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EVENTS!
GRADUATE AND FACULTY
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In November, many DPES professors became successful recipients of teaching grants for new equipment and software from the Centre for Teaching and Learning. Congratulations! We are excited to see these new projects unfold!

**CTL Equipment Grant Highlights:**

**Dr. Kris Kim**

Our newly hired teaching stream faculty member has received funding for new optical tensiometers for teaching and learning purposes. He will be working with TRACES manager (Tony Adamo) to include two new optical tensiometers to the already existing suite of instruments to offer students hands-on experiential learning opportunities to study surface and interfacial properties of materials. Dr Kim hopes to integrate the theory and applications of this instrument into analytical and physical chemistry courses, as well as provide undergraduate research students opportunity to characterize surface/interfacial energy of any relevant materials using this technique.

**Dr. Myrna Simpson**

Professor Simpson acquired equipment for a new laboratory experiment added to CHMD16 "Environmental and Analytical Chemistry". This will allow students to extract different forms of lead from soil and quantifying it using atomic absorption spectroscopy. The teaching equipment funded includes an automated shaker for extracting lead from soil and a centrifuge rotor for larger containers that will allow the rapid separation of solid and solution phases. This equipment will directly support the new experiment and provide CHMD16 students with hands on experience with a common method for isolating different forms of metals from soil.
CTL Equipment Grant Highlights:

Dr. Dan Weaver
This grant will greatly expand the available experiments in the 1st year physics for life sciences course. This will enable a variety of kinematics, dynamics, energy, momentum, and oscillation experiments to be performed. Multiple sensors are embedded into the smart carts: a 3-axis accelerometer, 3-axis gyroscope, and a force sensor. Data is sent wirelessly to lab computers using Bluetooth. In addition, the carts have a self-launching system for motion experiments, slots for additional masses, attachment points for accessories, and are charged by standard USB ports. This equipment will deepen the opportunities for the development of students’ experimental, data analysis, and communication skills. The data collection system uses PASCO software called Capstone. This enables students to easily import data, plot and analyze results. Capstone was acquired by a separate but connected CTL software grant as a site license. It can be installed on any DPES lab computer.

Dr. Ruby Sullan & Dr. Dan Weaver
This CTL equipment grant for an educational Atomic Force Microscopes (AFM) offers undergraduate physics and chemistry students an opportunity to learn about a tool with applications in physical, materials, and life sciences. AFMs are versatile instruments that can image and measure forces at the nanoscale. AFMs enable imaging beyond the capability of optical microscopes. While the general concept of the AFM instrument is simple, the instrument is quite complex, involving electronics, mechanical parts, and optics. Learning opportunities arise from students exploring the many physical principles involved in the instrument and the vast amount of forces and interactions it can measure: from the Van der Waals and electrostatic that act on the sample and tip to the photodiodes and piezo materials used for position control.

CTL Software Grant Highlight:

Dr. Lana Mikhaylichenko & Dr. Oleksandr Voznyy
The CTL grant was awarded to develop a new response system (clicker) that can provide immediate feedback during class time without the use of any extra equipment (using smartphones) and is free of charge for students. This system will be very useful for instructors who simply want to check whether students assimilate lecture material properly, facilitating the achievement of learning outcomes of the course. The pilot system has already been developed, demonstrating excellent performance in small classes. It is now being tested with more users and will be extended with several more features before being made available to all professors at DPES and UTSC.
Other Awards:
Learning & Education Advancement Fund (LEAF)

Our first year team (Marco Zimmer-De Iuliis, Kris Kim, Nirusha Thavarajah, Ruby Sullan, Oleksandr Voznyy, Xiao-an Zhang and Scott Ballantyne) have been awarded a Learning & Education Advancement Fund (LEAF) grant for $42,300 over the next three years to promote scientific writing in our first year chemistry courses!

Our students will develop their scientific communication skills by writing a mini essay on an open-ended chemistry topic. They have developed scaffolded online Quercus modules in collaboration with CTL to guide students through the process of researching and writing scientific articles. As well, Sarah Forbes has developed an online research guide showing students how to register and access Scifinder (aka the google of chemistry!).

For this essay, students are using in-house developed peerScholar software to facilitate the submission and feedback processes and the faculty are collaborating with CTL and Steve Joordans (the primary developer of peerScholar) to customize his software for this assignment. This new writing assignment will engage students by providing them with the experience of the journal article writing, review, and submission process.

2019 Highly Cited Researcher:
Dr. Oleksandr Voznyy

Dr Voznyy has been named as the 2019 highly cited researcher, by Clarivate Analytics (Web of Science) in the Interdisciplinary field. This title is awarded to top 0.1% of researchers who produced multiple highly-cited publications over the last decade.


Congratulations to DPES PhD Candidate Maryam Abdinejad for winning $3,000 at The Hub.

Maryam developed 3D animations and ARchemy, an app for visualizing chemical structures and reactions in 3D.

See article here: https://www.utsc.utoronto.ca/thehub/bridging-gap-between-women-and-entrepreneurship
What are you doing now?
Chief Operating Officer at Metadvice, a digital health startup. I’ve been in this role for about a year, prior to that I was a Chief Operating Officer at a different digital health startup, and prior to that I was running operations at a biotech startup.

On a broad scale, my role is responsible for planning, directing and overseeing the company’s operations, projects and goals. My job is to help companies execute their short-term and long-term plans and help ensure results are delivered to the main stakeholders, such as partners, investors and customers. My day to day requires implementing good judgement to make high impact decisions, deliver on the company vision, manage employees, contractors, vendors, service providers, and display leadership at every step.

What UTSC experiences helped in getting you to where you are now?
My studies helped me develop crucial critical thinking skills which have been invaluable for me to get to where I am today. Apart from that, having been involved in various work and volunteer opportunities, including TA’ing, helping with events such as frosh week, participating in leadership workshops, and touring prospective students around campus, helped me develop leadership capabilities that I continued to take with me as I continued to learn and grow.
Challenges in your current position?
So many - long hours, uncertain environment, constantly changing conditions that require a high degree of flexibility and adaptability. Getting pulled into multiple directions and being able to juggle lots of balls in the air at the same time, while remaining calm and collected, and emanating company vision and leadership.

Most rewarding parts of your position?
Also so many – working in early stage start-ups is extremely rewarding because you get to help build something that’s part of the future of healthcare. I’m always looking to maximize my impact in healthcare, and being part of a company that’s developing a product for doctors and patients is one of the best ways of doing that. Being part of something that’s constantly growing and changing also never gets dull, so I never get tired of waking up early to start working. Finally, I get to be part of the frontier healthcare technology landscape, through education events, conferences, networking, I get to meet some of the most amazing people all trying to work towards similar goals, which is extremely exciting.

Any advice for current students?
Network as much and as often as you can. And that the courses themselves are probably not be the most important thing you learn while in school, but at the same time are a great way to build a solid foundation. I wouldn’t be where I am today without my undergraduate and graduate degrees in the hard sciences, and if I had to make the same choice again I’d probably choose the same degrees.

Where do you see yourself in 10 years?
I’d potentially like to run a fund that invests in early stage health and biotech companies, so that’s a possibility. But one of the things I learned along the way so far is that sometimes opportunities derail your plans, and it’s ok to just go with it.

Work life balance in your current role?
Generally executive work life balance is a struggle, but it’s important to surround yourself with great people who are a positive influence on you, both in your work team and in your personal life. This makes things easier and more fun.
In November, we held our annual U of T Pharmacy seminar to provide information to undergraduate students considering applying to pharmacy school. Additionally, we hosted an outreach event for high school students in EV chemistry labs. Both events were a success!

An extra big thanks to all of our volunteers who came out for the Science Outreach event hosted by Professor Thavarajah. We most certainly could not have held this event without your enthusiasm and participation.

Join our Team!

For students interested in becoming more involved with EPSA, look out on our social media during the coming semester. We will be hiring and electing positions for the 2020-2021 executive team. If you wish to be more involved with both student life and the Department of Physical and Environmental Sciences, this is a great opportunity and valuable experience. We encourage everyone interested to apply! Please reach out to us if you have any questions!

EPSA - Environmental and Physical Sciences Students' Association
@myepsa
president@myepsa.ca
Who are we?
We’re a club at UTSC aiming to strengthening student success in the various fields of science, particularly Chemistry. Our approach towards student success includes increasing student passion towards science through workshops, seminars, field trips, lab visits and volunteer opportunities.

Recent Events:
Students came to the distillery district with professor Lana Mikhaylichenko to learn all about the distillation of alcohol. We learnt a lot about how to make various kinds of alcohol. Hope to see you next year at this event!

Upcoming Events:
Ultimate Science Volunteering

@CSUforU
csu@utsc.utoronto.ca
How was the Symposium?
It was a great experience to see what goes into organizing and running a symposium. I not only got to meet people working in the field but also a lot of students researching various topics in universities all around Canada. It was great to able to discuss and get advice/perspectives on things related to work and research in the field from a variety of people.

Event Highlights? What did you learn?
During the evening after the setup for the event, there was a meeting with the student moderators and the organizing committee where we had the chance to ask questions to the committee about their experiences throughout education and work. They shared a lot of good advice with us but the one thing that stuck with me the most was about how many young scientists face the issue of being "generalists" or "specialists" and how we are usually forced into being the latter. Many of the people in the committee actually identified as generalists, those who know a little about a lot of things but are best at connecting all of the information they know across different disciplines and applying it to various situations. Many even said being of such a background actually helped them a lot in work and allowed them to undertake many roles. I personally identify as a generalist and was always insecure about how not being a specialist in a certain topic would put me at a disadvantage in the scientific community. However, after talking to the committee members and hearing their experience made me felt validated and gave me more confidence to continue my educational and professional pursuits.

MEnvSc student, Fatima Mahmud, selected to be Student Moderator at the 2019 Latornell Conservation Symposium

Other Photos:
Where you able to network?
Networking took place from morning to night. At every lunch or dinner, you were expected to sit at a random table and just talk to people, ask about their backgrounds and make conversation. Everyone was open to giving advice or sharing their experiences. There were also social events planned at the end of the day such as mini-golf or whiskey tasting that one could participate in and get to know people in their industry in a more social setting. On one of our last nights there, AECOM held a networking event where they brought in their company band to play live music and held a free raffle for a TV. As a student moderator, I was able to directly connect with many speakers at the conference and learn about the things they were doing at their workplace. By introducing each of the speakers and sessions, I was given the opportunity to share my background and interests with the people attending the talks, which was great, since the conservation community is supposedly very small.

Did you meet anyone interesting?
Given that most of the people I met at the conference didn’t really know much about the places I had lived in, I was very surprised to meet one person at the conference who actually had a similar international background as me. We both had lived in Saudi Arabia and were now in Canada. I had actually been to the town where she grew up several times. She was also doing things that I found very interesting and was thinking of pursuing in the future. Overall, it was surprising to connect with someone which such a similar background as well as interests as mine.

MEnvSc Research Highlight
A new study, co-authored by Karen Smith, assistant professor of this department, finds the substances responsible for creating a massive hole in the ozone layer may account for nearly half of Arctic warming over a 50-year period. The research, published in Nature Climate Change, highlights how ozone-depleting substances (ODS) are a significant and unrecognized source of twentieth-century Arctic climate change.

“Ozone depleting substances in many respects have been an under-appreciated contributor to climate change,” says Karen Smith, who is also director of the master of Environmental Science Climate Change Impacts and Adaptation program at U of T Scarborough. Smith, along with colleagues at Columbia University including lead author Lorenzo Polvani, used a climate model to estimate what amount of warming can be attributed to ODS.

Read news article here:

To learn more info about the study, read Dr. Smith’s paper published in Nature!
https://www.nature.com/articles/s41558-019-0677-4

MEnvSc Info Session, Jan.18
On January 18th, we hosted our 4th MEnvSc info Session. This is a great opportunity for prospective MEnvSc applicants to learn more about the MEnvSc program and to interact with faculty, program staff, and students/alumni.

The Graduate team is extremely grateful to all those who, despite the harsh weather, were able to join in. A special shout-out to our Students and Alumni for graciously attending and providing their valuable insights. They are always the highlight of the session.

Dr. Karen Smith
MEnvSc Past Events

MEnvSc Social Night, Nov 5

150 MEnvSc alumni, students, faculty and staff got together to celebrate the accomplishments of our outgoing MEnvSc cohort and welcome our current cohort of over 90+ students!

MEnvSc Convocation, Nov 6

We cheered as 77 MEnvSc students crossed the convocation stage to received their well-deserved degrees. Congrats to all and keep us posted on your next steps!

More photos on Facebook @UTSCMEnvSc
EES100H MEnvSc Alumni Panel

We were honoured to welcome 5 MEnvS Alumni for the EES1100H Alumni panel. Thank you for taking the time out of your busy schedule to join us as a representative of our MEnvSc program.

MEnvSc Employer Panel

Thank you so much to our Master of Environmental Science Employer Panelists!

We had a packed audience of MEnvSc students who really valued your words of wisdom and professional insight.

Thank you for being valued employer partners: Mikaela Comella, MEnvSc (Golder Associates); Dan Moore, MEnvSc (Central Lake Ontario Conservation Authority); Amber Sabourin (Golder Associates); Philippe Dauphin (Natural Resources Canada)
PHOTOS FROM OUR DPES HOLIDAY PARTY

On December 16th, the department hosted their annual year-end holiday party for students and faculty.

Photos Courtesy of Chai Chen
DPES DIGEST is looking for you!

Interested in assisting with the DPES newsletter? Have any great ideas you want to come to light? Send us your resume by February 29th, 2020

Email: karyna.hanif@mail.utoronto.ca