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**2017 Peel Region Science Fair**

University of Toronto at Mississauga (UTM)

April 25-26



Peel Region  
Science Fair

# 2017 PEEL REGION SCIENCE FAIR STUDENT REGISTRATION GUIDE

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ENGAGING AND SUPPORTING YOUNG SCIENTISTS IN PEEL.

[www.peelscience.ca](http://www.peelscience.ca)

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## Registration

1. Register online ([www.peelscience.ca/](http://www.peelscience.ca/)) for each project. Registration opens on «Registration\_Open\_Date» and closes on «Registration\_Close\_Date»– **no registrations will be accepted after this date.**
2. Bring all signed permission forms to the Peel Region Science Fair on «Judging\_Day», «Judging\_Date»
  - Review and sign the “Safety Checklist”
  - Print, review and sign the “Participant Signature Page” for each participant upon completion of the online registration. This requires a parent/guardian signature **and** a teacher signature.

### NOTE:

Neither the committee, nor «Location», is responsible for damage to exhibits or for valuables lost or stolen during the fair.

The exhibit hall will be locked after the judging on «Judging\_Day», «Judging\_Date».

Students are to keep the project area clean and tidy and proper conduct is expected from all participants during this event.

Supervision by the organizing committee will be limited to the exhibit hall; adult accompaniment for each participant is still required.

Please contact the PRSF committee ([info@peelscience.ca](mailto:info@peelscience.ca)) for any questions regarding online registration.



### Rules and Regulations

1. The Fair is open to students who are registered in a Peel Region School (or homeschooled in Peel Region), in grade 7 to 12. Each project may have a maximum of two students.
2. All sections of the online registration must be completed by the student(s) and signed accordingly.
3. It is essential that the student(s) and supervisor read the Safety Regulations and then complete the safety checklist to ensure that the project will not be disqualified.
4. A safety checklist is required. Include this information with your project board.
5. **\*\*\*NEW FOR 2017\*\*\*** All projects must display a report (maximum 5 pages). Report guidelines must adhere to CWSF restrictions (see [CWSF project report guidelines](#) for more information)
6. The date of the set-up and judging is «**Judging\_Day**», «**Judging\_Date**» at the University of Toronto at Mississauga. Transportation to and from the fair is your responsibility. Please make prior arrangements.
7. Set-up projects on «**Judging\_Day**», «**Judging\_Date**» («**Setup\_Time\_\_Safety\_Checks**»)
8. Supervision for the participant at the fair is the responsibility of the parents, guardians, or teachers of the student.
9. Make arrangements for dinner («**Student\_Lunch**»).
10. Judging is from «**Judging**» and participants must stay with their projects the entire time. Bring something quiet to work on between judging.
11. Only judges and participants are permitted in the exhibit hall «**Judging\_Day**», «**Judging\_Date**» («**Judging**») during judging. Students are dismissed upon the completion of judging. There will be space in the cafeteria for parents, guardians and teachers to wait.
12. Please encourage a teacher from your school to volunteer as a judge.
13. The use of cell phones or other communications equipment during the judging process is prohibited.
14. The Awards Ceremony will occur «**Awards\_Ceremony\_Day**», «**Awards\_Ceremony\_Date**». The exhibit hall is open for **public viewing** between «**Public\_viewing**».



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15. Project removal by the participants occurs immediately after the awards ceremony.
16. Students selected to represent Peel at the Canada-Wide Science Fair will travel to «Canada\_Wide\_Science\_Fair\_Location» («CWSF\_Dates»). An initial meeting will occur after the awards ceremony.



### Safety and Ethics at PRSF

Adapted from Youth Science Canada Policy 1.5.5 as of October 1, 2014<sup>1</sup>

Participants at Peel Region Science Fair are expected to conduct their research in a safe and ethical manner. The integrity of the fair is based on a continuing commitment, from all stakeholders, to safety and academic honesty.

All participants will present work that is the result of their own efforts. All assistance received from others will be acknowledged. All written material that draws on the work of others will be accompanied by appropriate references.

All participants can expect their work to be judged on its merits. Judges will attempt to provide each participant with constructive feedback to help participants improve their work.

Participants who violate the spirit of academic honesty at PRSF may be subject to disciplinary action, which may include disqualification. Violations of academic honesty include, but are not exclusive to:

1. Plagiarism - presenting the work of others as your own, without acknowledging the source. Scientific work includes scientific results, conceptual development of a topic, or substantive formulation or reformulation of a problem. This includes work done by a family member or a mentor. Information on how to properly cite references can be found in Policy 3.1.2.4 CWSF Project Report.
2. Fabricating or falsifying data.
3. Forging signatures.
4. Fabricating or falsifying registration information.
5. Entering a project which is derived from a previous PRSF project (continuation or revision of a project undertaken in a preceding year by the student or by another) without documenting the previous work.
6. Entering a project which has, or will be, entered for judging in another regional science fair.

Anonymous allegations of academic dishonesty, or those without supporting evidence, will be ignored. If an allegation is brought to the attention of a PRSF organizing committee member, the committee (or part thereof) will gather evidence, evaluate it, and talk with the participant(s) in question. The committee will then rule on whether a violation of academic honesty has occurred.

All projects at the Fair must adhere to the Youth Science Canada ethics and safety policies.

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<sup>1</sup> YSC Policy 1.5.5, available at <http://cwsf.youthscience.ca/policy/academic-integrity-finalists>, accessed 1 October 2014.



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All projects that require the participation of humans or the use of animals, must be reviewed before the experiment starts to educate the young scientist in the issues involved, and to ensure that the project meets the Youth Science Canada rules for science fairs.<sup>2</sup>

Participants are reminded to bring their completed Safety Checklist (from the Student Registration Guide) to the fair. This page is required in order to be considered for judging.

In addition, participants are reminded that:

- Living organisms, tissues, or cells (including animals, plants, fungi, protozoa and bacteria) are **NOT permitted** to be displayed.
- Soil containing organic material is **NOT permitted** to be displayed.
- Dangerous, toxic, corrosive, flammable, and radioactive materials are **NOT permitted** to be displayed. Inert substitutes (i.e. coloured water, salt, sugar, baking soda, etc.) may be used to represent these materials. When labelling these substitute materials, write the chemical name and the word "simulated" on the container.
- All electrical devices (including extension cords and student-built devices) must be CSA-approved and grounded (i.e. 3-pronged plug) before being connected to AC circuits.

Any questions regarding project safety and ethics may be directed to the [Ethics Committee](#).

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<sup>2</sup> YSC rules and accompanying forms are available at <http://cwsf.youthscience.ca/node/835>



DISPLAY WITH PROJECT

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### SAFETY CHECKLIST

#### Directions:

Students must review the following safety checklist when completing the registration form. Signing the safety checklist implies that the project will meet all of these requirements. Projects that do not adhere to the safety requirements will be eliminated from competition. **Check off each item that applies to you and submit the completed form** on arrival at the fair.

#### Safety Requirements

- The backboard is sturdy and self-supporting
- Exhibit has dimensions that do not exceed **1.6 m high X 1.2 m wide X 0.8 m deep**
- No loose material hangs from the exhibit or display table.
- All unsafe or moving parts are enclosed or protected.
- Pressurized containers have safety valves.
- No open flame is on display.
- Electrical cords and devices are CSA-approved with grounding.
- Electrical connections are insulated and non-currents carrying metal parts are grounded.
- Lasers will not be operated during public display.
- Exposed electrical connections are  $\leq 36$  Volts to ground and no voltages exceed 10,000 Volts.
- Flammable or poisonous materials are simulated.
- No biological toxins are on display.
- Living organisms are not being displayed.
- Soil containing organic material is not being displayed.
- Work with recombinant DNA or animal viruses was carried out under qualified supervision (provide evidence).
- Use of vertebrate animals, including humans, conforms to local, provincial, and federal laws, and the regulations outlined by the Youth Science Foundation Canada, posted at <http://www.ySF-fsj.ca/Members/pdirectory4.aspx>

Student 1 Signature:

«Next Record» Student 1 Signature:



SUBMIT AT REGISTRATION

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### SIGNATURE PAGES

#### Directions:

Students must review the following declarations when completing the registration form. Signing these declarations indicates that the student(s), their parent or guardian, and their teacher have read the declarations and will abide by them. Projects that do not adhere to these declarations will be eliminated from competition. **Read each set of declarations. Students, parents/guardians and teachers must sign these forms and submit them** on arrival at the fair.

#### Student Declaration:

The following section is to be read and signed by the exhibitor(s).

I/We certify that:

- The preparation of this project is mainly my/our own work.
- I/We have read the rules and regulations and agree to abide by them.
- I/We agree that the decision of the judges will be final.
- I/We understand that photographs and/or video may be taken at the fair of me/us by the Peel Region Science Fair or other media outlets.

Student 1 Signature:	«Next Record» Student 2 Signature <i>(if applicable)</i> :
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#### Teacher Declaration:

The following section is to be read and signed by the teacher.

I certify that:

- The preparation of this project is mainly the student(s)' own work.
- The student(s) have read the rules and regulations and agree to abide by them.
- I agree that the decision of the judges will be final.

Teacher 1 Signature:	«Next Record» Teacher 2 Signature <i>(if applicable)</i> :
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SUBMIT AT REGISTRATION

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### Parent/Guardian Declaration:

The following is to be read and signed by the exhibitor's parent(s)/guardian(s).

As a parent/guardian I certify to the best of my knowledge and believe the information contained in this application is correct, and the project is the work of the student. I understand that the material used in the project is the responsibility of the student and that neither the school, the teacher, nor the regional fair can be held responsible for loss, damage, or theft, however caused. I also understand that my son/daughter and his/her work may be photographed for promotional reasons and those photographs may be displayed online or in other media. I further understand that all exhibits entered must be left on display until the end of the Fair. If my son/daughter does not remove the exhibit at the end of the Fair, the fair organizers or the owner of the exhibition hall cannot be responsible for the disposal of the exhibit.

In addition, the Peel Region Science Fair, its sponsors, and the media often wish to interview students. The student may be photographed or videotaped at their exhibits for promoting and publicizing the fair.

As parents or guardians of the student (above) we give our permission for the Peel Region Science Fair, its sponsors and the media to use the information obtained to promote and publicize the science fair.

If my son/daughter is awarded the honour of having his/her exhibit chosen for presentation at the Canada-Wide Science Fair, I consent to having him/her journey to the Fair, and will not hold the Fair responsible for any accident or mishap to the student or the exhibit.

Parent/Guardian 1 Signature:	«Next Record»Parent/Guardian 2 Signature <i>(if applicable)</i> :
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## Project Classification



### Category

There are 3 categories of project based on the student's school grade. Junior (Grade 7 & 8), Intermediate (Grade 9 & 10) and Senior (Grade 11-12). For projects completed by two students, the category is that of the highest-grade member.

### Type

There are 3 types of projects that help judges characterize the nature of the work: **Experiment**, **Innovation** and **Study**. All three types are equivalent, but differ somewhat in the way they are conducted and evaluated.

The following may help clarify the differences:

- **Experiment**  
Involves the testing of a specific hypothesis with the control of significant variables. Judging emphasis is on the experimental design and analysis of the data.
- **Innovation**  
Involves the development and evaluation of new devices, models, techniques or approaches, usually in technology, engineering or computers. Judging emphasis is on the design process, application of scientific and engineering principles or human benefit
- **Study**  
Involves the collection and analysis of data from sources other than the student's own work to reveal evidence of a fact, situation, or pattern. Judging emphasis is on insightful analysis.

Judges at the Science Fair will be looking at a combination of written information and the student presentation. Successful students will be able to demonstrate depth and breadth of knowledge for the scope of their project. The project should exhibit qualities of excellence and creativity.



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## Evaluation – Project Marking Sheet:

<b>SCIENTIFIC THOUGHT AND KNOWLEDGE (Value 60%)</b>	1 = Poor 5 = Average 10 = Excellent										
Is there a viable commercial application or significant human benefit?	1	2	3	4	5	6	7	8	9	10	
Does the student understand the scientific or engineering principles, laws, or theories related to the project at a level appropriate to the project?	1	2	3	4	5	6	7	8	9	10	
Is there a well-defined objective or purpose given for the project?	1	2	3	4	5	6	7	8	9	10	
Does the design of the investigation effectively address the problem identified?	1	2	3	4	5	6	7	8	9	10	
Does the student demonstrate refinement/improvement to the design?	1	2	3	4	5	6	7	8	9	10	
Are the significant variables recognised and controlled?	1	2	3	4	5	6	7	8	9	10	
Are observations clearly and logically organised?	1	2	3	4	5	6	7	8	9	10	
Did the student gather data from suitable sources?	1	2	3	4	5	6	7	8	9	10	
Has the student amassed an appropriate and relevant data sample?	1	2	3	4	5	6	7	8	9	10	
Is there strong evidence of a fact, situation or pattern of scientific interest?	1	2	3	4	5	6	7	8	9	10	
Is the conclusion valid based on the data collected?	1	2	3	4	5	6	7	8	9	10	Total
Does the student have clear ideas for further research or applications?	1	2	3	4	5	6	7	8	9	10	
<b>ORIGINALITY or CREATIVE ABILITY (Value 15%)</b>											
	1 = Poor 5 = Average 10 = Excellent										
Does the project demonstrate originality at a level appropriate to the student?	1	2	3	4	5	6	7	8	9	10	
Does the project show resourcefulness and/or creativity in design?	1	2	3	4	5	6	7	8	9	10	
Does the investigation of the phenomenon or the design process, incorporate a novel approach?	1	2	3	4	5	6	7	8	9	10	Total
Is the data obtained, analysed or interpreted in an original way?	1	2	3	4	5	6	7	8	9	10	
<b>DISPLAY (Value 15%)</b>											
	1 = Poor 5 = Average 10 = Excellent										
Does the display use a clear and logical approach to explaining itself?	1	2	3	4	5	6	7	8	9	10	
Does the exhibit make appropriate use of various media? (Equipment and gadgets that are simply decorative will be ignored and may be counted against the exhibit).	1	2	3	4	5	6	7	8	9	10	
Are charts, diagrams, graphs etc. used in a meaningful way, which supports the presentation?	1	2	3	4	5	6	7	8	9	10	Total
Does the exhibit demonstrate good workmanship? (I.e., Does everything work as it should?)	1	2	3	4	5	6	7	8	9	10	
<b>PRESENTATION (Value 10%)</b>											
	1 = Poor 5 = Average 10 = Excellent										
Does the student communicate his/her knowledge and understanding?	1	2	3	4	5	6	7	8	9	10	Total
Does the student demonstrate that he/she has completed the project as independently as could be expected for his/her age/grade? (Adult guidance, advice, and supervision of hazardous work is appropriate, but excessive adult involvement counts against the exhibit).	1	2	3	4	5	6	7	8	9	10	



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### Overall Evaluation

	<b>A. EXPERIMENT</b>	<b>B. INNOVATION</b>	<b>C. STUDY</b>	<b>Type</b>
	An investigation undertaken to test a scientific hypothesis experimentally. The variables, if identified, are controlled to some extent	The development and evaluation of innovative devices, models or techniques or approaches in technology, engineering or computers (hardware or software).	A collection and analysis of data to reveal evidence of a fact or a situation of scientific interest. It could include a study of cause and effect or theoretical investigations of scientific data.	
				<b>Check</b>
Level 1	Duplicate a known experiment to confirm the hypothesis. The hypothesis is totally predictable.	Build models (devices) to duplicate existing technology.	Study existing printed material related to the basic issue.	
Level 2	Extend a known experiment through modification of procedures, data gathering, and application.	Make improvements to or demonstrate new applications for existing technological systems or equipment and justify them.	Study material collected through a compilation of existing data and through personal observations. Display attempts to address a specific issue.	
Level 3	Devise and carry out an original experiment. Identify and control some of the significant variables. Carry out an analysis using graphs or simple statistics.	Design and build innovative technology or provide adaptations to existing technology that will have human benefit and/or economic applications.	Carry out a study based on observations and literary research illustrating various options for dealing with a relevant issue. Include appropriate analysis (arithmetic, statistical, or graphical) of some significant variable(s).	
Level 4	Devise and carry out original experimental research, which attempts to control or investigate most significant variables. Include statistical analysis in the treatment of data.	Integrate several technologies, inventions or designs and construct an innovative technological system that will have human and/or commercial benefit.	Correlate information from a variety of significant sources, which may illustrate cause and effect or original solutions to current problems through synthesis. Identify significant variable(s) with an in-depth statistical analysis of data.	



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### Schedules of Events

#### Tuesday, April 25

2:00 – 3:30 pm: Students arrive to set up their projects

2:00 – 3:30 pm: Safety checks / Pictures

3:30 – 4:00 pm: Judges preview - **No Students at their exhibits**

3:30 – 5:00 pm: Students & parents leave for lunch

4:00 – 5:00 pm: Judges lunch & briefing

5:00 – 7:00 pm: Judging - **All Students at their projects**

NOTE: Special awards judges: Companies providing special awards to student projects will list all eligible projects at the science fair. Winners from the list will be determined from overall rankings.

#### Wednesday, April 26

6:00 – 7:00 pm: Public viewing – all students at projects

7:30 – 8:30 pm: Awards ceremony (Dress appropriately)

8:30 – 9:00 pm: Students take their projects home (anything left behind will be removed and disposed).

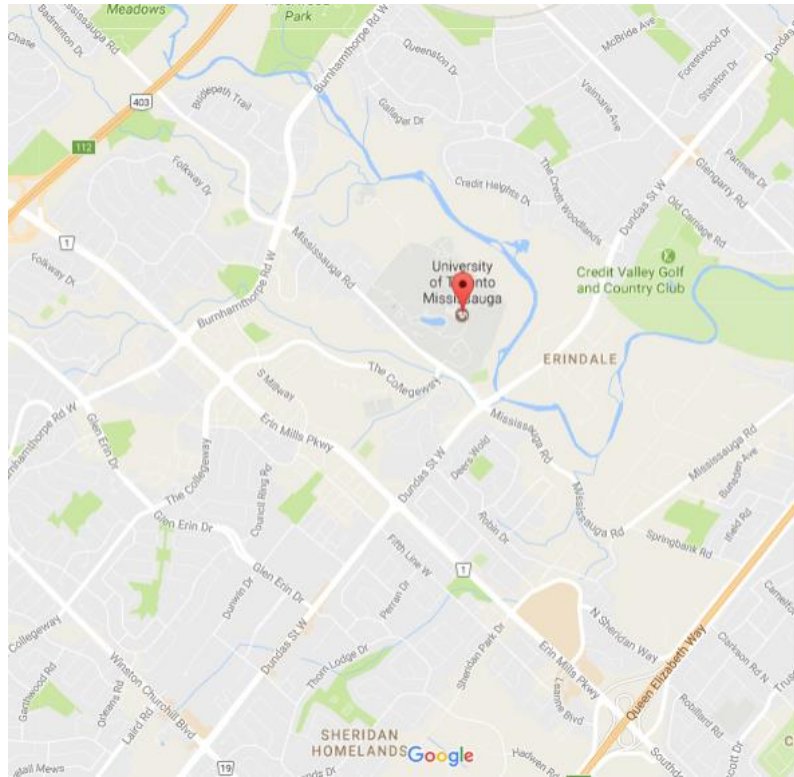
#### Wednesday, April 26 (Immediately after Awards Ceremony)

Canada Wide Science Fair Team Meeting / Registration



## University of Toronto at Mississauga

### Directions:



\* «Location» is north of Dundas St., south of Burnhamthorpe Rd. (Erin Mills Pkwy & Dundas St area).

### Address:

3359 Mississauga Road, Mississauga, ON L5L 1C6

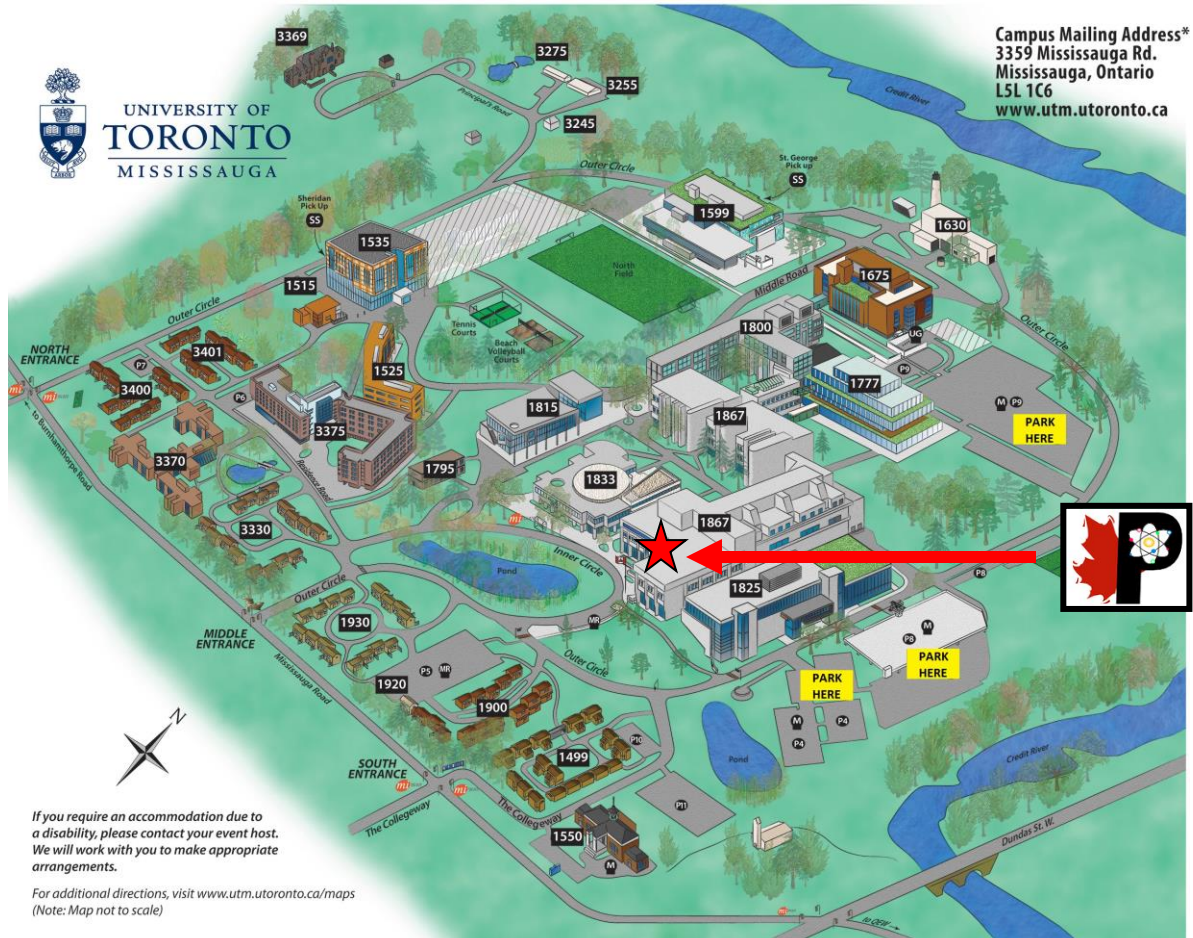
The PRSF will be held in the WG Davis building.





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If you require an accommodation due to a disability, please contact your event host. We will work with you to make appropriate arrangements.

For additional directions, visit [www.utm.utoronto.ca/maps](http://www.utm.utoronto.ca/maps)  
(Note: Map not to scale)

## Parking:

UTM will designate a free parking lot for PRSF participants and judges. This information will be posted at [peelscience.ca](http://peelscience.ca) when it is confirmed. PRSF is not responsible for charges that result from parking infractions.