



# Concordia University Summer Research Institute 2015 SCHEDULE

**May 31-June 5, 2015**

## **Sunday, May 31, 2015**

Check-in and registration from 4:00pm - 11:00pm  
Grey Nuns Residence  
1190 Guy St. entrance

[Grey Nuns Residence](#) (GN Building)

Click here: [CAMPUS MAP](#)

## Monday, June 1, 2015

**8:30 – 9:15 Breakfast at the Grey Nuns residence - (Room E-104) and welcome by Dr. L. Caminati**

**9:15 walk over to the EV Building - (Room EV-12.163)**

**9:30 - 9:40 Director's Welcome** Concordia Institute of Aerospace Design and Innovation - **(Room EV-12.163)**

Dr. Nadia Bhuiyan, Professor  
Department of Mechanical and Industrial Engineering  
Associate Director, Concordia Institute of Aerospace Design and Innovation (CIADI)

**9:40 - 10:40 Meet the Researchers - (Room EV-12.173)**

Concordia Institute of Aerospace Design & Innovation

Dr. Skonieczny, Assistant Professor and member of the Concordia Institute of Aerospace Design & Innovation, will present his research interests, which include space robotics, planetary rovers, robot mobility, vehicle-terrain interactions, advanced 3D printing techniques, robotic excavation & construction, reduced gravity experimentation, computer vision for robotics applications.

Dr. Svetlana Spitsina, Research Associate and Lead of ConSat-1, Payload member (ConSat-1 and ConSat-2), will discuss space research and development that encompass a variety of subjects, such as the protection of humans, electronics and solar cells from radiation hazards; optical communication; robotic applications in space; advances in on-board data handling; spacecraft micro-vibration mechanisms and its effect on materials; and the development of novel spacecraft structures, novel propulsion technology, studies of plasma dynamics and research in planetary science. These are all vital topics leading to progress and growth of the space industry.

**10:45 - 12:00 - Lab tours**

- Vacuum Chamber: Vacuum chamber demo (feather vs. coin drop, marshmallow expansion-implosion, etc.)
- Concordia Center for Composites (CONCOM): Automated composite fibre placement demo.

**12:00 - 1:30 – catered Lunch – (Room EV.12.163)**

**1:30 - 3:30 - Space Concordia – (Room H-1029)**

- Satellite Demonstration
- Rocket Demonstration
- Mars Rover Demonstration

**3:30-4:30 - Flight Simulator – (Room EV-10.230)**

Demo of a non-moving platform flight simulator supplied by Mechtronix. It is representative of a Beechcraft B200 twin engine turboprop aircraft. It can provide flight training for pilots, in class demonstration of navigation systems and flight controllers and can serve as a research platform for navigation and flight control development.

**4:30 – Free evening**

Tuesday, June 2, 2015

### Does space only belong to the astronauts?

While most scientific efforts are directed towards the resolution of problems, the purpose of game design is the invention of new artificial ones that people might find fun to solve. In this context, real-life scenarios and themes such as space exploration act as inspiration in the process. The game designer's role is not to recreate the situations but resides in identifying and streamlining interesting challenges related to them while leveraging the fantasies they evoke.

**8:30 – 9:15 Breakfast at the Grey Nuns residence (Room E-104)**

**9:30 – 12:00 (Room EV 11 th floor)**

Students will play and analyze remarkable space-related computer games, trying to understand their mechanics and appeal.

**12:00 - 1:30 – catered Lunch EV 11<sup>th</sup> floor**

**1:30-4:30 Technoculture, Art and Games (TAG)** - Interdisciplinary Centre for research/creation in game studies and design, digital culture and interactive art

Students will design and develop their own space-themed games on the basis of a common canvas. This process will help them become aware of the delicate balance of designing fun, challenge-based activities while grappling with the simulation of spacecraft physics.

**4:30 – Free evening**

Wednesday, June 3, 2015

### What makes humans succeed during spaceflight?

**8:15 – 8:50 Breakfast at the Grey Nuns residence (Room E-104)**

**8:50-9:00 walk over to the MB building (1450 Guy Street/corner DeMaisonneuve)**

#### **9:00 – 12:00 - Groups in Extreme Environments – (Room MB-1.437)**

"Houston We Have a Problem". These were the words that captured the world in April 1970. Today's Space Workshop will start with Dr. Raye Kass capturing first hand stories of her experience as Principal Investigator in Canada's first Space Simulation -The CAPSUL's Mission and the lessons learned from the 240 day Space Simulation SFINCCSS Mission held in Russia's famous Russian Academy of Sciences' Institute of Biomedical Problems. These research projects will be linked to her work at NASA in Team Building, Shackleton's famous expedition to the South Pole and his epic struggle to lead his 28 men to safety after his ship got crushed in packed ice and the 33 Chilean Miners trapped beneath thousands of feet of rock for 69 days.

Central to her work in extreme groups is her work in the fields of human behaviour, leadership, conflict management, human systems, the complexities and demanding paradoxes of the nature of teamwork and the inescapable influence of a group's emotional underworld. Raye will discuss what the essentials for a healthy community are in an orbiting space station with an international, multicultural and multidisciplinary crew and its similarities on earth where most of us live.

**12:00-1:30pm – Lunch – MB building (outside the amphitheatre)**

#### **2:00 - 3:30 - Public Lecture and Reception – BMO amphitheatre (Room MB-1.210)**

Concordia alumnus Dr. James Kass will recount episodes of his adventurous career in the domain of human spaceflight. He will share what inspired him, how the university helped him take the first steps in those pioneering days when Jules Verne's fiction became a reality, and how he fulfilled his dream to work in this exciting domain.

Dr. Kass will take you into the first Spacelab missions with the Space Shuttle, and a mission with the Soyuz and MIR space station, for which he trained astronauts and cosmonauts to perform scientific experiments, as well as the work with the earlier Skylab astronauts.

The narrative also covers challenging long-duration isolation missions, parabolic flight campaigns, and sensory perception experiments underwater.

The lecture will be followed by a Q&A and reception, where the public will have the opportunity to connect with Dr. Kass.

**Refreshments and snacks will be served outside the BMO amphitheatre**

#### **3:30 - 5:00 - An adventurous career in Human Spaceflight - Room MB 1.437**

Following the public lecture, a more intimate session with the students will allow further detailed discussion.

**5:00 – free evening**

Thursday, June 4, 2015

## The Space Blog

**9:00-9:50 Breakfast at the Grey Nuns residence (Room E-104)**

**9:50 walk over to the MB building**

**10:00 - 12:00 - Wrap-Up Session: Your Concordia Experience – (Room MB 2.130)**

Dr. Luca Caminati, Associate Dean, School of Graduate Studies, and Associate Professor, Mel Oppenheim School of Cinema, will lead participants through a wrap-up session on their experience at Concordia based on their blog entries on the CUSRI webpage.

Students will be asked to blog about their three days inside Concordia labs, and their contact with scholars and researchers. This is a free-form tool where participants can ask questions, raise issues, and, more generally, comment on your learning experience.

In our final session we will look at some of the most interesting entries posted during the week, and have a general discussion on the outcomes of this learning experience.

Lastly, a prize for best **Space Blogger** will be bestowed upon the student who received the most votes by her/his fellow participants (at the closing dinner)!

**12:00 – 1:00 lunch - Room MB 2.130**

**1:00- 6:00 - Free time**

**6:00 - 10:00 - Closing dinner (MANDATORY) – (Room EV-11<sup>th</sup> floor)**

**Certificates presentation & prize for best blogger**

Friday, June 5, 2015

**9:00-9:50- Breakfast at the Grey Nuns residence (Room E-104)**

Closing remarks by Dr. Luca Caminati

**Check-out from Grey Nun's by 11am**