

Wednesday/ Mercredi July/ juillet 24th

Academia and Industry Panel + Booths

4:30 - 6:00 pm

Location/Endroit: Chernoff Hall Auditorium / Bio Sci Atrium

This event is a chance to find out what you can do with an undergraduate degree in math. We will start with a panel at Chernoff Hall Auditorium with graduates who have joined industry, or academia. They will share their experiences through their careers and answer any questions you may have. Representatives from the Queen's University and the University of Waterloo graduate schools will also be answering questions. After the short panel, we will move to the Bio Sci Atrium for a more informal booths session where you can chat with the panelists.

Cet événement sera une chance pour explorer les possibilités et le potentiel d'un diplôme de premier cycle en maths. Nous serons à l'auditorium Chernoff par un groupe de gradués qui ont trouvé des positions en industrie et en académie. Ils vont partager leurs expériences et vont répondre à vos questions. Des délégués venant des universités Queen's et Waterloo seront aussi là et vous pourriez leur poser vos questions aussi. Après le panel, nous allons procéder à l'atrium de l'édifice Bio Sci pour une session plus informel, où vous pourriez discuter avec les membres du panel.

Opening Barbecue/Barbecue D'ouverture

6:30 - 9:30 pm

Location/Endroit: Wallace Hall

There will be an opening barbeque on Wednesday, July 24th at 6:30 pm. The barbeque will be happening in Wallace Hall in the John Deutsch University Centre (JDUC) at 99 University Ave. We will be serving a grilled sausage bar and a mini slider bar with salad and refreshments. There is plenty of seating in the JDUC if you wish, however we encourage you to take this opportunity to explore the beautiful Queen's Campus and eat outdoors (weather permitting). This is a wonderful time to meet some new faces before the conference takes off!

Il y aura un barbecue mercredi, le 24 Juillet pour commencer la conférence. Le barbecue aura lieu à la salle Wallace, dans le centre universitaire John Deutsch (le JDUC). Nous allons servir de la saucisse grillé, des mini-hamburger et des salades. Il y aura plein d'espace pour manger à l'intérieur du JDUC, mais (s'il fait assez beau) on vous encourage à manger dehors, apprécier le beau campus que Queen's a à offrir et prendre cette chance de faire la connaissance d'autres conférenciers et conférencières !

Thursday/Jeudi July/ juillet 25th

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Math Workshop: Building the 120 cell

Mike Roth, Department of Mathematics and Statistics, Queen's University

4:00 - 6:00 pm

Location/Endroit: Ellis Hall 324

The five Platonic solids (the cube, octahedron, tetrahedron, icosahedron, and dodecahedron) are the most symmetric three dimensional polyhedra. The term “most symmetric” has an official definition : they are ‘flag transitive’, any choice of vertex, edge containing that vertex, and face containing that edge can be taken to any other choice by a symmetry of the polyhedron.

In two dimensions the ‘flag transitive’ polygons are the regular n -gons, so there are infinitely many, one for each $n \geq 3$. In dimension 5 and above, there are only three such symmetric polyhedra in each dimension, the higher dimensional versions of the cube, tetrahedron, and octahedron. However, in dimension 4 there are again five most symmetric polyhedra. The ‘extra’ ones are the 120 cell (whose codimension-one faces are 120 dodecahedra) and its dual, the 600 cell (whose codimension-one faces are 600 tetrahedra).

It would be nice to visualize these four dimensional objects, and fortunately we can. Just as we can project a three dimensional object onto a page to get a distorted, ‘wire-frame’ view, we can project the four dimensional objects into 3-space to see a (distorted) picture of them.

In this activity, we will first discuss the mathematics above, and then as a group build the projection of the 120 cell out of Zometool.

Friday/Vendredi July/ juillet 26th

Diversity Panel/ Panel Diversité

11:30 am - 12:30 pm

Location/Endroit: Chernoff Hall Auditorium

We will host a panel discussing diversity in Mathematics with participants from industry and academia sharing their experiences through their careers. The floor will be open for questions from the audience.

La soirée du 26, nous allons accueillir un panel, qui discutera de la question de la diversité dans le domaine des mathématiques. Le panel sera composé de membres venant des secteurs industrielles et académiques, qui vont partager leurs expériences au cours de leurs carrières.

Poster Session/ Session des affiches

1:30 - 2:30 pm

Location/Endroit: Bio Sci Atrium

There will be posters presented by students from a wide range of backgrounds on a wide range of topics. This is a perfect time to discuss these topics in a more relaxed setting. Whether you are presenting a poster or not, this is a great time to meet fellow students and to explore the topics freely.

Il y aura des affiches, crée par des étudiants venant de partout au Canada, qui toucheront sur plusieurs sujets. C'est une superbe occasion pour discuter des sujets mathématiques dans un environnement plus relaxe. Même si vous n'aviez pas apporté un affiche, venez jaser avec d'autres étudiants et explorer les maths!

Software Workshops

4:00 - 5:00 pm

Location/Endroit: Ellis Hall 226/324

Daniel Cloutier, Matthew Nicaastro; Queen's University

- **Complexity Theory with Python:** The workshop will be an introduction to complexity theory and the analysis of basic algorithms using python. The focus will be on an analysis of the change point assignment algorithm. In particular, we will look at how different versions of the same algorithm have complexities of $O(n^2)$ and $O(n)$.
- **Brief L^AT_EX Introduction:** We will cover the basics of writing mathematics using L^AT_EX.

Movie Night: *Twelve Angry Mathematicians*, and *The Imitation Game*

6:30 - 9:30 pm

Location/Endroit: Chernoff Hall Auditorium

We will be showing a mathematical remake of the classic 1957 film *12 Angry Men*, titled *Twelve Angry Mathematicians*. This film was created by a few fellow CUMC veterans. After this film is finished we will be showing *The Imitation Game* (2014).

Nous allons regarder une adaptation mathématique du film classique '12 Angry Men', intitulé *12 Angry Mathematicians*. Ce projet a été réalisé par des anciens participants du CCÉM. Après

Saturday/Samedi July/ juillet 27th

So Long Sucker: A Game of Negotiation

Stefanie Knebel, Marie Jose Jerade

4:00 - 6:00 pm

Location/Endroit: Ellis Hall 324

In this workshop, we will give an introduction to the game invented by Shapley, Nash, Hausner, and Shubik in 1964, So Long Sucker. The four player game gives a simplified outlook on real life negotiations and economical conflicts. We invite you to learn how to play and enjoy a few rounds of the game with us. Although it has a simple layout, there is room for complex strategy! You can make deals and break them, but what will give you the highest payoff? The top two players will receive prizes.

Biostatistics Workshop

Patrick Gravelle, Biostatistics Student at the Harvard T.H. Chan School of Public Health

4:00 - 6:00 pm

Location/Endroit: Ellis Hall 226

Following Patrick's talk on Biostatistics where he introduces the subject, describes its foundations, and gives a detailed project example, two main areas of Biostatistics are introduced. For those with less background in statistics courses, three Probability Theory questions covering topics of independence, events, and conditional probability are presented. Subsequently, two questions introduce the area of Generalized Linear Models offering an algebraic approach to solve these problems.

Closing Banquet/Banquet Final

6:30 - 9:30 pm

Location/Endroit: The Renaissance

We will be hosting a semi-formal banquet at the Renaissance Event Venue on Saturday, July 27th. The Renaissance Event Venue is located at 285 Queen St, Kingston.

Le restaurant Renaissance va nous accueillir pour un banquet semi-formel la soirée du samedi 27 juillet. Le restaurant se trouve à 285, rue Queen, Kingston.