Note from the GSC Communications Officer

By: Amy Kirkham

Hello CSEP students,

I hope this summer has brought you many opportunities to get outside and stay active (watching the FIFA World Cup and Tour de France doesn't count!). As summer draws to an end there are many things about the upcoming fall season that graduate students may not be too excited about: rain, colder temperatures, the beginning of courses, teaching, undergraduate students back on campus and scholarship and award application deadlines. Wait...application deadlines? I hope you didn't forget about them! Tri-Council awards, the grand-daddy of all awards for science and health graduate students in Canada, require an application analogous in size to their prestige. Check out my article this month for tips on how best to tackle an application for Tri-Council awards. Just in case you spent too much time away from the library this summer, Julia Totosy de Zepetnek informs us of our library's resources relevant to graduate students in this issue as well. For those students who are beginning to feel the effects of lack of teaching assistant paychecks, check out Lisa Cotie's crossword challenge, which gives you a chance to win a free Student CSEP membership by correctly completing the puzzle. Be sure to follow Chris Vigna's instructions on how to join the CSEP facebook group, if you haven't already done so. As usual, check out the Student Survival Guide for upcoming conferences, award application deadlines, and even a few interesting courses. Lastly, we have re-introduced the lab feature to the newsletter, with the spotlight on Dr. Marina Mourtzakis' Nutrition, Metabolism and Body Composition Lab at the University of Waterloo.

Enjoy,
Amy Kirkham

Have you joined CSEP on Facebook yet?

By: Chris Vigna

Recently, Facebook welcomed its 500 millionth user! Nestled somewhere amongst all those people is you, the student members of CSEP. In keeping with the times, the GSC has created a CSEP group on Facebook. The CSEP group was designed to provide the student members of CSEP access to important updates regarding conferences, scholarships, job postings and other things relating to grad students. The number of people that belong to the CSEP group is nearing 200! We hope that number continues to grow. If you are new to CSEP or Facebook, follow the steps below to become a member.

In the past few months the CSEP group has featured wall postings related to the abstract submission deadline for the upcoming CSEP Annual General Meeting (AGM) in Toronto, ON., and some important information regarding the Heart and Stroke scholarship application. In the coming weeks information about the format of the GSC-hosted Symposium at the AGM will be posted. We want to keep our members as involved as possible, so if you have a comment or suggestion to improve the use of the CSEP group, then send us message. You can do this by posting a note on the wall or by sending a message to the CSEP-SCPE profile. Hope to hear from you soon!
Crossword Challenge

Created By: Lisa Cotie

Complete this crossword and send your answers to gscnews@csep.ca for the chance to win a FREE student CSEP membership. The deadline for entries is September 30th, 2010.

Crossword Challenge!

1. Produced by the beta cells of the islets of Langerhans of the pancreas
2. Either of the two saccular respiratory organs in the thorax of humans
3. A wasting away of the body or of an organ as from defective nutrition or as a consequence of a disease
4. The sum of the physical and chemical processes in an organism by which its material substance is produced, maintained, and destroyed, and by which energy is made available
5. The branch of biology dealing with the functions and activities of living organisms
6. An enzyme that catalyzes the interconversion of pyruvate and lactate, an important step in carbohydrate metabolism
7. The highest degree awarded by a graduate school
8. The hard connective tissue forming the substance of the skeleton of most vertebrates
9. Any of various lung diseases leading to poor pulmonary aeration, including emphysema and chronic bronchitis
10. Bodily or mental exertion for the sake of training or improvement of health
11. Process by which fatty acids are broken down in mitochondria and/or in peroxisomes to generate Acetyl-CoA, the entry molecule for the Citric Acid cycle.
12. This is produced faster than the ability of the tissues to remove it during high intensity exercise
13. The transformation of university research libraries
14. A tissue composed of cells or fibers, the contraction of which produces movement in the body
15. The major source of energy for cellular reactions
16. An organ composed mainly of rhythmically contractile smooth muscle
17. Stringent library rules have been revolutionized to allow food/drink within reason and designated group study areas which tolerate higher levels of noise. Some libraries even house their own cafeterias or coffee bars! In addition, hours of operation have been extended, particularly during exam time – some libraries even have certain sections open 24/7! All these changes have transpired to meet the needs of the 21st century student.

Getting to know your institution’s library resources

By: Julia O. Tolosy de Zepetnek

The transformation of university research libraries

University libraries have evolved a great deal over the past few decades, and continue to grow and develop to better meet the needs of teaching, learning, and research on campuses. Even just a decade ago, much of the library space was dedicated to books and print copies of journals. In recent years, the physical presence of books and journals has been substantially reduced, and more of the library is dedicated to teaching, learning, research, and studying. Emerging technologies and shifts in expectations and usage patterns are resulting in online resources for books and journal articles instead of paper. Stringent library rules have been revolutionized to allow food/drink within reason and designated group study areas which tolerate higher levels of noise. Some libraries even house their own cafeterias or coffee bars! In addition, hours of operation have been extended, particularly during exam time – some libraries even have certain sections open 24/7! All these changes have transpired to meet the needs of the 21st century student.

One example of a significant transition for university libraries across all institutions is a focus on helping students acquire the skills necessary to find, organize, and interpret information in today’s electronic world. Essentially, the intent is to provide students with the tools specific to their discipline (e.g. media, digital, geospatial, etc) which they will need upon graduation. Courses outlining how to use library resources are creeping into many undergraduate and graduate curricula. Library and research instruction is available for interested individuals or classes.

The services of a university research library

A university library is a collection of sources, resources, and services. At most institutions, each discipline has its own liaison librarian, who works with you in ensuring all your teaching and research needs are met. Librarians are experts at navigating and analyzing tremendous amounts of information with a variety of digital tools. Liaison librarians give advice on how to search for information...
There are essentially three main federal research funding agencies in Canada. The trio includes: Social Sciences and Humanities Research Council (SSHRC), Natural Sciences and Engineering Research Council (NSERC), and Canadian Institutes of Health Research (CIHR). All three offer scholarships/awards for Canadian graduate students at the Master's and Doctoral level. CSEP students are likely to apply to only the former two agencies, thus NSERC and CIHR will be the focus of the following discussion. Note that the applications for post-doctoral awards and the Vanier scholarship are different than those discussed here.

Reference letters

First up, reference letters! Receiving stellar references is critical to being successful in your application. For both the Master's and Doctoral CIHR awards, you will receive a single score for the two and three required reference letters, respectively, that will be weighted to represent 40% of the total score that your application receives. For NSERC awards, there is not a single score given to the reference letters, but the two required references letters contribute to the reviewer's evaluation of certain criteria that, together with other areas of the application, represent 50% (Master's) and 70% (Doctoral) of the total application's evaluation. Now that you know the significance of your reference letters to your application, don't make the common mistake of overlooking them; they should be your first priority in preparing for your application.

The most common tip for reference letters is to choose your referees wisely. In order to achieve that for Tri-Council applications, you need to first understand what your chosen referee would be asked to discuss about you. Neither CIHR nor NSERC have open form reference letters where the referee can discuss whatever they like about your abilities and characteristics. A specific form is given to your referee to fill out. Be sure to review the required form (found online) prior to choosing referees. Take special note of the specific characteristics and abilities that your referee will be asked to comment on. When you know the specifics of what your referee will be required to discuss about you, your solicitation of reference letters can be a bit more informed. Keep in mind that most university libraries offer for graduate students:

Queen's University Services for Graduate Students: http://library.queensu.ca/services/grads
SFU Library Services for Graduate Students: http://www.lib.sfu.ca/my-library/services-for-you/grads
University of Illinois at Urbana-Champaign Services for Graduate Students: http://www.library.illinois.edu/learn/gradstudents.html

Tri-Council scholarships/awards: How to write an exceptional application

By: Amy Kirkham

Most universities in Canada require that their eligible graduate students apply for Tri-Council funding. So it is quite likely, that if you haven't yet suffered through this process, your priority this upcoming fall season will be writing a Tri-Council application (check with your department for the internal deadline).

I'm sure that all of us have, at some point, read articles or attended a presentation on “tips for writing a scholarship application.” This article is intended to go beyond those generic information sessions and give you some important insight into how to write an exceptional Tri-Council funding application. The most important thing to do when writing any application is to determine the criteria of evaluation, so that your application can best emphasize them! This article goes through these requirements for Tri-Council scholarship/award applications and gives some helpful hints and tips along the way.

Brief introduction

The Tri-Council represents the three main research funding agencies in Canada. The trio includes: Social Sciences and Humanities Research Council (SSHRC), Natural Sciences and Engineering Research Council (NSERC), and Canadian Institutes of Health Research (CIHR). All three offer scholarships/awards for Canadian graduate students at the Master's and Doctoral level. CSEP students are likely to apply to only the former two agencies, thus NSERC and CIHR will be the focus of the following discussion. Note that the applications for post-doctoral awards and the Vanier scholarship are different than those discussed here.

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mind that for CIHR and NSERC, if the referee is unable to judge you on certain characteristics, they will likely decline to comment on it at all, so you want to chose a referee that is able to comment on as many of the aforementioned points as possible.

If you are unsuccessful in a Tri-Council application, reference letters may also be the easiest way to improve your application score if you intend on applying again the following year. If the issue was finding a referee that knew your characteristics and abilities well enough, then you can look for ways to work with that referee (or even a new one) more over the next year to demonstrate your abilities.

Some additional generic reference letter tips:

- **Ask early!** Referees don’t like to asked for a rushed letter. Also keep in mind that your first choice may not be able to provide you with a reference, so you need to allow time to ask someone else. As a general guideline, ask your referees a minimum of 4-6 weeks in advance.

- Provide your referees with all the information they need to write a strong letter, including your CV, your proposed course of study and area of research, a comprehensive draft of your research proposal, your academic record, and a personal statement that includes career goals, interests, and extracurricular activities.

- Check out a past GSC newsletter article on reference letters for more tips. ..:cm/hr/newsletter/GSC_newsletter/GSCNewsletter2007-07.pdf

**Academic excellence**

Although excellent references are imperative to a successful application, they do not guarantee it. You have to have evidence to back up what you’re glowing references say about you. Your academic excellence is especially important at the Master’s level. At the Doctoral level, this is even more critical. With a CIHR or NSERC award, you will be judged according to the time elapsed since the completion of your application is dependent solely on your supervisor, so choose wisely! Don’t be concerned if your proposed supervisor is required to submit their CV with your application and is evaluated for their potential to train you. The reviewers will consider the type of program and courses, your grade, the average in your area of interest, and the quality of your previous and current research. Also be aware that if you are not a top student, you may be able to boost your PhD application by getting some stellar marks in your Master’s program courses.

**Research experience and achievement**

Although this general area is evaluated by both CIHR and NSERC, the weight given to research experience differs greatly between agencies in your overall score. The criteria for evaluating this area are derived from your list of publications, i.e. “activities and contributions” attachment to your common CV (CIHR), and “contributions to research and development” attachment (NSERC). The CIHR Master’s award has a single score with a 15% weighting given for research experience and achievement based on your summer/undergraduate thesis research projects, research honours and awards, and achievements such as conferences, presentations, research prizes or publications, if you have any. When applying at the Master’s level, it is not expected that you have extensive research experience, and your score in this section is evaluated relative to the level expected of someone with your experience (i.e. you don’t HAVE to have publications to be successful). It is however, important to show enthusiasm for and effort in research-related activities. This can be demonstrated by listing papers you may have published in non-peer-reviewed journals, and experiences like volunteering in research laboratories, even if your duties were not directly research-related. At the Doctoral level, publications are weighted as 10% of your CIHR application, and other research activity such as presentations and research prizes are weighted as another 10%. Again, the evaluation is relative to your level of experience (i.e. an incoming PhD student is not expected to have as many publications as a 2nd or 3rd year student). As an incoming PhD student with minimal publications, you want to emphasize your potential for productivity. You can do this in the “activities and contributions” attachment mentioned above, as CIHR (and NSERC as well) allow for comments regarding impediments to publication. For NSERC awards, you are given a score for research ability or potential, weighted as 30% and 50% respectively for Master’s and Doctoral awards. The comments in your reference letters contribute to your score in this section too. Other criteria include the quality of your contributions to research and development, and the relevance of your work experience and academic training to the field of your proposed research. Note that the emphasis with NSERC is on quality not quantity of publications and research activity. Evidence of these criteria should be included in the “contributions and statements” required attachment to the application. Take advantage of this free-form section, and use the space allotment effectively to emphasize the criteria being judged.

**The research training environment**

As mentioned earlier, CIHR places particular emphasis on the research training environment of the applicant. At the Master’s level, this includes the training program for the applicant only, which encompasses the proposed research project, planned non-research activities and training expectations, comprising a total weight of 20% of the application. The training program is weighted as 10% at the Doctoral level, with additional components comprising the research training environment category, to be discussed later. The proposed research project is also a necessary component of NSERC applications and is evaluated as criteria in the research ability or potential category. There are similar expectations for both CIHR and NSERC in this section. You are required to provide a one-page description of a project that you think you will complete as your thesis. The catch is that most students do not know exactly what they will do for their thesis at the time they apply for these awards. Fortunately, both CIHR and NSERC understand this and allow you to change your project from the one proposed, if you are successful in your application, as long as it still fits that agency’s mandate (i.e. if you get a CIHR award, your research still has to be health-related). Don’t be fooled by the length of the description, you are expected to include a lot of detail in one page. Reviewers may criticize your proposed project for failing to mention required information. Be sure to review the agency’s website for the required details, and concisely include it ALL! The “training expectations” attachment of the CIHR awards is where you can discuss how you plan to become a successful health researcher. Potential items to be included are: how your supervisor will contribute to specific areas of your training (i.e. will encourage publication, will teach equipment skills, will give you manuscripts to review etc.), the courses or practical training you plan to acquire, involvement in colleagues’ or your supervisor’s research projects, and other specific skills to your area of research. Your planned non-research related activities are evaluated in the section where you are asked to indicate the percentage of time that will be allotted to different activities. Here, the reviewer wants to see that you plan to spend the majority of your time doing research and related-course work, so make sure you list the required minimum of 75% between these two activities. If you plan to work as teaching assistant, list it under teaching, and assign no more than 10% of your time.

As mentioned, the training environment of any applicant to a CIHR Doctoral award is evaluated on several other areas. Your proposed supervisor is required to submit their CV with your application and is evaluated for their publication record, significant contributions to research and awards (5%), peer-reviewed funding secured (5%) and supervisor’s peer-reviewed experience (5%). In total, 15% of your application is dependent solely on your supervisor, so choose wisely! Don’t be concerned if your supervisor is a more junior faculty member, as they will be judged according to the time elapsed since the completion of their own research training in

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"The object is to convince the reader that the candidate is superior and to render the candidate unique and memorable.”

-- Jody Spooner Director of Scholarships Williams College
most cases.

Communication, interpersonal and leadership abilities
In the CIHR award applications, the reference letters are the sole means of evaluation of the applicant’s characteristics and abilities. NSERC, however, gives applicants an opportunity to highlight their communication, interpersonal and leadership abilities in the “applicant’s statement” attachment, where the applicant is asked to discuss their research experience, relevant activities and special circumstances affecting performance or productivity. The relevant activities area is an opportunity to comment on professional and related extracurricular interactions and collaborations. Be sure to explain why the activities you have listed are relevant and highlight the abilities they demonstrate (if it is not obvious).

That covers all the different areas upon which your application for a CIHR or NSERC scholarship/award will be evaluated. When preparing any of the required sections, always refer to the criteria the reviewers are instructed to evaluate. This information is freely available to applicants online:

CIHR Master’s award: http://www.cihr-irsc.gc.ca/e/33077.html
CIHR Doctoral award: http://www.cihr-irsc.gc.ca/e/33043.html

For some added help, see the list below for tips for a successful scholarship application.

Good luck!

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<thead>
<tr>
<th>Ten tips for success on scholarship applications</th>
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<tbody>
<tr>
<td>• Follow the instructions</td>
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<tr>
<td>• Avoid typos &amp; grammar mistakes</td>
</tr>
<tr>
<td>• Write in an easy-to-read format</td>
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<tr>
<td>• Don’t go over length limits</td>
</tr>
<tr>
<td>• Be consistent and logical</td>
</tr>
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Student Survival Guide

Upcoming Scholarship Deadlines

- CIHR Doctoral Research Award, institution deadline: October 15, 2010; check with your department for internal deadline (http://www.researchnet-recherchenet.ca/mr16/vwOpportunityDtls.do?prog=1049&view=currentOpps&org=CIHR&type=AND&resultCount=25&sort=program&list=true)
- CIHR Master’s Award, institution deadline: February 1, 2010; check with your department for internal deadline as it may be fall 2010 (http://www.researchnet-recherchenet.ca/mr16/vwOpportunityDtls.do?prog=1051&view=currentOpps&org=CIHR&type=AND&resultCount=25&sort=program&list=true)
- IGH Travel Awards for Graduate Students and Post-Doctoral Fellows, deadline: September 24, and November 1, 2010 (http://www.cihr-irsc.gc.ca/e/36330.html)
- IMHA Travel Awards for Students and Post-Doctoral Fellows, deadline: October 1, 2010 (http://www.cihr-irsc.gc.ca/e/38715.html)

Upcoming Conferences

CSEP 2010: Exploring the Routes to Health and Fitness
http://www.csep.commanager.com/train.cfm?cid=1717&aid=12313
November 3-6, 2010; Hyatt Regency Hotel, Toronto, Ontario

Student sessions
- November 3, 7:15 pm: Graduate Student Award Competition
- November 4, 7:00 pm: student activity, TBA
- November 5, 11:30 am: Graduate Student Committee Annual Meeting (FREE LUNCH)
- November 6, 11:00 am: Graduate Student Sponsored Symposium
  - Topic: From Mice to Men: The Divide between Molecular Biology and Human Physiology

Student registration fee details:

<table>
<thead>
<tr>
<th>Registered CSEP student member</th>
<th>Early bird (April 1 - Sept 14)</th>
<th>Regular rate (Sept 15-Nov 6)</th>
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<tbody>
<tr>
<td>Full-time graduate student</td>
<td>$150</td>
<td>$175</td>
</tr>
<tr>
<td>One-day undergraduate special rate</td>
<td>$60</td>
<td>$80</td>
</tr>
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ACSM Integrated Physiology of Exercise Conference, September 2010, Miami (http://www.acsm.org/source/Meetings/CMeetingFunctionDetail.cfm?section=Register&product_major=IPE2010&Mfuncstartdisplayrow=1)
Cardiac and Respiratory Physiology Themed Meeting, September 2010, UK (http://www.physoc.org/site/cms)
The key objective of the Nutrition, Metabolism and Body Composition Lab at the University of Waterloo is to integrate concepts of nutrition, exercise and body composition to better understand the underlying mechanisms of the detrimental metabolic changes that arise during treatment. We use this knowledge as the basis to develop nutrition and exercise interventions to counter these unhealthy body composition and metabolic changes.

Another area of focus in our lab is to understand the implications of bed rest on muscle health of aged patients in intensive care (ICU). While it is well-documented that patients who have been admitted to ICU lose substantial amount of weight during hospitalization, we have recently quantified the amount and rate of muscle and fat loss that ICU patients experience. More importantly, we identified that ~67% of patients are sarcopenic (have lower than normal muscle mass) at the time of ICU admission, and these patients tended to be older compared to non-sarcopenic patients. In addition, sarcopenic patients were more likely to have longer hospital stay and have greater risk of mortality. It is likely that aged ICU patients may be at greater risk of mortality and require more aggressive nutrition and, possibly exercise intervention, as compared to younger ICU patients (i.e., < 65 years old).

We have several exciting projects currently underway funded by CIHR, NSERC and Motorcycle Ride for Dad. In some cases we work directly with patients, while in other studies we develop techniques and protocols in healthy participants prior to testing them in patient populations. While skeletal muscle is known to be an important tissue in whole body health, there is little known about the implications of clinical conditions on muscle integrity. In the Nutrition, Metabolism and Body Composition Lab, we work as a team to explore the interactions between different features of metabolism in cancer and ICU patients to improve the health of survivors.

Tools and Technology
To achieve our objectives, we have acquired high precision tools, including a CFI-funded dual energy X-ray absorptiometer (DXA) to quantify lean, fat and bone tissue in patients. DXA is a non-invasive tool that produces low dose radiation, which permits the capacity to perform repeated scans at different time-points in a protocol. We also use DXA to develop nutrition and exercise protocols in healthy individuals and to test their effectiveness prior to applying these protocols to patients. We also utilize advanced software from Tomovision, which allows us to quantify muscle, fat and various other lean tissues in computed tomography (CT) images that have been acquired in cancer and ICU patients during their routine care. These tools provide the capacity to evaluate changes in body composition in patients without creating additional burden and we can then relate these changes to nutritional and metabolic information from patients. Physical activity measurements and training protocols are performed at the University of Waterloo WellFit Centre, under the direction of Caryl Russell. The WellFit Centre has been developed to assess and exercise train cancer patients who have been referred from the Grand River Regional Cancer Centre (GRRCC) in Kitchener, Ontario.

The Team
As the team leader (Marina Mourtzakis), it has been my goal to develop an exciting research environment that not only integrates nutrition, body
composition, metabolism and exercise, but also to understand the mechanisms fundamental to the metabolic changes we observe in cancer and ICU patients and develop programs to improve the health of these patients. I developed a keen interest in nutrition, exercise and muscle metabolism during my BSc and BKin degrees at McMaster University. I further pursued this area during my doctoral work at the University of Guelph with Dr. Terry Graham with a specific focus on the role of amino acids in energy metabolism in healthy individuals. I subsequently decided to apply these concepts in furthering our knowledge of muscle wasting in cancer through my post-doctoral work at the University of Alberta with Dr. Vickie Baracos. With an aim in developing rehabilitative and nutritional interventions, my current research program studies the interrelationships between nutrition, exercise, body composition and the effects of these factors on muscle metabolism in healthy people as well as in cancer and ICU patients. To achieve these goals, I work closely with my team of graduate students (currently 2 MSc students), medical radiation technologist, several undergraduate students as well as several clinicians from the GRRCC, Juravinski Cancer Centre (Hamilton), and Kingston General Hospital as well as the GRRCC Clinical Trials team. I am currently recruiting graduate students of all levels, and I welcome any interested students to contact me.

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http://www.ahs.uwaterloo.ca/kin/people/MarinaMourtzakis.html