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Preface

The Journal of Undergraduate Studies at Trent (JUST) was founded in 2007 on the belief that undergraduate research is an integral aspect of the university community. Nowhere is this more relevant than Trent, where we pride ourselves on integrating research into the undergraduate experience. Being one of best undergraduate universities in Canada, JUST offers a unique opportunity for undergraduate students to publish their research at a local level. We strive to accomplish the above through the following mandate:

1. By increasing awareness of exemplary undergraduate research in all academic fields at Trent University through publication in an open access format:
   a) Particularly focusing on increasing awareness among new students to inspire their future research;
   b) Focusing on increasing awareness among Alumni to help connect them to the undergraduate student research community;
2. By providing publication opportunities to undergraduate students while allowing all authors to maintain copyright privileges;
3. By collaborating with academic and research-focused groups at Trent University to highlight undergraduate research in various fields;
4. By increasing the profile of JUST as a publication in the Trent and Peterborough communities;
5. By providing opportunities for undergraduate students to engage with and be part of the publishing process from an editorial standpoint.

We would like to thank all of the people who made this edition possible. Thank you also to all of the people at Sadleir House, especially all the support we have received from Dwayne Collins. Additionally, we would like to thank all of the graduate students who helped vet the papers for this edition. Most of all, we would like to thank our amazing section editors Glinton Lextroy Hanover, Saby Mathavarajah, Grace McKinney and Erin Funnell-Kononuk, without whom this volume would certainly have never been completed. It is your diligence and dedication that has shaped the revival of the Journal of Undergraduate Studies at Trent, and we would like extend our deepest thanks.

Sincerely,

Hamza Khattak and Pippa OBrien
Co-Editors
Journal of Undergraduate Studies at Trent

For inquires please contact just@trentu.ca.
Editorial Board

Glinton Lextroy Hanover – Section Editor - Sciences
I am an international student from Guyana, completing the third year of a Biochemistry and Molecular Biology Honors Degree at Trent University. Of my many interests, I am particularly passionate about the fields of Healthcare and Microbiology. I am very happy to be employed as a Laboratory Assistant in Dr. Janet Yee’s lab involved in research on the microorganism *Giardia lamblia* a common cause of travellers fever and clinical symptoms such as diarrhea and weight loss. This summer I will commence a research project in Dr. Yeys lab which I will continue into my fourth year as a fourth-year honours thesis project. After Trent, I plan on pursuing a masters degree in Microbiology as an initial step towards a career in clinical microbiology. When Im not busy with school and work, I enjoy playing chess in Trent Chess Club, intramural soccer apart of a dedicated team, and tutoring first and second year undergraduate chemistry. It was a pleasure working along with a team of motivated editors to produce what, Im sure, is a great 2016-2017 JUST Journal issue.

Erin Funnell-Kononuk – Section Editor - Humanities
I am currently just about to complete ‘my first year of Social Work. I have a passion for the social sciences, and intend to get my M.S.W. and CBT certification in the future. When not studying or editing for JUST, I spend my time writing, doing photography, and binge-reading novels. I am very thankful for the editing opportunity that JUST provided for me, and I am very proud of this years journal. I hope to work with JUST for years to come!

Hamza Khattak – Co-Editor-in-Chief
I’m in my fourth year of a Joint Major program in Physics and Chemistry. The previous three summers I have held an NSERC USRA to do summer research. Last summer, I worked in the Supercritical Water Research Facility under Igor Svishchev, simulating how certain molecules interact with water at high temperatures and pressures. This summer I will be working Dr. Aaron Slepkov’s laser lab studying the nonlinear response of matter to high intensity light. I have also worked with Paul Frost, studying the precise nature of how nutritional limitation effects the Daphnia. Each of my supervisors has taught me a great deal about their field and I would summer research to any undergraduate science student. If I am not studying or trying to debug some Mathematica code, I can be found experimenting with new forms of photography with the Trent Visual Arts Network. After Trent, I hope to pursue graduate studies in Experimental Physics. Thanks to everyone who has helped with JUST this year, especially to my co-editor Pippa O’Brien.
Saby Mathavarajah – Section Editor - Sciences
I am a science editor for the Journal of Undergraduate Studies at Trent University (JUST) for 2017. Currently, I am attending Trent University and going into my fourth year for my Bachelors of Science Honors in Biochemistry and Molecular biology. My plan is to attend graduate school for research in Molecular biology after my undergraduate studies. My background in science comes from my two NSERC-USRA terms as a research assistant with Dr. Marguerite Xenopoulos in aquatic microbiology and Dr. Robert J. Huber on Battens disease. Plus, I pretty much just read about science in my free time, so it was a perfect fit. I also play the clarinet in my downtime, but not at a decent enough level to mention in a bio.

Pippa O’Brien – Co-Editor-in-Chief
I am in the final month of an Economics BA, having just completed a B.Sc in Anthropology at Trent University. I have been lucky enough to be elected into the Trent Central Student Association for two years as one of the vice presidents, which has allowed me to engage with students across campus. I have also had gained experience in activism though my involvement with OPIRG Peterborough. I hope to go on to work within a municipal city planning office. When not reviving old undergraduate journals, I enjoy reading, broadcasting on Trent Radio, local theatre, and being the nerdiest liberal arts student I can be. Thank you so much to the whole JUST team that pulled this edition together, in particular my amazing co-editor, and I hope you enjoy reading our journal!

Grace McKinney – Section Editor - Humanities
Hello! I am a third year undergraduate student pursuing a B.Sc. in Biology and Anthropology, and working towards a specialization in Conservation Biology. In the summer you can find me either working in the kitchen of a summer camp (to date I have hand peeled and mashed over 4000lbs of potatoes!), or getting lost outside. I am passionate about the natural world and post-Trent, I hope to chase a career in wildlife conservation. Working as an editor for JUST has been such an exciting experience, and I hope you find as much enjoyment reading this issues articles as I did. Thank you to the authors of these pages for taking the time to share with us their knowledge and ideas.