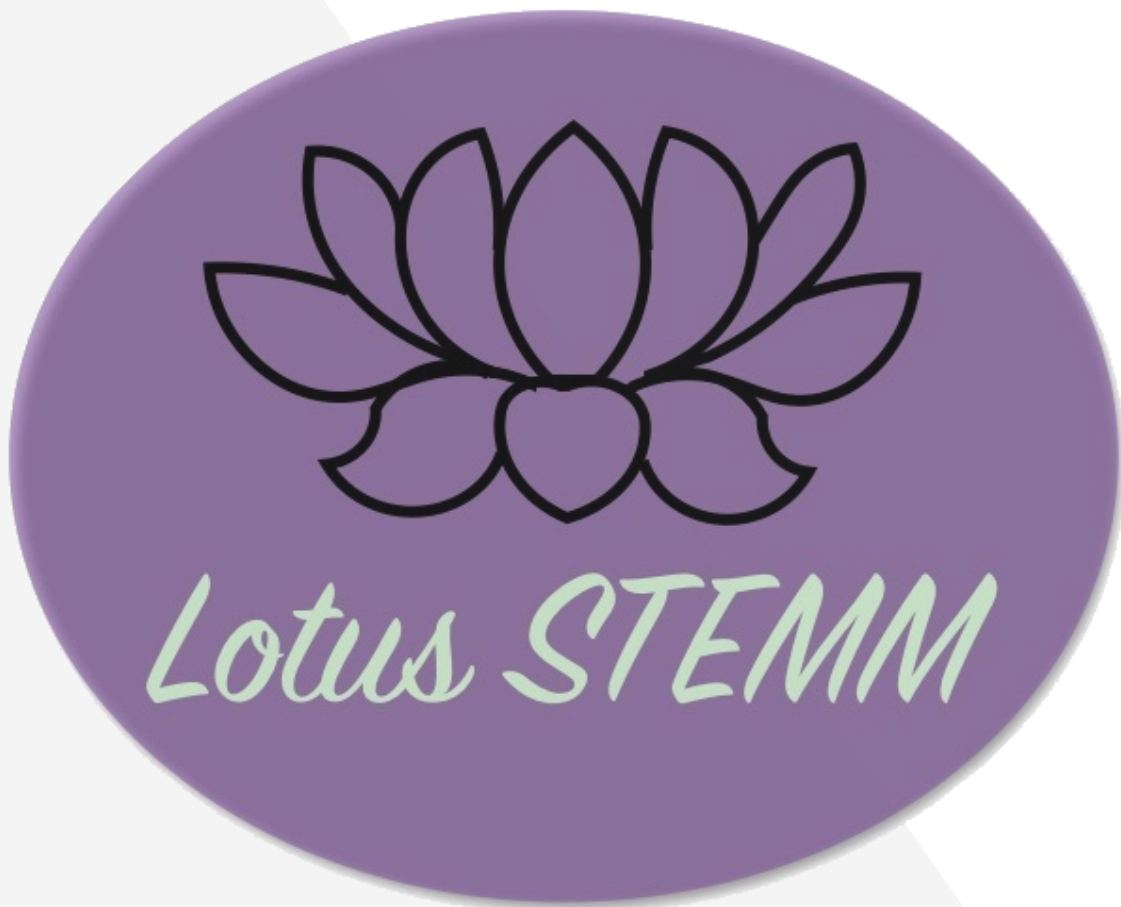


LOTUS STEMM

ANNUAL REPORT

REPORT NO. 020-03



2020

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Land Acknowledgement

Lotus STEMM's hub of operation is located in Peel Region in Canada.

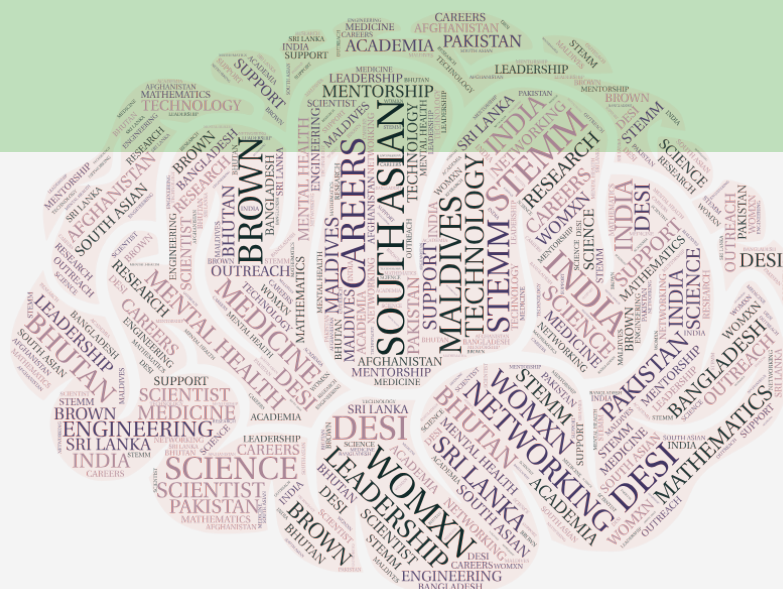
We would like to begin by acknowledging the land on which we gather, and on which the Region of Peel operates, is part of the Treaty Lands and Territory of the Mississaugas of the Credit. For thousands of years, Indigenous peoples have inhabited and cared for this land. In particular, we acknowledge the territory of the Anishinabek, Huron-Wendat, Haudenosaunee and Ojibway/Chippewa peoples; the land that is home to the Métis; and most recently, the territory of the Mississaugas of the Credit First Nation who are direct descendants of the Mississaugas of the Credit.

We are grateful to have the opportunity to work on this land, and by doing so, give our respect to its first inhabitants.

We should continue as settlers living in this land with First Nations and Métis communities, to support stewardship of the land, the water, and the environment as a whole. I am sure it has been brought home to many of us how important the land and water is, during this pandemic. We are missing our parks, and are being asked to wash our hands to maintain good hygiene; and how fortunate are we to have this water at our disposal; but with this disposability comes responsibility, and stewardship. Like the Mississaugas and allied nations, who have been and STILL DO take care of these waters, we too owe the water the same. We are sustained by clean water so let us sustain it as well!

Additionally, we are joined by many people today from across Canada, and the world. We wish to acknowledge the global pan-Indigenous communities on whose territories our international attendees are. We hope our attendees take this opportunity to reflect on their own connection to their respective lands, and the Indigenous communities with whom they share the land with.

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CEO's statement

It is in awe that I watch Lotus STEMM (LS) grow from year to year. It started off as a crutch for my need of community, & today, I am proud to say that it is a community that gives to more than myself. Growth & change take time, and while we've had immense growth in our 2nd year, the change we would like to implement in our communities will take time. But this does not deter us from our mission.

In this last year, we've made great strides in collaborating with local schools, national organizations, & international stakeholders. At each level, we've been able to create meaningful relationships while having representation at the forefront. I have personally spoken with many parents, and women who did not realize a community like this was missing but needed. I am honoured & humbled that a seed I sowed a few years ago is now a seedling in "*The Pond*" we call Lotus STEMM.

Our first aim was to do outreach within the South Asian (SA) community while increasing visibility of SA women in STEMM fields. With this mission in mind, we started a STEM club at a local school (though we had to postpone it due to the COVID-19 pandemic), held our first virtual conference ("*Degrees of Success*", pg 8), & have started a LS-CAGIS chapter specifically for SA families.

Leadership & networking are core components of LS, & with this, I am proud of the team we've build. LS would be nowhere without its volunteers who step up each time to take on more responsibilities. From "*The Pond*" (pg 11) to "*Paksh*" (pg 12) to our *Mentorship Program* (pg 9), I watch each project lead gain confidence & ownership. Each of these programs are close to my heart & help fill gaps that have been present in the academic & STEM communities. Furthermore, watching the LS community come together to help create debunking videos that communicated science in multiple languages during a time of need & panic solidified the belief that science communication is needed in beyond English.

As an academic myself, it is hard for me to separate research from any aspect of my life. It is no different for LS. I'm so incredibly proud of our research team who individually developed their research questions & methodologies (pg 15-17). Going into our second year of research, each project is at the point of data collection which we hope to present next year.

The fruit of all of our labour can be seen by the progress we've made strategically & financially. I'm happy to say that LS has gone from being in the red to becoming self-sustaining. Each day I work on and with LS, I grow as an academic, entrepreneur, leader, mentor and person. My heartfelt **THANK YOU** to each member, participant, stakeholder, funder, volunteer, critic, & every person who has patiently asked, listened, & politely participated. Each of you have helped make LS what it is today.

Our mission does not end here. As long as there are gender disparities, inequities, & biases in STEMM, there will be a need for culturally-responsive recommendations.

Chair's statement

The need for diverse voices in leadership roles and at every level of the STEMM journey is getting louder with each passing month.

2019-2020 has been quite a milestone year for Lotus STEMM in our efforts to reach more South Asian women in Canada and across the world. In twelve months, we have launched several programs that ensure women in every level of their STEMM journey are able to connect, inspire and lift each other through support, networking, and collaborations. We are proud to have launched the virtual Mentorship program, the in school STEM club, The Pond, Paksh, our first ever Degrees of Success conference for youth and parents, and a South Asian chapter of the Canada Association for Girls in Science. While COVID-19 has greatly impacted the way several aspects of our in person programming can proceed foreseeable future, we are proud to connect with the South Asian community in new and global ways. We invite you to join us in shaping a more inclusive space for South Asian women in STEMM.



Bhairavi Shankar, PhD

Treasurer's statement

As the Treasurer of the Board for Lotus STEMM, it is with great enthusiasm that I report that we saw a 2738% increase in profit last past fiscal year! At the end of our first year of operation, Lotus STEMM was in a deficit of \$620. Since then, we have gained considerable momentum with our fundraising efforts, with over 80% of our profits this year come from non-government grants! The breakdown of our profits are as follows:

Grants:

- \$13,906.50 from the EDGE Investment Readiness Program (IRP), used to fund the LS Mentorship Program and hiring a professional grant writer.
- \$1500 from the Taking IT Global Grant, used to fund our inaugural conference, Degrees of Success.
- \$100 from The STEM Squad CrossPollination grant used to fund LS Mentorship Program.

Sponsorship:

- LS received a total of \$1176.42 from both Two Photon Art and Matrix360, which was used to \$1176.42 cover costs of the Covid19 explainer videos and conference-related expenses.

Speaking Engagements and Workshops

- Up from \$300 last year, this year we earned \$1,725.00 for invited speaking engagements, panel discussions and workshops.

Last year, our greatest expenses were fees related to non-profit business registration and attending national and local conferences and workshops, which put us in a deficit of \$920.64. Due to Covid19 restrictions this year, LS has

not attended any in-person conferences. However, we did host our own conference, Degrees of Success. Money was spent on purchasing a full licence for video conferencing software (Zoom); honoraria for invited speakers, panelists, and outreach partners; and prizes for our STEM competition. Additionally, this year we have solicited the expertise of a professional grant writer, Do Good Fundraising, to help us secure additional funding for the upcoming fiscal year. A breakdown of our major expenses are as follows:

- \$1186.50 spent to hire a professional grant editor, DoGood Fundraising, which was funded by the EDGE IRP grant.
- \$780.51 spent on *Degrees of Success*, funded by the Taking IT Global Grant
 - \$600 to our Outreach Partners
 - \$143.51 for Zoom software
 - \$37 for speaker gift
- \$98.96 spent on operating expenses such as cheques (\$50.94) and monthly subscriptions for website hosting (\$28.24) and accounting software (\$19.78/mo), funded by the Brampton Microgrant.



Treasurer's statement

With the introduction of our new programs, we recognize that continued financial growth is necessary to help us succeed in 2021. We are continuing our partnership with Sci-Illustrate to distribute postcards featuring South Asian women in STEM, for a 10% consignment. Also, as an official CAGIS Community Chapter, Lotus STEMM will receive a portion of the membership fee for participants joining our Chapter. Lastly, with the help of DoGood Fundraising, we have also applied for the Ontario Trillium Fund's Resilient Communities Grant, which will allow us to continue providing virtual programs during COVID-19

As Treasurer of the board, I am look forward to a prosperous year ahead!



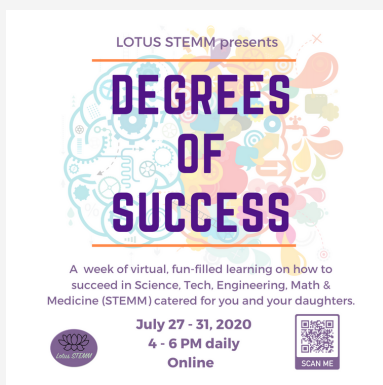
Shaiya Robinson, Ph.D.

Degrees of Success

"Degrees of Success" was aimed at parents and youth alike. Participants had the opportunity to go through 4 unique workshops: coding, NanoRovers, geology and genetics. They then had the opportunity to hear from our esteemed speakers and panelists.

Throughout our conference we have created a space where students and parents can engage in discussions about STEMM and learn STEMM topics. In fact, 100% (n=96) of poll responses (we held a poll after each event) indicated that the participants would like to receive an email about future Lotus STEMM outreach events or that they would attend a similar Lotus STEMM in the future. Also, after our Family & I Code Together event, our poll indicated that 66% (n=10) of participants enjoyed that the activity allowed them to do something STEMM related with their family and join others who like STEMM.

Everyday we had between 25-30 attendees in our Zoom events. The project was carried out during the weekdays of July 27-31.



Covid19 Explainer Videos

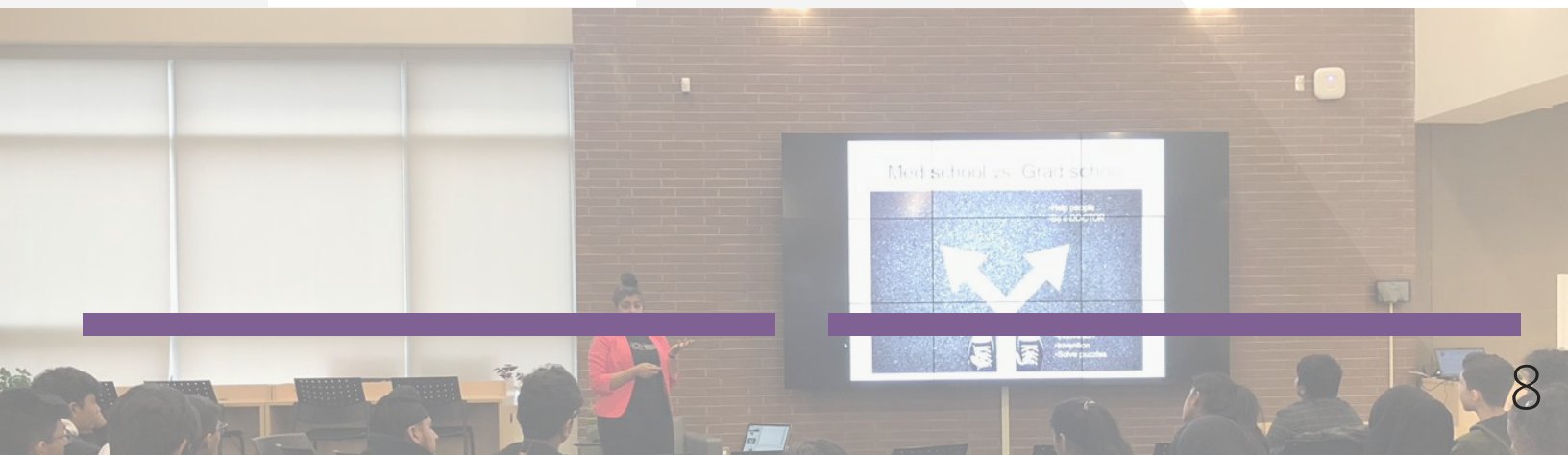
When the COVID19 pandemic hit, most of us were shut down and frustratedly watched misinformation and disinformation spread quickly. The LS community came together to create debunking videos in multiple languages to help reach those who do not understand English, or do not emotionally connect with the language. We made a total of 5 topics:

- Why home remedies don't work
- Why does hot water not kill the virus
- Why we need to stay home
- What does "flatten the curve" mean
- How to wear and remove masks

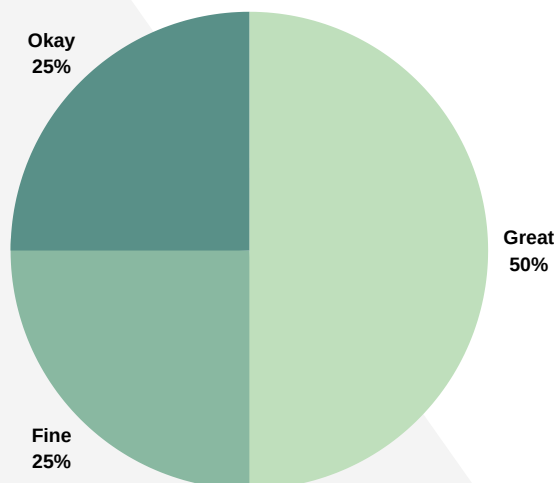
Languages: Hindi, Punjabi, Gujarati, Malayalam, Arabic, Tamil, Telugu, Filipino, Urdu, Indian Sign Language, Marathi (4 videos), Bengali (3 videos).

Analysis:

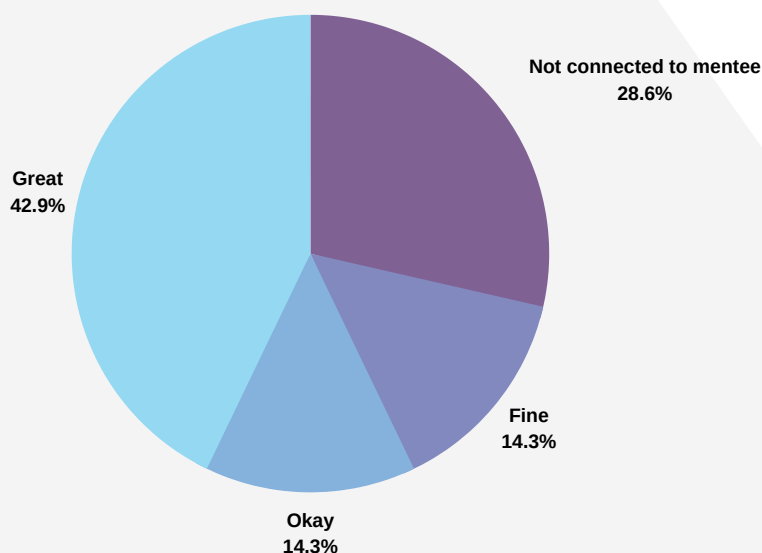
- 3.6K impressions
- 64 subscribers
- 5.6K views
- >117 hours of watch time
- views: 1st India, 2nd Canada, 3rd USA
- views: 37% 45-54 yrs, 30% 25-34 yrs, 28% 35-44 yrs
- average view time 1:36 (22.4%)



3 month feedback



Mentees response to program



Mentors response to program

LS Mentorship Program

The Mentorship Program aims to support South Asian Women wanting to pursue careers in STEMM by pairing them with professional mentors in specific STEMM fields. In addition, the program promotes access to different professional resources like numerous scholarships, resume, cover letter and thesis editing. The program also aims to form a cohesive support system for STEMM career exploration and discussions.

Target audience: South Asian Women ages 16+

Number of Unique Participants: 30 for 2nd Cycle

Number of cycles: 2

The mentorship program started in late-January 2020. The mentors and mentees were connected on slack. We have 4 active mentees and 5 active mentors, though mentors have been active with other sections of Lotus STEMM.

Mentors and mentees filled out a goals sheet at the beginning of the program. The graphs is an overview of the 3-month feedback we received. While mentors and mentees are enjoying the program, they have asked for more networking/interactive sessions for participants to get to know one another.

We will be sending a 6-month feedback form in mid-late July with the option to continue with the program.

"...Our check in sessions varied from serious academic discussions to fun and stimulating chats, at the end of which each of us learnt/shared something new. It is a wrong assumption that mentors teach and mentees learn/follow. There were quite a few sessions when I was exposed to the fresh influx of ideas from my mentees there by teaching me something new too..."

-Mentor testimonial

Sunny View Middle School STEM club

The STEM club had ~25 girls who were signed up by the school. We started off learning about intestinal immune system and allergies in January, followed by a 2-day session on coding with Microsoft in February.

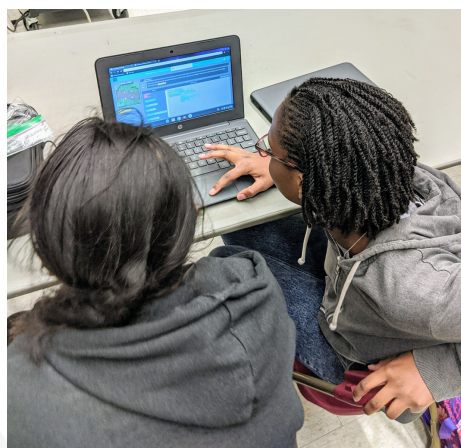
January: The girls were introduced to what it means to be a scientist. We played 2 games during the session. (1) The girls acted as different types of immune cells in of the intestine as they protected the intestines from microbes (plush toys of various giant microbes). They then played a game where they identified different allergens in common foods.

February: 2-day session with Microsoft where the girls learned the basics of coding using Minecraft on the first day, and then TAUGHT boys how to code the next day.

Due to Covid-19 shutdowns, the remainder of the 4 sessions will be continued at a future date.



Sunny View Middle School



Girls working on Minecraft



Girls working with Blaise Patterson from Microsoft to teach boys coding



Program Lead: Manasvi CM

The pond is an online discussion sessions similar to a movie/ book club where interested individuals discuss about a pre-fixed topic pertaining to women in STEMM. The session is one hour long. It is held once a month and is hosted on Google hangouts.

Target audience: Women in STEMM research and Education, Male allies

Number of unique participants: 5 participants per session

Number of sessions held: 3

- The contributions of Indian women in science during the Covid19 pandemic Feat. The Life of science team
- Lilavati's daughters
- Inclusion in Scicomm Feat. Vanshika Singh, Contributor at the Science Policy forum

Impact:

The 3rd session on 'Inclusion in Scicomm' of 'The Pond' was extremely well received. The discussion was sparked two policy memos. There were two policy memos/open letters submitted to Science policy forum for 'The Science Technology and Innovation Policy 2020' on the topic of Disability in STEM after the session.

The next sessions are on –

- Gender parity in Pakistan's tech ecosystem Feat. Faiza Yousuf
- Hearing Impaired and Science Education Feat. Bina
- Autism in STEMM education Feat. Abby

"I really enjoyed all the different perspectives that everyone brought. I also liked the way it was moderated. I'm learning something new every session!"

"I loved hearing all the ladies' perspective on their struggles in the field of science and knowing that we can support each other universally was a great take away"



A mental health support initiative for international academics

Program Lead: Dr. Jaishree Subrahmaniam

"A free, non-judgemental forum where we feel like home, where we feel like we all are in same boat, where we feel like we all are connected through a string"

"Open space for research professionals to talk/ voice out their well-bring"

"I like the way that the session was organized. Firstly, we shared our recent updates. Secondly, we shared our experience of academic bullying and exchanged our thoughts on the reasons and solutions. Finally, we summarised ways to deal with bullying and process the traumatic experience."

A mental health support group composed of academics living across the world, connected to each other by sharing experiences, learning from each other, and supporting one another. Sessions are held online via Google meet once every two weeks. The topics are centered around well-being and how to cope with struggles an individual may have as an academic.

Target audience: Graduates students and post docs across the globe.

Number of unique participants: 5-6

Number of sessions: 6

new initiative

FAMILY & I CODE TOGETHER

Program Leads: Dr. Nakhat Fatima, Jovita Pinto, Shefali Chaudhary

Family and I code together is a new program in which we introduce introduction to Computer coding to members of a family. The main focus of this program is to help bring children and their parents together to get educated in basic market skills. Lotus STEMM's main agenda is to empower women and girls, and enable their financial independence. By introducing coding skills to girls and women of same family, we intend to challenge little girls to learn skills that would polish their minds and older women to have a new expertise with which they can reclaim their roles at work. It is not limited to girls and women; this program is also meant for elderlies who would want to spend their time more productively, but exploring a new skill and creating something for their own pleasure.

Scratch

Family and I code together is intended to begin with a visual and fun coding tool developed in MIT, named Scratch. Scratch provides introduction to coding in very basic steps, and since it provides output instantly, it is very easy to trace steps and see the outcome of our actions right away. There are a number of starter projects and that can spark interest in children and elders alike. This is to be stepping stone towards moving to coding in scripting languages and formal languages.

Target Audience

Age: 8+; is interested in learning how to code.

Grouping: Family based groups with children and parents ideally competing against each other.

Background: South Asian girls and women.

Academic requirements: Anyone can register in this course

Technical requirements: Anyone who has access to a laptop/tablet/personal computer and internet can register for this program.

Instruction Medium: Zoom

Duration of course: 5 weeks

Hours per week: 3 hours

Completion criteria: Ability to finish a project at the end of 5 weeks.

Estimated Start date: Jan 1, 2021



new initiative

LS-CAGIS chapter

Program Leads: Priya Iyer & Goppikka Natkunam

Lotus STEMM is proud to partner up with the Canadian Association of Girls in Science (CAGIS) to start the first CAGIS chapter for South Asian girls across Canada. We will work on increasing visibility of South Asian scientists and engineers, specifically women and non-binary people, while introducing girls to hands-on STEM activities.

Volunteers are welcome to sign up on the <https://girlsinscience.ca/>

Parents can sign up their daughters on the <https://girlsinscience.ca/>

Just choose Lotus STEMM as the chapter.

For each girl who signs up, we get a portion of the \$50/year admin fee for joining.

Target Audience

Target audience: 7-16 yrs old, South Asian girls across Canada.

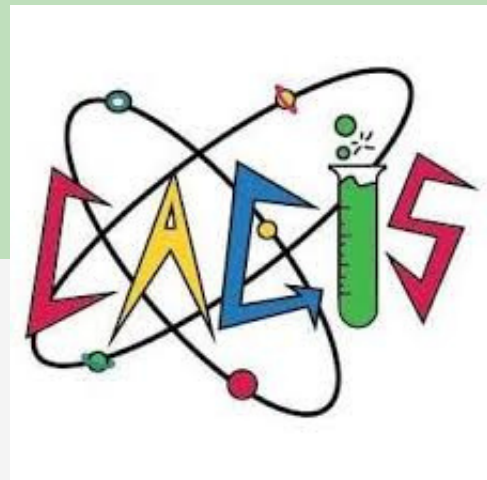
Number of sessions: ~2 hours/month

Technical requirements: Anyone who has access to a laptop/tablet/personal computer and internet can register for this program.

Instruction Medium: Zoom

Sessions:

- **Oct 17, 2020: *How lungs work***
- **Nov 14, 2020: *Bats and coronavirus* by Dr. Arinjay Banerjee**



research projects

THE EXPERIENCES OF FEMALE HEALTHCARE PROFESSIONALS WHO WEAR RELIGIOUS HEAD COVERINGS AFTER QUEBEC'S BILL 21

Project Leads: Suffia Malik
Team: Tiffany Chen & Zahra Abdallah

On June 16, 2019, Bill 21 (An Act respecting the laicity of the State) was passed in Quebec's National Assembly. The bill prohibits professions with "coercive, authoritative power" including teachers, judges, police officers and government employees from wearing religious symbols. These symbols include religious head coverings such as the hijab, turban, and kippah. Interestingly, medical professionals are not prohibited under this bill from wearing religious symbols, despite being in positions of power. In this project, we are interested in **the indirect effects of Quebec's Bill 21 on female physicians and nurses who wear religious head-coverings practicing in Quebec as determined by surveying their experiences of perceived discrimination and the effects on their abilities to practice.** Physicians and nurses were selected because they are professionals who regularly interact with the public and are seen to have decision-making power. The study will consist of online surveys and follow-up semi-structured interviews of female physicians and nurses who wear religious head-coverings practicing in Quebec since at least January 2018. The surveys and interviews will be conducted in both English and French. From this research, we aim to determine the indirect impact of a political environment that targets women who represent religious minority faiths. We aim to determine the bill's effects on the healthcare workplace and women's health in Quebec.

research projects

POSTPARTUM DEPRESSION (PPD) INTERVENTION IMPLEMENTATION AND DEVELOPMENT FOR SOUTH ASIAN WOMEN IN CANADA

Project Leads: Hafsa Omer

Purpose/ Objective: This study intends to highlight the current initiatives and interventions set in place for PPD on a global scale, where the goal will be to identify the specific gaps which exist for South Asian women from a sociocultural perspective when seeking treatment. In doing so, we will be looking at factors such as language and culture acknowledgement, as well as obstacles women face such as the lack of recognition of PPD, family issues, etc. This project is meant to acknowledge and detect the challenges these women face, so that future interventions can be developed with socio-cultural accountability in mind.

Methods: Our research will be centered around conducting a literature review, with an inclusion and exclusion criteria that concentrates on PPD, maternal health, South Asian women, current interventions, and the gaps therein. Currently, efforts are underway in establishing an inclusion and exclusion criteria. A comprehensive literature search will follow the establishment of the inclusion/exclusion criteria, in which papers will be organized based on criteria including but not limited to whether they contribute to research done on PPD interventions for other minority groups/demographics, if they identify certain gaps in current interventions, if they discuss the clinical manifestations of PPD, if they discuss Canadian PPD interventions, and if they emphasize any barriers that South Asian-identifying women face when seeking treatment for PPD.

Outcomes: This project is meant to further the discussion(s) on the importance of culturally responsive postpartum depression research and understanding. We anticipate our findings to highlight some of the challenges and current barriers South Asian women face in seeking treatment or interventions for the onset of PPD.

research projects

INVESTIGATING CULTURAL CORRELATES OF ACADEMIC BURNOUT IN SOUTH ASIAN UNDERGRADUATE ENGINEERING STUDENTS

Project Leads: Sowmithree Ragothaman
Collaborators: Dr. Kim Jones

Burnout is a multidimensional construct that refers to a state of poor physical, mental and emotional well-being as a result of occupational stressors. Previous research has identified undergraduate students as a population that is prone to burnout due to repeated exposure to various socioeconomic, relational and professional stressors. Engineering undergraduate students are a subpopulation that can be considered particularly prone to burnout as a result of difficult workloads and high academic rigour. However, little research has been done with regard to placing these findings in a larger cultural context; namely how an individual's cultural background may influence their experiences of, and responses to, burnout. This study focuses specifically on engineering undergraduates who self-identify as being of South Asian descent (which includes the countries of Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka). The goal of this study is to determine the perceived impact of parental and cultural expectations of high academic success on burnout of South Asian engineering students. In particular, the weight of prestige and social reputation factors associated with completing engineering "successfully" in contributing to burnout will be explored. This information will be gathered using the Oldenburg Burnout Inventory for Students (OLBI-S) to assess burnout, followed by semi-structured qualitative interviews revolving around the topics of program choice, definition of success, mental well-being and coping mechanisms. Questions specifically regarding parental involvement and expectations in all of the above will be used to gauge the level of cultural pressure faced by individuals. Thematic analyses will then be conducted to identify recurring motifs in students' experiences, their needs and help make culturally-sensitive recommendations to assist students, parents and engineering departments in addressing academic burnout.

IN THE MEDIA

Lotus STEMM has been featured on a number of media outlets.

Ricochet:

- "Are CERB payments getting lost in translation? Organizations are mobilizing to help migrants overcome CERB language barriers, and building community in a time of isolation" News by: Alex Nguyen APRIL 24, 2020.

<https://ricochet.media/en/3062/are-cerb-payments-getting-lost-in-translation>

CBC Fresh Air:

- Fresh Air with Nana aba Duncan - April 18, 2020: Scientist Roopali Chaudhary on countering misinformation about COVID-19 on social media

<https://www.cbc.ca/listen/live-radio/1-193-fresh-air/clip/15771701-scientist-roopali-chaudhary-on-countering-misinformation-about-covid-19-on-social-media?onboarding=false&share=true>

Scicommtv

- Lotus STEMM Covid19 Explainer videos made a feature, plus I did an interview with Fanuel.

<https://scicommtv.net/?s=roopali>

CAGIS Newsletter

- Featured for the Covid19 Explainer videos as part of "Five Canadian women in STEM leading the fight against COVID-19".

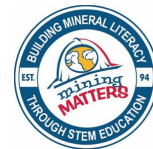
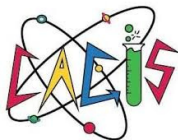
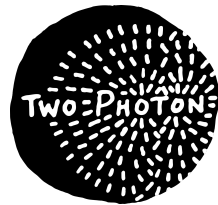
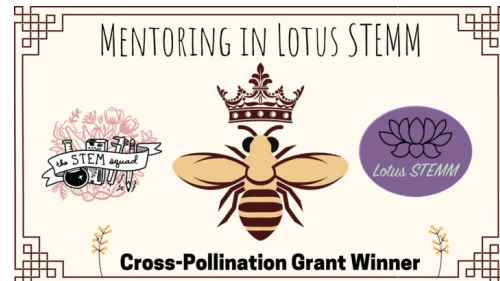
<https://girlsinscience.ca/five-canadian-researcher-helping-in-the-fight-against-covid-19/>

Brampton City Library Resource

- Their curated #StayAtHome resource includes a link to our Covid19 Explainer videos

<https://www.bramptonlibrary.ca/index.php/download/stayathome-resources>

Lotus STEMM thanks Partners & Sponsors 2020




~2305

Social media followers (1296 Twitter, 806 Instagram, 139 Facebook, 64 YouTube).