GREETINGS

Hard to believe this is already the 10th edition of the Element! This year, you will discover again new realizations of our department and the spectacular success of some of our alumni. In 2014, all our programs have been reviewed by a committee composed of external and internal assessors who have recognized their high quality and the rigor of the academic training our students received in chemistry and biochemistry at all levels. We also appreciate the suggestions that were made to continuously improve the quality and the delivery of our graduate and undergraduate programs. Our objectives of high quality in research and teaching remain focussed on students.

Thank you for your support and best wishes for 2015!
Nelson Belzile

Two of our alumni are recipients of the prestigious Banting Postdoctoral Fellowship in 2014: Dr. Joseph Lemire (B.Sc. Biochemistry-2006; Ph.D. Biomolecular Sciences-2011) from the Department of Biological Sciences at the University of Calgary and Dr. Trevor VandenBoer (B.Sc. Chemistry and Forensics, 2007) from the Earth Science Department at Memorial University in St. John’s.

The prominent Canada -U.S.A Fullbright Program provides exchange opportunities for graduate students and scholars in both countries and one of alumni James Crispo (B.Sc. Biochemistry, 2007; M.Sc. Chemical Sciences, 2009) from the Population Health Program at the University of Ottawa is one of the happy selected Fullbrighters of 2014-15, now studying this year at the University of Pennsylvania in Philadelphia.
Dr. Trevor VandenBoer graduated *Cum laude* from Laurentian in 2007 with a combined Honours B.Sc. degree in Analytical Chemistry and Forensic Science. He has subsequently completed an M.Sc. and Ph.D. in Environmental Chemistry with Dr. Jennifer Murphy from the University of Toronto. For the past two years Trevor has been a postdoctoral fellow with Dr. Susan Ziegler at Memorial University in St. John’s, Newfoundland. Dr. VandenBoer’s ongoing research examines the biogeochemical interactions of nitrogen between the biosphere and the atmosphere. Over the past century humans have chemically converted inert dinitrogen gas into reactive forms of nitrogen intentionally, for agricultural fertilizers, and unintentionally, in the burning of fossil fuels. This reactive nitrogen, when released into the atmosphere, can be transported over long distances to affect the productivity of sensitive, nutrient-limited ecosystems. For his Banting Fellowship, Trevor utilizes measurements of reactive nitrogen made across a latitudinal transect of boreal forest sites in Newfoundland and Labrador. This transect acts as a model for climate change and allows assessment of potential climate feedback mechanisms. Reactive nitrogen measurements can specifically aid in understanding potential impacts on the cycling and storage of carbon in boreal ecosystems with changing climate. Both issues are of high significance to predicting future ecosystem changes in Canada, where climate change impacts are already visible in Arctic regions and transport of human-derived reactive nitrogen has been recorded.

After completing an Honours B.Sc. degree in Biochemistry in 2006, Dr. Joe Lemire received his Ph.D. in Biomolecular Sciences from Laurentian under the supervision of Dr. V. Appanna in 2011. He has authored and co-authored many articles on how metals can be toxic to human and bacterial cells. He is now a post-doctoral fellow at the University of Calgary on a research project concerning the bioremediation of oil sands tailings pond water with Professors Howard Ceri and Ray Turner. His research is addressing the current crisis of antibiotic resistant infections. Metals such as silver and copper have been used since antiquity as antimicrobial agents. The research Joe is involved in aims to identify the mechanisms by which metal ions poison the bacterial cells, in an effort to identify new strategies to treat antibiotic-resistant bacteria, specifically those present in chronic wounds. Gaining insight into the mode-of-action of metals will help develop new antimicrobials and possibly rejuvenate the current arsenal of conventional antibiotics. It will give people more options to fight chronic infections. In addition, this research will add to the understanding of how metal pollutants affect the environment and propose possible bioremediation strategies to clean metal pollution.

James Crispo completed his B.Sc. in Biochemistry in 2007 and continued at the graduate level working with Drs. T.C. Tai and G. Ross at the Northern Ontario School of Medicine to obtain his M.Sc. in Chemical Sciences in 2009. James is now completing his Ph.D. at the University of Ottawa’s Population Health Program while taking advantage of the exceptional occasion given by the Fulbright program to do research on Parkinson disease and the risks associated with anti-Parkinson drug use at the University of Pennsylvania. He is thrilled by this opportunity to work outside the country in collaboration with some leading researchers on Parkinson disease.

Best of luck to all our alumni!
Hello, my name is Said Sharif Mahboob. Growing up in Toronto, I developed an interest for chemistry in the early stages of my high school career and ever since I have pursued higher education in chemistry. After high school, I went to Seneca College @ York University, where I successfully completed a Chemical Laboratory Technician diploma. Then, I started my BSc Chemistry degree at Laurentian University and during my BSc I had the privilege to gain research experience in the research laboratories of Drs Gray-Munro, Montaut, Joly and Shepherd. In Dr. Shepherd's lab I was introduced to various electrochemical techniques. Working on an industrially relevant research project, my interest was piqued to continue and further my knowledge and skills in industrially relevant electrochemical processes by completing my undergraduate thesis on understanding effects of bone glue on the quality of zinc electrodeposits under Dr. Shepherd's supervision. Currently I am in my first year of MSc in Chemical Sciences and my thesis is on furthering the understanding of leveling additives in the process of zinc electrowinning that is currently being applied at Teck Metals Limited. I have recently been awarded the first ever Goodman School of Mines Scholarship MSc Chemical Sciences for which I am proud and thankful. During my time at Laurentian, I have met wonderful professors who are always available to provide guidance and support. Also, I have made great friends and have enjoyed my time while getting an excellent education. I hope to gain more amazing memories and knowledge throughout my post graduate studies.

UNDERGRADUATE
NICHOLAS ZANNIER

I have always been interested by metabolic processes that are the base of different forms of life. As a result of my active life style, I decided that after my studies at École Secondaire Sacré-Coeur I would specialize in biochemistry in order to better understand my body at the fundamental molecular level. Now in the second year of my program, I really appreciate Laurentian for the availability of the professors and for the efforts they do to make sure the material they present is well understood. One of the attracting characteristics of the campus is the physical environment because it is located a bit outside the city and it gives you the feeling of a small community. Once I have completed my B.Sc., I will have the knowledge to continue in the field of life sciences and further study the behavior of the human body as well as the impact external factors may have on it.
Dr. Sabine Montaut, presently on sabbatical leave, has been at the Organic and Analytical Chemistry Institute (ICOA) at the University of Orléans (France) since September 8th 2014. Thanks to a collaborative research project funded by the Hubert Curien Program « Cogito » 2013-2014 which promotes researcher mobility between France and Croatia, Prof. A. Tatibouët and Dr. M. Schuler both from ICOA and Dr. S. Montaut visited their collaborator Dr. Ivica Blažević and his colleagues of the Faculty of Chemistry and Technology of the University of Split (Croatia). During this visit, Dr. S. Montaut gave a talk within the colloquium of the Croatian Chemical Society – Split entitled « Phytochemistry and free-radical scavenging activity of two native wild crucifers of North America ».

To our students who graduated with a M.Sc. in Chemical Sciences and to their Supervisor

Jose Knee (T. Merritt)  
Caroline Betit (J. Watterson)  
Afrah Al Hegy (J. Gray-Munro)  
Heather Cornthwaite (J. Watterson)

Xiaoxi Yang (J. Gray-Munro)  
Somaiah Almubayedh (M. Chahma)  
Thomas Bizley (L. Mercier)  
Caitlyn Rotondo (S. Siemann)

To the new doctors in Biomolecular Sciences and their Supervisor

Christopher Auger (V. Appanna), recipient of the Governor General’s Gold Medal Award  
Alison Buckner (R. Lafrenie)  
Andréane Chénier (E. Gauthier)

To Dr. A. Parisenti and his research associate Dr. B. Guo for the development of the RNA Disruption Assay (RDATM), a technology that aids in the treatment of breast cancer and for which Laurentian University has been awarded a patent in September by the Australian Patent Office.

To Dr. F. Caron who is the recipient of the 2013-2014 Faculty of Science, Engineering and Architecture Teaching Excellence Award.

To Dr. M. Chahma’s group who made the cover page of the New Journal of Chemistry (August) with a paper on the “Characterization of phenomena occurring at the interface of chiral conducting surfaces”.

To the research group of Dr. N. Belzile who had the “hot paper of the month” Proteomics of Desulfovirbrio desulfuricans and X-ray absorption spectroscopy to investigate mercury methylation in the presence of selenium, published in Metallomics in January.