

BIG Research Seminar

FINDING THE RIGHT **OPPORTUNITIES** FOR YOU

Want to get into research but don't know where to start?
Want that unique experience on your CV that distinguishes
you from everyone else? **BIG** has you covered.

➤ **Let's Go.**

OBJECTIVES

What to look forward to.

- Why research?
- How to find a research supervisor.
- How to approach a potential supervisor.
- Research institutes and sources of funding.
- Chat with the upper years!

These slides will be uploaded at:

<http://immsauoft.com/>

MEET THE CREW



Lucy Chau

Co-President of your Immunology Students' Association (IMMSA). She's a 4th year major in Immunology who has worked on basic sciences and clinical research projects. Current research interest: renal artery stenosis in kidney transplant patients and the efficacy of medical versus radiological intervention on long term allograft function and patient survival.



Johnathan Lau

Vice-President of IMMSA. He's in 3rd year majoring in Immunology and Physiology. Previous research projects: Protein crystallography, molecular physiology, and adenovirus work.



Albert Nguyen

3rd year Immunology Specialist doing transplant research in Dr. Gary Levy's laboratory at TDMT. Researching the efficacy of Fgl protein to improve transplant outcomes in mice. Dabbles in mice work and cell cultures. Specialty with FACS and flow cytometry.

FINDING A SUPERVISOR

- ↪ Different PIs place emphasis on different qualifications. Some may look for:
 - 📄 Grades (cGPA > 3.6 for a safe cut-off, but this number can vary)
 - 📄 Previous Experience (if no experience then try volunteering for a while before getting paid)

- ↪ However, **ALL PIs** look for something in common: your INTEREST , PASSION, and ENTHUSIASM in their research

- ↪ Be sure to find a research area that you think you might like.

- ↪ Research is not a fast and easily-gratifying thing to do at all. So your passion for your project will allow you to persist in the face of frustration.

WHY RESEARCH?





A whole lot of awesome.

- Great experience, builds your CV!
 - Relevant to grad school, professional school, industry, etc.
- Real life laboratory/clinical experience
 - Beyond the textbooks
 - Learn the latest techniques
 - No more memorizing! (okay, there is still some required)
- Close supervision and mentorship
 - Usually work in the lab with graduate student or postdoctoral fellow (has a PhD)
- Is research for you?





WHY RESEARCH?

A whole lot of awesome.





LEARN

-  Lab Techniques
-  How to keep up with scientific literature
-  Critical Thinking
-  Poster/Oral Presentations

CONNECT



-  Graduate Students/ PhD's/Postdocs
-  Faculty or your department
-  Professionals
-  Build your Resume and your social network

DISCOVER




-  Novel Findings
-  Help your fellow man advance its knowledge
-  Publication(s)
-  Future Opportunities

FINDING A SUPERVISOR

1. Department Website – A great place to start!


-  Not always the most up to date
-  You do not have to be enrolled in that subject PoSt to do research in that department.

2. Lab Website – Most PIs have a website dedicated to their research lab.

-  Descriptions of their research interests
-  Descriptions of lab members
-  Not always up to date

3. Research Opportunity Program Listings –


Supervisors that offer the ROP299 credit may also have student positions available.

-  <http://www.artsci.utoronto.ca/current/course/rop/299>

4. Funding Institutes Websites – Often, institutes offering studentships/internships also come with a list of PIs that are accepting students. More on this later.

5. <http://www.uhnresearch.ca/researchers/> - you can look for the hundreds of PIs working for the University Health Network in Toronto!

6. UofT Work-Study Website – Certain research labs may be hiring students through the UofT careers center.

-  <http://www.careers.utoronto.ca/jobsearch/workstudy.aspx?tr=>

Apply usually in Nov-January. Check your deadlines!

FINDING A SUPERVISOR

Important: However you find your potential supervisor, make sure you look at their most recent publications!

- ✓ Also it is pertinent to look at the publication output of the lab you're trying to join!
- ✓ This is especially important if you want to be published in Undergrad.
- ✓ The higher the number of publications, the better your chances.

EMAILING POTENTIAL SUPERVISORS

Not just ctrl+C, ctrl+V.

- ⚡ Keep emails short and concise (also applies to the email topic)!
- ⚡ Send a personal letter (Not: To whom it may concern)
- ⚡ Mention your research interests and how that ties to work that researcher is doing.
- ⚡ Include any past experience working in a lab or other relevant environments.
- ⚡ Mention your willingness to devote additional time to your project, even on nights or weekends.

Always: Attach your curriculum vitae and academic transcripts in your emails.

Helpful: Include a cover letter elaborating on your interest, relevant experience, and enthusiasm about that research topic. Try to include reference letters.

Never: Send a grammatically incorrect, 13375p34k XD <3 ladened, disinterested, and/or (obviously) copy & pasted email.

You must tailor your emails for different PIs

EXAMPLES OF GOOD EMAILS

Dear Professor _____,

My name is _____ and I am currently studying at U of T as a Biochemistry Specialist student. I have read about your research on phosphate and iron transport mechanisms in bacteria and possible medical applications. This is very interesting for me, as I am intending to conduct medical-microbiology research after my undergraduate years. I am, in fact, currently doing volunteer work at the Mt. Sinai Hospital.

I am really hoping to obtain some laboratory experience this summer, and would be truly grateful and privileged if you would give me an opportunity to work in your lab. I have attached to this email my CV, previous university grades and a cover letter elaborating my interests. Thank you for your time and attention, and I hope to receive a reply from you soon!

Sincerely,

EXAMPLES OF GOOD EMAILS

Dear Dr. X,

My name is _____, student number: _____, and I am a second year undergraduate student at UofT. I currently work at the Structural Genomics Consortium at MaRS, as a research opportunity program student. I volunteered there from early June until September, after which I was taken on as a student. I am very interested in joining your research lab for the Banting and Best diabetes summer studentship program in 2013 because I would learn an unprecedented amount of knowledge pertaining to diabetes type II. Your lab also deals with the physiological side of the molecular basis of diabetes, whereas my current lab extends to the biochemical and biophysical side, so working in your lab would bring an exciting new perspective into my young research career.

EXAMPLES OF GOOD EMAILS

One of my projects right now is to crystallize the complex structure of TXNIP and Itch (E3 ubiquitin ligase) to find the atomic model to better understand the regulation of TXNIP in vivo. My recent laboratory experience has trained me in diverse molecular biology skills, mainly in molecular cloning and protein purification in order to carry out protein crystallography. I assume that your lab may be acquainted with TXNIP as an oxidative stress mediator responsible for endoplasmic reticulum stress (local inflammation). TXNIP has been discussed as the main target for new therapeutic approaches to prolong the onset of type II diabetes as it resides in the cytosol of beta cells of the pancreas.

I am highly passionate about this protein and its implications, and I want to pursue other labs to investigate the pathogenesis of diabetes. I think I would make a great fit for your lab because I am familiar with the MaRS environment, which would allow for more integration of knowledge to better understand diabetes on a new level. I am also pursuing a double major in Immunology and Physiology. I am willing to go the extra mile in your lab, to work on weekends, etc. I live literally 3 minutes away from MaRS by walking.

EXAMPLES OF GOOD EMAILS

If you have any further questions, please feel free to email me back. I am also around MaRS a lot, so I am available for an interview and further discussions as well. I look forward to hopefully joining for lab for summer 2013!

Please find attached my résumé, curriculum vitae, and academic transcript.

Best regards,
Johnathan.

WHAT **NOT** TO WRITE

Example 1

I'm a hard worker and can solve difficult problems using creative solutions. I can work independently as well as with others to achieve goals. Finally, I am punctual and I always keep my project deadlines. **If you let me work in your lab you will see how awesome I am.**

Example 2

I don't know a lot about your research and I have no previous experience but I would love to work with you anyways. I also have a 5.0 cGPA, which means I have the intellectual capabilities to succeed. **Hiring me will be the best decision you ever make.**

Example 3

I would like to work in a lab to gain some work experience and to explore future career option. I liked the concepts taught in biology courses and I would like to see them in practice. I have previous lab experience from BIO120/130, CHM138/139 courses.

> **TRY TO USE PROFESSIONAL SCIENTIFIC LANGUAGE**

HOW TO FOLLOW-UP WITH YOUR APPLICATION

2000 word email. Ignored.

- ⚡ Don't be *discouraged* if you don't get a reply!
PIs are busy people balancing their jobs and research as well.
- ⚡ Does that researcher have an administrative assistant? cc him/her in your follow up email.
 - 📁 Especially true for physician-scientists
- ⚡ Does that researcher have alternative emails? (i.e. @uhn.ca or @sickkids.ca) cc those emails in your follow up.
 - 📁 Totally true for physician-scientists

Don't Forget: Continue to be polite. Give the researcher ample time to reply before sending the follow up email.

Helpful: If you know where that person's office is, you may want to drop by for a visit or to book an appointment

CONTACTING YOUR SUPERVISOR

WOAH. A wild INTERVIEW appeared!

- ☞ Dress professionally. Be presentable.
- ☞ Express interest in their work and your dedication to making the most out of your time in the lab.
- ☞ Listen carefully to what the person says about their research, and ask meaningful questions.
- ☞ Be honest when answering questions. Don't make promises you are not capable of delivering.

What to Bring: Have printed copies of your CV, references, transcripts, and application forms at hand.

Captain Obvious: Be respectful. Whoever is interviewing you is taking time out of their schedule to talk to you. They found something special about you out of **hundreds** of applicants.

When you enter in the room – Give a firm handshake, keep eye contact, and ASK if you may sit down! Be CANADIAN polite.

RESEARCH INSTITUTES AND FUNDING SOURCES

University of Toronto

Department of Immunology

 12-week period, with a stipend

 Application Deadline: Beginning of Jan.

 <http://www.immunology.utoronto.ca/undergraduate/research.htm>

Department of Biochemistry

 \$4,800 for 12-week period

 Application Deadline: Beginning of Jan.

 http://biochemistry.utoronto.ca/undergraduates/summer_student_program

RESEARCH INSTITUTES AND **FUNDING** SOURCES

University of Toronto

Department of Molecular Genetics and Microbiology

 12-week period, with a stipend


 Application Deadline: mid-March

 <http://www.moleculargenetics.utoronto.ca/mgy/summerresearch.html>

 Check out other **department websites** for their summer opportunities!

 Research **courses** are also possible:

 ROP299Y1 course. Apply right after 1st year to get in! It's a fantastic course!

 Check your department for their respective research courses (i.e. IMM450Y, BCH 473Y, MGY480Y)

 Independent Study Courses by College (i.e. NEW390Y/490Y)

RESEARCH INSTITUTES AND **FUNDING** SOURCES

University of Toronto

Banting & Best Diabetes Center – Charles Hollenberg Summer Studentship


 \$4,800 for 12-week period

 Application Deadline: End of Jan.

 <http://www.bbdc.org/fundingOpp/summer.htm>

Undergraduate Research Fund

 Applicant much seek their own supervisor.

 This is not a request for stipend, but rather a funding proposal to conduct your original research project

 <http://www.artsci.utoronto.ca/current/scholarships/undergraduate-research-fund>

RESEARCH INSTITUTES AND **FUNDING** SOURCES

Hospitals

Mt. Sinal Hospital – Samuel Lunenfeld Research Institute


 \$5000 for 12-week period

 Application Deadline: mid-Feb.

 <http://research.lunenfeld.ca/rtc/DEFAULT.ASP?page=Summer%20Students>

SickKids Summer Research Program





 \$6000 for 15-week period

 <http://www.sickkids.ca/Research/StudentandFellowResources/RTC/Training-Programs/Summer-Research-Program/index.html>





RESEARCH INSTITUTES AND FUNDING SOURCES

Hospitals

St. Michael's Hospital: Keenan Research Center

-  Minimum \$10.25/hour wages
-  Application Deadline: mid-Mar.
-  Applicant much seek their own supervisor.
-  <http://www.stmichaelshospital.com/research/edsummer.php>

Sunnybrook Research Institute

-  \$4800 - \$7300
-  Application Deadline: end of Mar.
-  Applicant much seek their own supervisor.
-  http://sunnybrook.ca/research/content/?page=sri_ed_summ

RESEARCH INSTITUTES AND **FUNDING** SOURCES

Other

Institute of Medical Sciences (IMS)

 Application Deadline: mid-Feb.

 Applicant much seek their own supervisor

 <http://www.ims.utoronto.ca/programs/summer.htm>

Baycrest Research Training Center

 12 weeks

 Applicant much seek their own supervisor and negotiate stipend

 <http://research.baycrest.org/trainees#>

GET IN TOUCH

CONTACT US

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IMMSA

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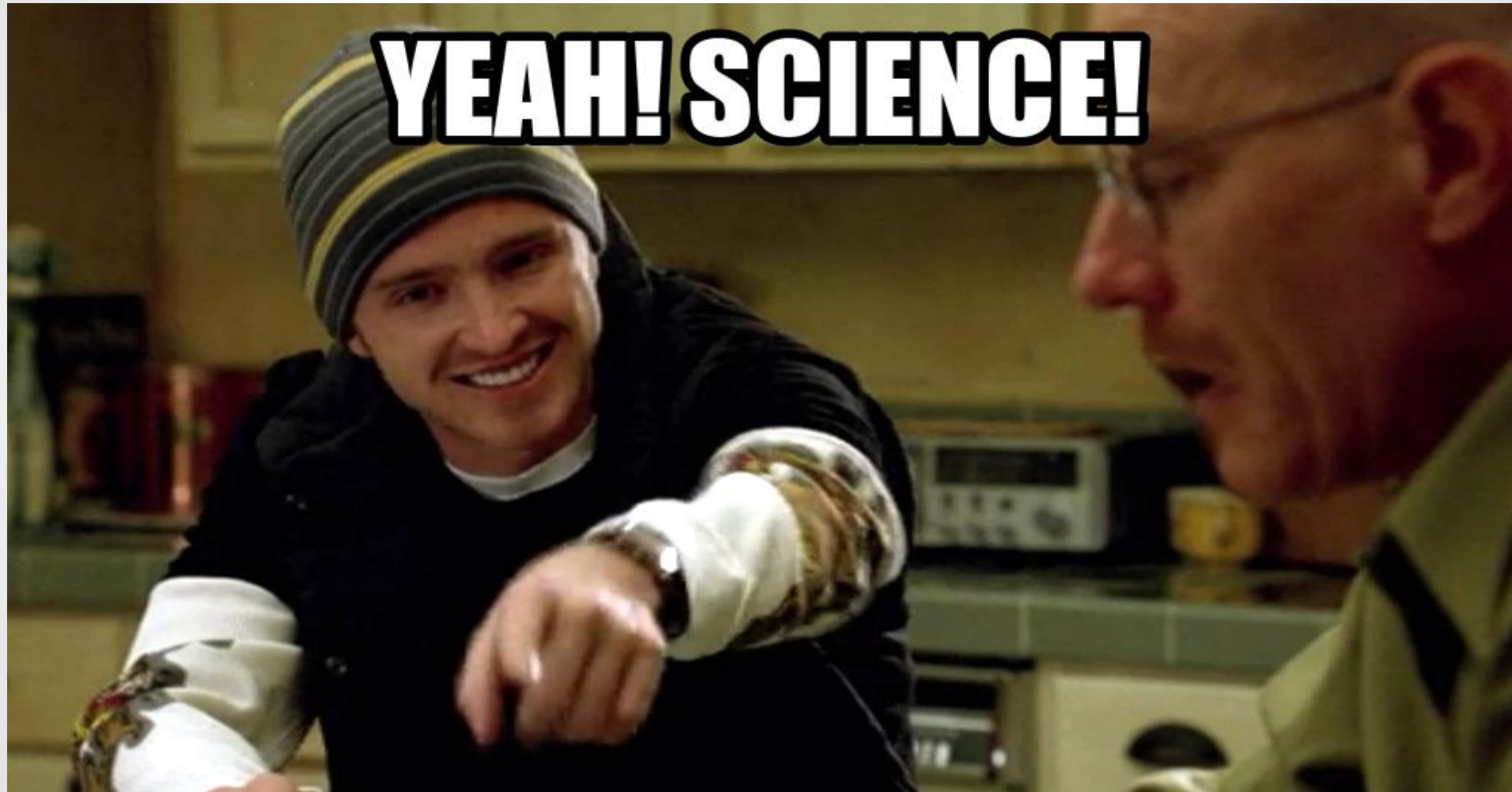
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MGYSU AND BUSS

YEAH! SCIENCE!



BUSS
Biochemistry
Undergraduate
Student
Society



IMMSA
Immunology
Students' Association



MGYSU
Molecular
Genetics and
Microbiology
Student Union

BRO,

DO YOU EVEN SCIENCE?

Questions?



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