Wine & Cheese Biology Information Night

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Professor and Associate Chair (Undergraduate)

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October 19th 2016

No need to take notes – presentation will be posted on-line.
Topics

Thesis/Project
BUS, OBD
Bio 3EP3, Bio 3IR3, Mol Bio 3I03
Field Research
Summer Opportunities

BioSociety
President Matthew Bianca
Vice-Pres Ursula Zoladeski
What is a Thesis/Project?

- Two-term course under supervision of Primary supervisor and Co-supervisor
- Independent research

  - BIOLOGY 4C12: in consultation with supervisor, formulate a scientific hypothesis
    - design & conduct research to support or refute hypothesis

  - BIOLOGY 4F06: in consultation with supervisor, formulate project to address a specific problem

4C12 and 4F06
  - Learn & utilize research techniques
  - Apply statistics
  - Scientific writing
What is a Thesis/Project?

- Analyze and present your results in a written thesis/project
- Present talk or poster at the annual Biology Undergraduate Symposium in April.

NEW: 4C09 will become 4C12 in 2017-18

- **4C12**: minimum time commitment: **avg. 15-20 hours per week**
- **4F06**: minimum time commitment: **avg. 10-12 hours per week**
Eligibility

- Option for Honours Biology (Core), Bio & EnviroSci, Bio & Math
- Required for Physiology, MBG, BioPNB, BioPharm,
- Required for MBG co-op (MolBio4G12)

- **Students registered in Level 4 Honours Biology program**
  - Minimum CA 8.5
  - Some flexibility, most supervisors will focus on 3rd year grades

- **Helps you determine if you want a career in research or to pursue post-graduate training**
How is this course evaluated?

Evaluation Components*

12 unit thesis (BIO 4C12)

- Research proposal 10% (early Nov)
- Mid-year report 15% (early Jan)
- Written Thesis 20% (late March)
- Ongoing Laboratory/Computer Work 35% (Sept. - March)
- Poster or Oral presentation at Biology Undergraduate Symposium 20% (early April)

Most evaluation from primary supervisor

* subject to change
How is this course evaluated?

Evaluation Components*

6 unit project (BIO 4F06)

- Research proposal 10% (early Nov)
- Mid-year report 15% (early Jan)
- Written Thesis 25% (late March)
- Ongoing Laboratory/Computer Work 25% (Sept. - March)
- Poster or Oral presentation at Biology Undergrad Symposium 25% (early April)

Most evaluation from primary supervisor

* subject to change
How to find a Primary Supervisor

- Talk with professors at tonight’s Wine & Cheese

- Consult list of potential Supervisors on Biology/other websites (beginning Term 1 of 3rd year)
  - Select at least 3 professors based on your personal interest

- Contact by email or in person to make an appointment to discuss potential projects
  - Take a resumé/CV and a copy of an official transcript
  - Be professional
How to find a Primary Supervisor

- When you have completed your interviews, reflect and rank your choices
  - Contact your first choice immediately to express your interest and desire to join his/her research team

- Select a suitable Co-Supervisor (where required) in consultation with your Supervisor

- On Biology website
  - Permission form: Due end of March, Year 3
  - Review current guidelines & timelines to get an idea of requirements
Where can you do your research?

- Biology Department
- Other McMaster Departments, such as, but not limited to:
  - Biochemistry & Biomedical Sciences
  - Psychology, Neuroscience & Behaviour
  - Mathematics & Statistics
  - Geography and Environmental Science
  - Anthropology
- Local Hospitals
- Royal Botanical Gardens
- Environment Canada
How to choose a topic

- Research topic chosen in consultation with Supervisor
  - Some Supervisors have list from which Student can choose
  - Some Supervisors encourage Student to suggest project
A Guide to Biology
4C09/4F06

4C09, a student’s perspective: David Crisante
A little about myself

- Currently a masters student in the department of biology
- Completed my undergrad here at McMaster
- Studied spore-forming bacteria as my 4C09 project
A little about myself

- Studied a protein that allows dormant spores to resume active growth
- Used CRISPR-technology to delete genes involved in spore formation
Finding a suitable lab

- Start looking for prospective labs soon!
  - Signed course permission forms due March 31st
  - Tip: show interest to your TAs
- Visit the McMaster Biology website to explore
Finding a suitable lab

Look into the various areas of research
Finding a suitable lab

MARIE ELLIOT, PH.D.

Telephone: (905) 525-9140
Office: LSB-329 Ext 24225
Lab: LSB-323 Ext 24249
Email: melliot@mcmaster.ca

Website: http://www.biology.mcmaster.ca/fcl/elliot/web/default.html
Contacting potential supervisors

- Email to request a meeting
  - Briefly mention why you are interested
  - Do you have relevant experience?

- Attach:
  - CV or resume
  - School transcript

- Tip: do not send a mass email out to all faculty. This demonstrates a lack of specific interest in one lab (and many supervisors won’t respond to these)
Preparing for your interviews

- Be familiar with their work
  - Read recent publications (even if just the abstracts)

- Have a general idea about what research area you are most interested in

- Ask questions
  - What would the supervisor expect from you?
  - Does this seem like a compatible lab for you?
Advice for 4C09/4F06

- Read literature early on
- Ask questions!!
- Don’t be afraid to talk to your supervisor
- Similarly, schedule meetings with your supervisor to ensure your project is on the right track
Advice for 4C09/4F06

- Plan out experiments carefully (timeline for completion, proper preparation, etc...)
  
    - This can also apply to long-term thesis goals – plan out what you hope to accomplish!

- Make sure to budget your time, and still attend other classes

- However, you will get out of this course what you put in...
Advice for 4C09/4F06

General advice to get the most out of your time:

- Get to know your lab mates
- Try to apply knowledge from other classes to help problem solve
- Attend lab meetings
- Science is a lot of trial and error...don’t get discouraged!!!

“I have not failed. I’ve just found 10,000 ways that won’t work”
Pros of taking a thesis course

- Will let you know if graduate school or future research is right for you
- Could help you determine which field you are interested in
- Good networking opportunities
- Your supervisors will be a good source for reference letters in the future
4C12/4F06 Student Opportunities*

- Ontario Biology Day (OBD) - optional
- Biology Undergraduate Symposium (BUS) – required

Mac Students with Dan Riskin from Daily Planet, OBD 2014 at University of Toronto at Mississauga

Mac Students at the Canadian Museum of Nature in Ottawa, OBD 2015 at Carleton University
Ontario Biology Day

- Annual Weekend Symposium with other thesis students from about 12 Ontario Universities
- 28th OBD 2015 hosted by Carleton
- 29th OBD 2016 hosted by Ryerson
- 30th OBD 2017 hosted by Laurentian, March 18, 19th
- Biology Department subsidizes...
  - Travel costs and lodging
  - You pay registration cost and banquet fee
- Excellent opportunity to practice oral or poster presentation before BUS
- Meet potential research supervisors for Graduate School
Biology Undergrad Symposium (BUS)

- **Mini-conference**
- Two forms of presentations:
  - **Poster** (Q&A period)
  - **Oral** (12 m. talk, 3 m. Q&A)
- Organized into different sessions by themes
- Evaluated by both supervisory team & judging panel

**Friday April 7th, 2017**
Open to entire Biology Dept., campus and general public (you can invite your friends and relatives!)

Level 2 and 3 students encouraged to attend!
Awards given to best presentations in each theme area by presentation type

Recognition given following the wine and cheese reception to celebrate accomplishments of all students
What are Bio3IR3 A/B S & MolBiol 3103A/B S?

- **3 unit course under supervision of Primary supervisor**
- **Independent research**
  - In consultation with Biology supervisor, gain lab experience while conducting a research project
  - 8 to 10 hours per week
  - **Terms 1, 2, summer or over 2 terms**
  - **Marking Scheme**
    - Mid-term progress report: 20%
    - Lab performance: 30%
    - Lab Notebook: 20%
    - Final Report: 30%

Finding a Supervisor – same process as thesis/project courses

Prerequisite(s): Credit or registration in SCIENCE 2C00; permission of the supervisor and the Department of Biology. Students are responsible to arrange a suitable placement and supervision, and are required to submit an application to Rebecca Woodworth in LSB-215 several months prior to registration.

For more information go to: [http://www.biology.mcmaster.ca/undergraduate/undergraduate-courses/](http://www.biology.mcmaster.ca/undergraduate/undergraduate-courses/)
Biology 3EP3 A/B S — Applied Biology Placement

- opportunity to explore career options and integrate academics with community, volunteer or professional experience.
- Students complete an academic component in addition to placement
- ~60 hours of placement work throughout experience.
- Finding a Supervisor – same process as thesis/project courses
- Terms 1, 2, summer or over 2 terms

Prerequisite(s): Credit or registration in SCIENCE 2C00; permission of the supervisor and the Department of Biology
Students are responsible to arrange a suitable placement and supervision, and are required to submit an application to Rebecca Woodworth in LSB-215 several months prior to registration.

Summer Opportunities

- **NSERC Undergrad Student Research Award**
  - Eligibility requirements:
    - CA of 10 & higher
    - Must find potential supervisor (who is NSERC funded)
  - Deadline for application is early February
    - Watch Biology website for further details

- **McMaster Work Study Positions (on OSCARplus)**
  - Open to OSAP-eligible students
Summer Opportunities

- **Research Assistantships**
  - Qualifications will vary for each faculty member
  - Contact professors individually
  - Volunteering before hand may help secure a paid position later on

- **Field Biology – credit in the field**
  - Check out Biology website to learn about courses locally, nationally and internationally
We want to hear from you!

- Contact our program counselors or the BioSociety to provide feedback on your program or with any questions about your program.

- See the Biology website, Undergrad page, Academic counseling.
Other Inquiries

- Rebecca Woodworth, LSB-215
  Biology Undergraduate Studies
  biology@mcmaster.ca

- Barb Reuter, LSB-223
  Biology Graduate Studies
  biolgrad@mcmaster.ca
Ecology and Evolution Professors

Counselor: Bio Core & Discovery subplan
Dr. Susan Dudley

Dr. Jonathan Dushoff

Dr. Patricia Chow-Fraser

Dr. Ben Evans

Dr. James Quinn

Dr. Rama Singh

Dr. Lovaye Kajiura

Dr. Jon Stone

Dr. Dave Rollo

Dr. Jurek Kolasz
Molecular Biology & Genetics Profs

Dr Ana Campos
MBG/MBG co-op Counselor

Dr Turlough Finan
Coordinator: 4C09/4F06

Dr Brian Golding

Dr Rosa DaSilva

Dr André Bédard

Dr Bhagwati Gupta

Dr Suleiman Igdoura

Dr Jon Stone

Dr Xu-dong Zhu

Dr. Juliet Daniel

Dr. Roger Jacobs

Dr Turlough Finan

Dr. Elizabeth Weretilnyk

Dr Robin Cameron
Physiology Professors

Dr. Mike O’Donnell
Biopharm Counselor

Dr. Joanna Wilson

Dr. Grant McClelland
Physiology Counselor

Dr. Dave Rollo

Dr. Graham Scott

Dr. Colin Nurse
Retired Active Researcher
Takes Thesis students
Biology and Math

Dr. Brian Golding (Counselor)

Dr. Jonathan Dushoff

Dr. David Earn

Dr. Jon Stone (Counselor)

Dr. Ben Bolker (Counselor)
Additional Program Counselors

Biology & PNB

Dr. Sigal Balshine

Dr. Paul Faure

Dr. Graham Scott

Biology & Environmental Science

Dr. Luc Bernier

Dr. Susan Dudley
Questions?

Time to mingle with students from all levels and faculty.
Career Options

What do science students do after graduation?
- 67% choose more education
- 15% choose work

View the tape of the most recent Career nights:
Visit www.science.mcmaster.ca/scce