

**Great minds meeting to take on life's great challenges**



*Photo taken by Dr Chow-Fraser of students in Red Bay, the Bruce Peninsula during the Life Sci Field Inquiry course in 2013*

## Letter From the Director of the Life Sciences Program

**Dr. Pat Chow-Fraser, Professor of Biology**

Early in my mandate as Director of the Life Sciences Program, I conducted an exit survey of graduating students in the Honours Life Science program, to get better acquainted with the program strengths and weaknesses. I also asked students for suggestions on how to improve their program. It quickly became clear that students desperately wanted and needed a way to connect with other students in the Life Sciences program, which is the largest undergraduate program in the Faculty of Science. Because students take courses from many departments distributed throughout the university, it is difficult to keep in touch physically. The LifeSci Dispatch newsletter, dedicated to the LifeSci community, will keep us connected virtually, and allow us to communicate with past, current and future students. The Dispatch will keep the community informed of new course offerings, new professors, program events and initiatives. It will also serve as an important networking tool to inspire, challenge and empower students.

Let me be the first to congratulate the Dispatch team, led by our Editor, Mia Costigan, for the successful launch of this inaugural issue. No one appreciates more than I the sacrifices that the team has made to give birth to this newsletter. I also want to thank Bhairavi Sivaram (H. Life Sci 2012), who did the preparatory work in 2013 to draft the terms of reference for the position of Editor. Thank you to all contributors of this current issue, including students, staff and faculty. We will be on the lookout for photos, ideas for feature articles and useful tips. If there is a creative side of you, itching to get out from under all that Science exterior, give us a call and get involved. We want this to be a forum for everyone! See you in the news.

### Issue 1

March 2014

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#### EDITORIAL STAFF

PROGRAM DIRECTOR  
Dr. Pat Chow-Fraser

EDITOR IN CHIEF  
Mia Costigan

CONTENT CONTRIBUTORS  
Raluca Topliceanu, Onella Pereira, Ahmed Khan, Lily Liu, Sarah Robinson, Dr. Pat Chow Fraser

Special thank you to all McMaster staff and alumni who were interviewed or contributed in any way to this newsletter.

#### CONTACT

#### WRITERS WANTED

Are you creative and looking for an outlet? Contact us with your ideas and feedback or if you are interested in becoming a part of the LifeSci Dispatch team!

EMAIL: [mia.costigan@gmail.com](mailto:mia.costigan@gmail.com)



@Mac\_LSDispatch

FOLLOW US FOR UPDATES ABOUT FUTURE ISSUES AND TWEET US YOUR COMMENTS

# Letter From the Editor

Mia Costigan  
Editor of the LifeSciDispatch

Welcome to the inaugural edition of the LifeSci Dispatch! Our goal is to deliver relevant, interesting content to you, our Life Sciences Program (LSP) student community. The LSP is a rich McMaster legacy; it continues to be a pillar of the research, innovation and academic excellence that McMaster has become celebrated for. Our first issue serves as a touch point to introduce some of Life Sciences' key happenings and milestones and give you a road map for what to expect in the months to come. I look forward to collaborating with students and faculty to deliver a variety of interesting topics

that represent the diverse interests and ideas of our program. Our first issue features articles and insights ranging from the latest research professors are conducting, to what some of our distinguished alumni are doing, along with content for students currently enrolled in the program. We hope you enjoy it. But even more important – we hope you'll participate. Let us know what you think! Send us your feedback and comments, Tweet it and make it your own – because it is. Our call for articles is open to all interested Life Sciences students who want to share information among the best program at McMaster!



Written by Raluca Topliceanu When Dr Marie Elliot, an Associate Professor in McMaster's Department of Biology, was asked about whether she thought she would eventually end up in the field of research, she shook her head and smiled. "You would think so," she said. "From my undergraduate years to now, my journey appears very linear." She obtained a Bachelor of Science degree, after which she completed both her Ph.D. and Post-doctoral fellowship studying the organism *Streptomyces*, a producer of antibiotics varying from anti-cancer agents to immunosuppressants. Her lab is currently investigating multicellular development, gene regulation and antibiotic production

using the *Streptomyces* bacteria as the model system.

Throughout her career, Elliot has come to realize what has called her—as well as other researchers—to science. There is a mystery of the unknown that motivates her work, the will to unearth the intricacies of biological systems at the cellular level. "Research is definitely not for everyone," she later says. "Some projects appear never to get off the ground, but this is where innovation and creativity come in. When you get a result that isn't what you expected, it is still a useful result. It is definitely a field that benefits from new ways of looking at a situation."

## Current Events @ McMaster

Coming up in April is the Life Science Interdisciplinary Research Symposium (IRS). Be sure to mark this event in your calendar and attend sessions relevant and interesting to you!



Photo taken of attendees browsing posters at the 2013 IRS.

**When:** Tuesday, April 1, 2014

**Where:** Ewart Angus Centre, Health Sciences Centre, McMaster University

**What:** The Life Sciences Interdisciplinary Research Symposium is an annual event to showcase the research of Honours Life Sciences students enrolled in independent projects and theses. This year's symposium will take place on April 1, 2014 in Ewart Angus Centre in the Health Sciences. Students will present their research findings in both oral and poster presentations. All are welcome to attend. This is a good opportunity for students to find out more about the type of future research projects that are available.

### Preliminary Schedule

4:30 pm-onwards Registration in Ewart Angus Foyer

4:45 pm Welcome in HSC-1A4

5:00-6:00 pm Session in HSC-1A4

Session 2 in HSC-1A3

6:00-7:00 pm Session 3 in HSC-1A4

Session 4 in HSC-1A3

7:15-8:30 pm Poster Session & Reception in Ewart Angus Foyer

# Student Corner

## Experiential & Research Placement Opportunities in Life Sciences

**Looking for an opportunity to complement what you've learned in class?** Thinking about next steps and possible careers? Consider an experiential placement or research practicum course.

Experiential placement and Research practicum courses provide students with the opportunity to explore career options and integrate academics with a community, professional or research experience. Many of our Life Sciences students take advantage of these courses and thoroughly enjoy the 'out of class' experiences and skills that they gain. Students complete an academic component in addition to the

placement. Although students are not involved in a normal classroom environment, a similar academic rigor is expected as in a regularly scheduled course.

There are many benefits to taking part in an experiential or research placement course. These can include improving your skills in written & oral communication, critical analysis, and technical skills. You will also have the opportunity to build meaningful relationships with professionals and academic supervisors. These relationships are important when it comes time to ask for reference letters or when you are trying to make contacts in

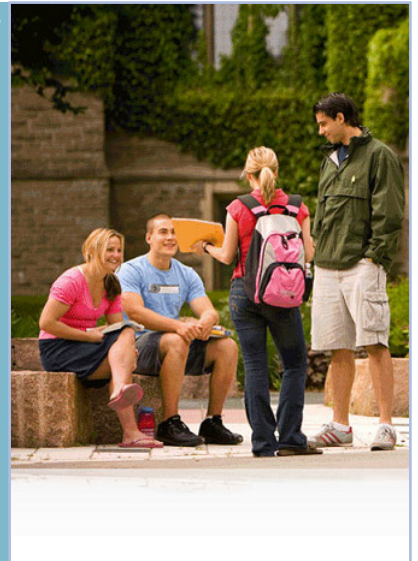
your field. Further, taking part in an experiential placement or research practicum course gives you great insight into a field you are considering as a career.

**Not sure which course you should pursue?** The Life Sciences program has created a comparison chart that outlines the similarities and differences between these courses. You can find it on the Life Sciences website. You can also find sample applications online for these courses. Many students find these examples helpful when trying to complete their application.

## What I Wish I Knew...

*Graduating students in independent studies and Research Seminars were asked: What advice would you give to incoming students? Here are their tips to make the most of your undergrad years.*

- 1 Make the most of the flexible structure and take a variety of courses. You'll find out what subjects you like and dislike if you take a diverse course load. This will help you determine what courses to take in Level 3 and 4.
- 2 Do intensive research to find an area of study in the LSP to specialize in after first year. Be proactive and plan your future career goal—ensure you have the proper pre-reqs for courses you want to take.
- 3 Get involved and gain as much research and lab experience as you can. Make connections, get to know professors, find a supervisor early to do a senior project. Begin volunteering, take field and lab courses such as 3RP3, 3EP3, 4A03, 4B06 and 4C09.
- 4 It is important to study hard, manage your time and develop good organizational skills right from the start. Grades matter if you want to attend Med school or Grad school. Level 2 and 3 grades are important for scholarships.
- 5 Use resources on campus like the Student Success Centre, take experiential courses, stay positive and don't give up—it gets better after first year. LSP is a great program and has great students—get to know them.
- 6 Don't get too stressed out over midterms, assignments and grades! If you need help, ask your Professors. Enjoy the program and the learning process, and don't focus on high GPA. You will work harder and get better grades if you like the subject.



## Course Reviews

### LIFE SCI 3M03: CELLULAR DYNAMICS

Life Science 3M03 is a fascinating course that utilizes an interdisciplinary approach to addressing the 'big questions' in cellular biology. It makes use of experimental designs to present key questions and findings, and draws from a pool of knowledge including fields such as biophysics to enhance student learning. This course is innovative in the sense that it does not follow a traditional structure; instead its small size allows students to focus on collaboration and discussion during lecture periods. This encourages students to think outside the box in approaching course material, and in designing their own experiments for their research proposal assignment. This module-based course is geared

towards students who are excited to explore the underlying mechanisms of cellular dynamics, and their impacts on furthering our knowledge of the processes that sustain life. – Sarah Solomon

### LIFE SCI 3F03: APPLIED ECOLOGY SEMINAR

Life Science 3F03 deviates from a traditional, lecture based curriculum, and instead provides students with a novel approach to learning within the Life Sciences program. Throughout this seminar course, weekly lectures are replaced with group discussions that actively engage students in the understanding and manipulation of ecological data. This course combines key concepts within the dynamic field of

ecology and applies them to local community sites and circumstances. The utilization and subsequent understanding of JMP software is also incorporated into this course, giving students a foundation in introductory statistical data analysis, to take with them in furthering their education. Through visits to local community sites, such as bird banding stations, streams undergoing rehabilitation, and conservation lands, this course offers a well-rounded learning experience to its students. Its innovative approach to teaching allows students to more completely understand theoretical ecological processes, and to apply these learned concepts, to real-world experiences as researchers. – Braedon Morrison



## Q&A with McMaster Alumni: Hetal Patel

**Why did you decide to go to graduate school over another path after your undergrad?** When exploring my options during undergrad, I knew I definitely wanted to pursue further education – either professional school or grad school or both – to attain a career in the healthcare field. Throughout my master's program I have had the opportunity to interact with

a variety of professionals in the field which has broadened my career prospects. I hope to combine my background knowledge in public health with a future career in medicine to work as a public health physician where I can work towards improving both patient and community health.

**What are you currently studying?** I am currently a 2nd year Master of Public Health student at the University of Waterloo. This is a course and practicum-based master's program.

**Where are you working as part of your practicum placement?** I am currently working full-time at the Ontario Ministry of Health and Long Term Care in the Public Health Programs and Policy Branch.

**What has been the biggest accomplishment of your academic career?** Receiving the McMaster Science Society Graduate Award for my "Outstanding Contributions to the Community" which recognized my work and extra-curricular involvement in the McMaster community as well as my volunteer work in the greater Hamilton community.

**What were the most valuable things you learned during your undergrad that have helped you in your current schooling?** 1) Importance of time management/organization 2) Engaging in self-directed learning (ex. senior thesis) 3) Always take opportunities to step outside your comfort zone – these experiences will help you grow and learn so much more about yourself.

**What is the most interesting part of what you are currently learning?** I think the most interesting part of what I am learning is understanding how my work fits in to improving public health in Ontario. Policy work progresses quite slowly, so sometimes it can be difficult to see the bigger picture of your day-to-day activities. I recently wrote a briefing note on updating guidelines for maximum mercury consumption from fish in response to requests made from health units. This proposal will help Ontario's 36 public health units provide reliable information to the public, thereby allowing them to make informed nutrition choices and protect their health.

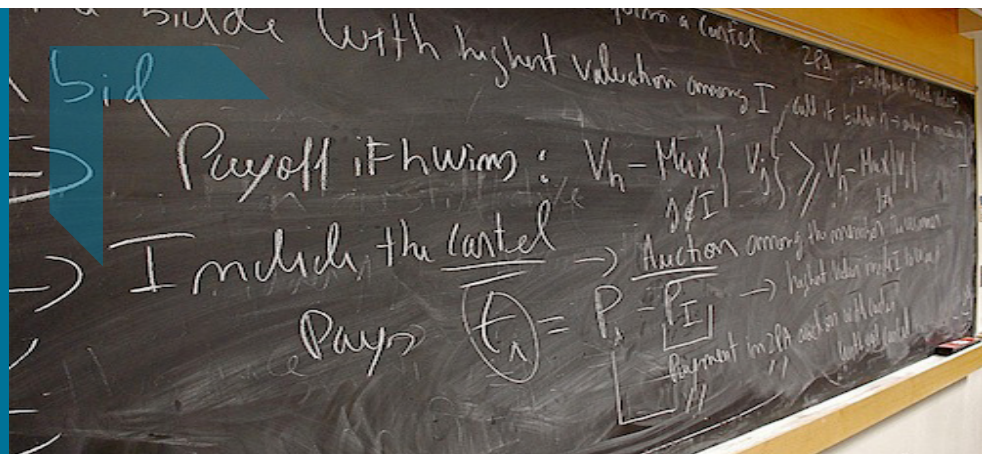
**What is the highlight of your day?** As a matter of fact, I think meetings are my favourite part of the day. I have the opportunity to participate in several teleconferences every week with professionals across the province and country (Ontario's 36 public health units, Health Canada, Canadian Food Inspection Agency, BC Center for Disease Control, etc.) and it's an amazing learning opportunity.

**How do you unwind from a busy week?** I spend the majority of my day at a computer, so it's great that there is a gym in the building to unwind after work and stay active. Aside from the gym, I also take advantage of winter opportunities like skating, skiing and snowboarding on weekends.

MEET A NEW PROFESSOR

## DR. AYESHA KHAN

LIFE SCI 2D03, 3C03, 4T03,  
4X03 AND PSYCH 2NF3,  
2TT3 AND PNB 2XF3



This year a few new faces are delivering some exciting new courses in the McMaster Life Science program. One of these new professors is Dr. Ayesha Khan. Although new to teaching at McMaster, she's no stranger to our campus. Dr. Khan earned both her Honours B.Sc. in Psychology with a Neuroscience Specialization and her Ph.D in Behavioural neuroendocrinology from McMaster's Department of Psychology, Neuroscience & Behaviour. Since graduating, Dr. Khan has taught at the University of Toronto and also at Ryerson University. It was McMaster's strong research reputation and continued devotion to creating better educators, coupled with her strong connection to the campus that drew her back to her alma mater.

Those of you taking one of Dr. Khan's classes will notice that she brings great enthusiasm into the classroom and is always available to students, even when the semester is over. One of her main goals is to develop course curriculum that introduces students to current research and content and to assist them in gaining appreciation of the scientific process. She enjoys teaching Life Science courses because of the diverse background of students and interesting and challenging questions that promote class discussion. For those of you who sit in the back rows, be prepared for her to walk up during class discussions to hear

your thoughts, even in a class of 150-200 students! Currently Dr. Khan is working to implement a project called "MacEngaged." A great example of this project in action is in Dr. Khan's Psychology 2NF3 course (Basic & Clinical Neuroscience), where students have the opportunity to use materials learned in the course to actively engage and help the "community" – be it campus wide, citywide or on a global basis. This initiative has gained so much support that the president of our university, Dr. Patrick Deane, will invite one lucky group with the most impactful project for breakfast. With this initiative, Dr. Khan is making a clear connection between her classroom and McMaster's vision: "Forward with integrity." Find out more about MacEngaged; go here: <http://fwi.mcmaster.ca/timeline/>