professional development seminar speakers for their talks on how to effectively attend scientific conferences, how to create and maintain an effective CV, and effective job searching. Our annual Pumpkin Carving as well as Holiday Door Decorating Contests this year saw a great field of contestants. We hope you enjoyed the show at the I-Can't-Believe-I-Watched-That Movie Night. We wish you all a wonderful summer! See you on the fields for the return of our laser tag event and at the summer barbeque.



2016/17 CCC Executive
President & GAC Meeting Representative: Steve Langdon
Treasurer: Rick Pettipas
Secretary & Union Meeting Representative: Tyler Morhart
Public Relations & Department Meeting Representative: Kaiyang Tu
GSA Representative: Naheda Sahtout
Safety Committee Meeting Representative: Arthur Situm



New Course: CHEM/CMRS 398

Chemistry students at the Museum of Antiquities. Humanities students at the synchrotron. What could go wrong? CHEM/CMRS 398 was a new course that brought together 5 students from chemistry and 8 students from the Classical, Mediaeval and Renaissance Studies program. Grouped into 3 interdisciplinary teams, they each created an original research project based around synchrotron measurements of artifacts chosen from the U of S Museum of Antiquities. The course was co-taught with Tracene Harvey, the Director/Curator of the museum, and Tracy Walker, the Education Programs Lead at the Canadian Light Source. Tasked with approaching research from both a science and a humanities perspective, the students developed successful projects that involved ancient Middle Eastern pottery, Roman Republic Denarii (silver coins) and Egyptian faience. They also developed important coping strategies when a breakdown at the synchrotron resulted in a loss of some key beamtime! Overall, it was a great experience for all involved, and we will repeat the course in 2018.

Alumni Updates

Makund Jha (Ph.D. '06, Pedras Group) has been promoted to Full Professor at Nipissing University, ON.

Mohammad Hossain (Ph.D. '07, Pedras Group) obtained a tenure-track position as Assistant Professor at Indiana University Kokomo.

Zachary Huschi (B.Sc. '17, former Palmer Group undergraduate student researcher) will be starting medical school at the University of Saskatchewan in August 2017.

Anthony Ojukwu (B.Sc. '17, former Burgess Group undergraduate student researcher) will be starting medical school at the University of Saskatchewan in August 2017.

2017 Provost's Outstanding Graduate Student Teacher Award

First awarded in 2010, the Outstanding Graduate Student Teacher award recognizes graduate students who show outstanding promise as teachers who have taught for at least one academic term. It is awarded annually to a novice or experienced graduate student teacher with a strong commitment to reflecting, documenting, and improving their teaching skills. The Department is pleased that 2017 was the first time a Chemistry graduate student, Naheda Sahtout, was honoured as the recipient. Naheda's extremely diligent and conscientious work as a teacher made her unquestionably deserving of this honour. Naheda has had the opportunity to teach hundreds of undergraduate students over the past four years who have been the beneficiaries of her strong work ethic and the passion she has to share her scientific knowledge with the students under her supervision.



2017 Chemistry Graduate Student Symposium

The 2nd Graduate Student Symposium, from Academia to Industry, was held on May 3-4, 2017. Over 90 people attended, including faculty, staff, post-doctoral fellows and students from the Department of Chemistry, at the University of Saskatchewan and the University of Regina.

The event featured keynote speakers Dr. Ingrid Pickering, Professor and Canada Research Chair in Molecular Environmental Science, and Dr. Monica Barney, Materials Research Scientist, Materials and Corrosion Research Development Group, Chevron. Both keynote speakers discussed the path they took to go from Academia to Industry and provided some insight into their research interests.

In subsequent sessions, undergraduate students, graduate students and post-doctoral fellows were given the opportunity to present their research either through oral or poster presentations. There were a total of 17 oral presentations, each lasting approximately 12 minutes in length followed by up to 3 minutes of questions. 18 students displayed their research via a poster presentation.



All the students did very well and it was a close competition for the best presentations (both oral and posters). Volunteer judges included; Tom Ellis, Eric Price, Elaheh Khozeimeh Sarbisheh, Marcelo Sales, Jason Maley and Steven Langdon. Prizes were awarded to Kelly Summers, Derek Zomerman and Jenny Panchuk for best oral presentations and William G. Barrett, Brady G. Vigliarolo and Chase L. Radford for best poster presentations.



We are happy to report that the event was an overall success. We are thankful for the funding that we received from the College of Arts and Science, the College of Graduate and Postdoctoral Studies, the Department of Chemistry and the Graduate Students' Association. We are also thankful for the donated items that we received from the University of Saskatchewan Bookstore, the Office of Sustainability, Sarstedt, VWR, Fisher Scientific and the Chemistry Students' Society.

Included in this year's symposium was a raffle draw for three \$25 gift certificates, generously donated by The Woods AleHouse. Funds totaling \$300 were collected during this raffle draw and were donated to 'The Children's Discovery Museum' (<http://www.museumforkids.sk.ca/whats-here/>).



We hope that all those in attendance enjoyed the event and we welcome any feedback that would allow us to improve future Graduate Student Symposiums. Finally, this event could not have been a success without the dedication of the organizing committee, those who attended and the students and post-doctoral fellows that gave outstanding presentations.

The Samuel and Ethel Brown Memorial Fund for Chemistry

Weldon G. Brown was born in Saskatoon in 1908 and completed both his bachelor's and master's degrees in chemistry at the U of S by age twenty. After a PhD at the University of California and postdoctoral experience in Europe and America, Dr. Brown enjoyed a long career in the Department of Chemistry at the University of Chicago, where he became known for the invention of paper chromatography and pioneering work on lithium aluminum hydride reductions. Dr. Brown, as a distinguished alumnus from our institution, was presented with a Doctor of Laws degree by Dr. T. Thorvaldson at the U of S Golden Jubilee Convocation ceremony in 1959.

Dr. Brown thanked his home department by establishing the Samuel and Ethel Brown Memorial Fund in honour of his parents. The fund is used to support special projects in the Department of Chemistry and has received generous ongoing support from Dr. Brown's children.

The Samuel and Ethel Brown Memorial Fund provided \$4,100 in financial support in 2016-17 to support eleven graduate students to travel to specialized conferences to report on their research. This included regional and national conferences (Regina, Kingston, and Halifax), as well as a couple international conferences (252nd American Chemical Society National Meeting & Exposition in Philadelphia PA and the 55th Phytochemical Society of North America conference in Davis, CA). For emerging scientists, such conferences are vital for their career development. They gain confidence in their abilities, they start to build their network of international colleagues, and they return with exciting new ideas.

We would love to hear from you if you have any feedback about our newsletter.
Please email leah.h@usask.ca

Professor C.C. Lee Memorial Bursary

Choi Chuck Lee received B.Eng. and M.Sc. degrees from the U of S before earning his Doctor of Science degree at M.I.T. He returned to Saskatoon to work as a research assistant in our Department prior to being hired as an Assistant Professor of Chemistry in 1955. He was an early advocate of diversity in that he mentored graduate students from around the world over his career. Dr. Lee retired from the Department in 1988 and held the title of Professor Emeritus until he passed away in 2008. The Department gratefully acknowledges the contribution that Professor Lee's family has made to graduate students in our Department in his honour. The Professor C.C. Lee Memorial Bursary has been awarded annually since 2009/10, and is awarded on the basis of demonstrated financial need and academic achievement to a graduate student working in the area of organic chemistry.



Mark Your Calendars! 2017/18 J.W.T. Spinks' Lecture Series

On November 2 and 3, 2017, the 2017/18 J.W.T. Spinks' Lecture Series will be given by Dr. Christina White from the University of Illinois.

Professor M. Christina White received her B.A. with highest honors in Biochemistry from Smith College in 1992 and her Ph.D. from Johns Hopkins University in 1998. After a postdoctoral fellowship at Harvard University, she joined the faculty there in 2002. In 2005 she joined the faculty at the University of Illinois at Urbana-Champaign. Her research interests are in the field of organic synthesis with an emphasis on the discovery of transition-metal mediated reactions that address unsolved problems in organic methodology.

Please consider joining us for this event!



Staying Connected



We're always interested in knowing what our alumni are up to! Please send updates to chem.dept@usask.ca.

Make sure we have your current contact information to receive your college magazine or newsletter, the Green & White alumni magazine, event invitations, and information on special University of Saskatchewan alumni programs and offers. http://alumni.usask.ca/connect/update_information/