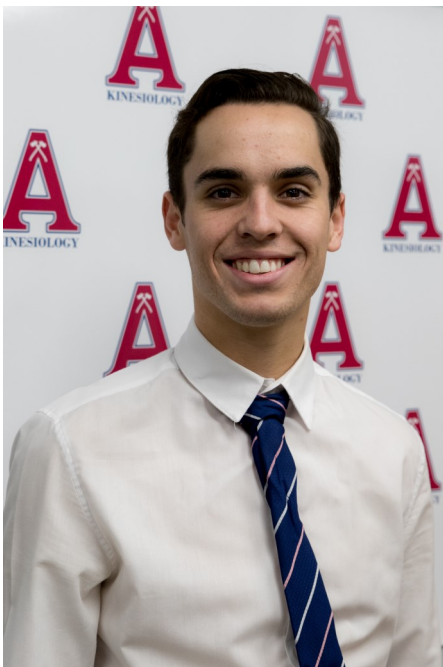# Andrew MacKinnon
## HONOURS RESEARCH

### Research Focus:

Andrew's research was focused on testing physiological responses to microgravity. Specifically, Andrew and Dr. Said Mekary studied the effects of microgravity, and how the different levels of blood and oxygen reaching the brain can impact cognitive performance in this type of environment. The microgravitational environment was simulated using a specific head-down-tilt technique where subjects had to lay at a specific angle of -6° for an hour and a half. The levels and composition of blood were continuously monitored throughout the testing period using near-infrared spectroscopy, while simultaneously monitoring cardiovascular variables such as heart rate, stroke volume, and blood pressure. To measure cognitive performance, participants had to complete a short computer test before and after the simulation of microgravity that evaluates executive functioning. The link between cerebral oxygenation and cognition in microgravity is not well understood. As the race for Mars continues, and commercial space-flight gets closer to reality, all physiological variables in microgravity must be well understood to guarantee safety and feasibility for this industry.

### About Andrew:

Andrew was born and raised in Stratford, P.E.I. He loves all things sports, science, and space travel and family and friends are the most important things to him. Doing an honours was one of the most rewarding aspects of his time at Acadia. The skills, knowledge, and experiences he has gained from doing research will help him immensely in the future and he is grateful to have had all the support and help from Dr. Mekary. Apart from his honours, he volunteers with the S.M.I.L.E program, KinderSkills, Special Olympics and is currently the Vice President of Enactus Acadia. Andrew is also on the Acadia Men's Golf Team. Andrew's future goals include medical school to one day become a practicing cardiologist, as he has always had a passion for medicine and helping others."

### Supervisor: Dr. Saïd Mekary