



**THE UNIVERSITY  
OF BRITISH COLUMBIA**

**SCIENCE 101 CLASS OF 2019  
YEARBOOK**





# ABOUT SCIENCE 101

Science 101 is a three-month, non-credit, barrier-free program offered to residents of Vancouver's Downtown Eastside and other inner-city communities. The program introduces students to a wide variety of scientific subjects to encourage them to develop an interest in science, and to build an appreciation for the physical world. Science 101 aims to make science engaging, relevant, and fun.

Students attend lectures taught by University of British Columbia faculty and graduate students who donate their time to facilitate interactive classes on topics they are passionate about. Volunteers are present during lectures to assist students with understanding lecture content and answering questions. Students are also given the opportunity to attend tutorial sessions at the UBC Learning Exchange, as well as fieldtrips to local science attractions. Science 101 and the H. R. MacMillan Space Centre host an Open House each summer, which is open to the public, and current and former students are encouraged to bring family and friends. A graduation ceremony is held at the end of the program to celebrate the achievement of the students who have completed the program.

Science 101 is sponsored by the University of British Columbia Faculty of Science Dean's Office and private donations.



a place of mind  
THE UNIVERSITY OF BRITISH COLUMBIA

## Faculty of Science

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August 2nd, 2019

Dear graduates:

On behalf of the Faculty of Science, congratulations on your graduation from Science 101!

When looking back on what you have learnt through the Science 101 program, I hope you'll find you now have a better understanding of science and have gained new perspectives on the world around you. The knowledge and insight you have acquired provides you with a foundation to more fully understand and approach scientific topics you may encounter in the future, either in your everyday life or academically.

Science 101 has provided you with an excellent introduction to many scientific topics and has hopefully ignited your passion to continue learning about science.

Congratulations on your achievement!

Sincerely yours,

A handwritten signature in black ink, appearing to read 'Sara Harris'.

Sara Harris  
Associate Dean, Faculty of Science

# A MESSAGE FROM: ERIN

Congratulations Science 101 2019 graduates!

It has been a privilege and a true joy to share a classroom with each of you this past summer. I am proud of the dedication you have shown the program, and of all of the hard work you have done on your final projects. Thank you for sharing your curiosity and your enthusiasm with me. These qualities are contagious, and I know that they make me a better person and a better scientist. I hope that you will take away useful and interesting facts that you have learned throughout the program, but more than that I hope you will continue to think critically, ask questions, and challenge your own biases when presented with new information – this is what thinking like a scientist means to me. Please continue to be brave, and do new things that challenge you. Continue to visit this campus, now as alumni, and enjoy all that it has to offer. Continue to engage with your peers, by joining us for Alumni 101 events, as there is always more to learn.

Science 101 is not just a class, but a community. There are so many people who contribute to this community and make it what it is, and I am grateful to each of them. Andrew and Regan, thank you for the great care you have given this program, and for making this year not only meaningful, but also so much fun. Amy, Chantal, Kelly, Leah, Matt, and Molly, thank you for your kindness and your generosity in sharing your time and experience with us. Shawna and Claude, you are the ideal ambassadors for Science 101. Thank you for the incredible commitment you both made to helping students feel welcome in our classroom, and helping students excel in their final projects. I am so glad to have had a second year to know you and enjoy your company. Finally, this program relies on support from the Faculty of Science Dean's Office. To Dr. Sara Harris, thank you for your support and for joining us in the Science 101 classroom this summer. And to Nancy Cook, thank you for making this opportunity possible, and for always giving this program the care and respect it deserves.

Again, congratulations to the graduating class, and all the very best for the future!

With warmest wishes,

Erin



# A MESSAGE FROM: ANDREW

Congratulations to the Class of 2019!

We are all so proud of you for your accomplishments this summer! Your drive and curiosity has helped everyone to succeed, and added more to this program than we ever could. The atmosphere of learning and investigation you created made the prospect of coming to evening classes one to look forward to, and I hope you all continue to contribute to the Science 101 program as alumni moving forward. Thank you all for the privilege of learning and just hanging out with you all this summer – it was a blast!

Another huge thank you to our mentors, Claude and Shawna – your spirit of humour and hard work was the nucleus of our happy Science 101 family this summer. I'm also sincerely grateful for our fantastic volunteers – Chantal, Amy, Kelly, Leah, Molly, and Matt – thank you for all of your hard work and enthusiasm! This program could not run without your dedicated efforts.

As well, thanks to my fellow coordinators, Erin and Regan. Your support was fantastic and it was an absolute pleasure working with you both this summer!

Last but not least – thank you to Nancy Cook, Dr. Sara Harris, and the rest of the staff in the Dean of Science's office – this program could not exist without your incredible support and generosity! Your contributions allow Science 101 to thrive and benefit not only the students, but also the wider campus community. I'm grateful to you all for giving me the opportunity to participate in this incredible program.

Best of luck to you all in everything you do! Thanks again and congratulations!

All the best,  
Andrew

# A MESSAGE FROM: REGAN

To the graduates of Science 101 2019,

Congratulations and thank you all for a fantastic semester. I feel very fortunate to have had the chance to get to know and work alongside each and every one of you. I enjoyed listening to your stories, hearing your perspectives, and was inspired to see such energy and passion both in and out of the classroom.

Thank you to the mentors Claude and Shawna for always demonstrating a willingness to go above and beyond for their peers, and the Science 101 program. I found the experience you brought to be incredibly helpful. Thank you to the volunteers: Amy, Leah, Chantal, Kelly, Molly, and Matt, for giving up your time and effort for the benefit of the class, the coordinators, and Science 101. You were each so genuine and helpful, I truly hope you had a meaningful experience. To Erin and Andrew: thank you for being so patient and kind, and making my first semester as a coordinator so wonderful.

Thank you to Nancy Cook, Dr. Sara Harris, and all of the amazing individuals in the Faculty of Science Dean's office for ensuring Science 101 runs smoothly, while supporting the staff and students at every stage of the process.

To the graduates: I hope we can continue to grow the relationships we have all built in such a short period of time, and thank you again for allowing us to be a small part of your journey.

With Gratitude,  
Regan



# PROGRAM SCHEDULE 2019 (MAY)

May 2019 Calendar

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	<b>Orientation Day</b> Irving Barber Learning Centre Room 155 3:00-5:00 p.m.	<b>Lecture: Dr. Hadi Dowlatabadi "TBA"</b> IBLC Room 185 6:00-8:30 p.m.	No Tutorial	<b>Lecture: Dr. Dave Ng "Scientific Literacy"</b> IBLC Room 185 6:00-8:30 p.m.	10	11
12		<b>Lecture: Dr. Julie Robillard "Neuroscience Part 1"</b> IBLC Room 185 6:00-8:30 p.m.	<b>Goal Setting</b> UBC Learning Exchange Multipurpose room 612 Main Street 3:00-4:30 p.m.	<b>Lecture: Dr. Sara Harris "World Climate"</b> IBLC Room 185 6:00-8:30 p.m.	17	18
19		<b>Lecture: Dr. Abel Rosado Rey "How Plants Prevent Global Warming"</b> IBLC Room 185 6:00-8:30 p.m.	<b>Critical Thinking</b> UBC Learning Exchange Multipurpose room 612 Main Street 3:00-4:30 p.m.	<b>TRIUMF Field Trip 2:00 - 3:30pm</b> <b>Lecture: Dr. Jim Little "Robotics"</b> IBLC Room 185 6:00-8:30 p.m.	24	25
26		<b>Lecture: Dr. Carol Friedrich-Fong "Biotechnology"</b> IBLC Room 185 6:00-8:30 p.m.	<b>Computer skills workshop</b> UBC Learning Exchange Multipurpose room 612 Main Street 3:00-4:30 p.m.	<b>Lecture: Dr. Leah Edelstein-Keshet "Math &amp; Bird Flocks"</b> IBLC Room 185 6:00-8:30 p.m.	31	

# PROGRAM SCHEDULE 2019 (JUNE)

June 2019 Calendar

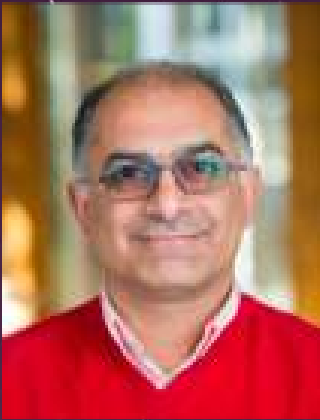
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
26	27	28	29	30	31	1
2	3	4 Lecture: Dr. Jose Rodriguez Nunez "Chemistry" MSL Room 101 6:00-8:30 p.m.	5 Note Taking Skills UBC Learning Exchange Multipurpose room 612 Main Street 3:00-4:30 p.m.	6 UBC Farm Field Trip 2:00pm Lecture: Dr. Angie O'Neill "Comparing Vertebrate Skulls" MSL Room 101 6:00-8:30 p.m.	7	8
9	10	11 Lecture: Library Tutorial with Sarah Parker & Mayu Ishida Woodward Library 2198 Health Sciences Mall 6:00-8:30 p.m.	12 Talking to Professors UBC Learning Exchange Multipurpose room 612 Main Street 3:00-4:30 p.m.	13 Lecture: Dr. Leah May Ver "Tsunami & Oceanic Hazards" IBLC Room 185 6:00-8:30 p.m.	14 Vancouver Aquarium Field Trip 10:00am	15
16	17	18 Lecture: Brett Gilley "Landslides" IBLC Room 185 6:00-8:30 p.m.	19 How to Read a Scientific Paper UBC Learning Exchange Multipurpose room 612 Main Street 3:00-4:30 p.m.	20 Beatty Biodiversity Museum Field Trip 12:30 p.m. Lecture: Dr. Elisa Baniassad "Computer Science" IBLC Room 185 6:00-8:30 p.m. Final project proposal due	21	22
23	24 Midterm Break	25 Midterm Break	26 Midterm Break	27 Midterm Break	28 Midterm Break	29



# PROGRAM SCHEDULE 2019 (JULY & AUGUST)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30	1	2 Lecture: Dr. Dave Oliver & Dr. Julian Davies "Microbiology Part 1" IBLC Room 185 6:00-8:30 p.m.	3 How to pursue a post-secondary education UBC Learning Exchange Multipurpose room 612 Main Street 3:00-4:30 p.m.	4 Lecture: Dr. Dave Oliver & Dr. Julian Davies "Microbiology Part 2" Lab Location TBA 6:00-8:30 p.m.	5 Grouse Mountain Field Trip 10:00 a.m.	6
7	8 Lecture: Dr. James Feng "Everyday Fluid Dynamics" IBLC Room 185 6:00-8:30 p.m.	9 How to Apply for a Bursary UBC Learning Exchange Multipurpose room 612 Main Street 3:00-4:30 p.m.	10 Lecture: Dr. Molly Stanley "Neuroscience 2" IBLC Room 185 6:00-8:30 p.m.	11	12	13
14	15 Lecture: Shona Ellis "Botany" IBLC Room 185 6:00-8:30 p.m.	16 Open House H.R. MacMillan Space Centre 1100 Chestnut St. 5:30-8:00 p.m. (No Tutorial)	17	18 Lecture: Zoe Hackett "Diversity in Science" IBLC Room 185 6:00-8:30 p.m.	19	20
21	22 Lecture: Dr. Jennifer Baker "Cancer Research" IBLC Room 185 6:00-8:30 p.m.	23 Work on final projects UBC Learning Exchange Multipurpose room 612 Main Street 3:00-4:30 p.m.	24 Lecture: Dr. Mona Kwong "Pharmaceutics 1" IBLC Room 185 6:00-8:30 p.m. Final project outline due	25 Camosun Bog Field Trip 10:00am	26	27
28	29 Lecture: Dr. Jackie Stewart "Science of Learning" IBLC Room 185 6:00-8:30 p.m.	30 Work on final projects UBC Learning Exchange Multipurpose room 612 Main Street 3:00-4:30 p.m.	31 Lecture: Mona Kwong "Pharmaceutics Part 2" IBLC Room 185 6:00-8:30 p.m.	1	2	3
4	5 Lecture: Dr. Harvey Richer "Astronomy" IBLC Room 185 6:00-8:30 p.m.	6 Working on Final Projects UBC Learning Exchange Multipurpose room 612 Main Street 3:00-4:30 p.m.	7 Graduation Ceremony & Final Project Display	8	9	10

# LECTURES



Hadi Dowlatabadi, Ph.D.

## **"Global Change, Responsibility & Justice"**

Dr. Dowlatabadi discussed various global issues and introduced the class to concepts of climate justice. His lecture included discussions on global changes in climate, biodiversity, technology, income, education, and life expectancy. He described the Pillars of Justice, and led the class through a range of engaging exercises which challenged students to think critically regarding their responsibility to future generations.



David Ng, Ph.D.

## **"Scientific Literacy"**

Dr. Ng presented an introduction to scientific thinking and the scientific method. Dr. Ng uses the example questions "Are unicorns real?", "Could unicorns be real?", and "What if you saw a unicorn?" to illustrate the process of critical thinking, and how scientists apply current knowledge and theory to understand the world around them.



Julie Robillard, Ph.D.

**"Introduction to Neuroscience"** Dr. Robillard introduced us to the fascinating topic of our brains – their structure, how they function, and how researchers delve into the mysteries of mind. We learned some surprising facts and debunked some popular myths about our brains, using several case studies from medical history. The lecture also gave us an insight into the study of memory, and the importance of sleep and exercise for a healthy brain.



# LECTURES



Sara Harris, Ph.D.

## "World Climate"

Dr. Harris discussed the effects of climate change on both a local and global scale, and also explained the "greenhouse effect" to the class. In addition, she ran a "World Climate Simulation" where students, volunteers, and coordinators were divided and assigned to 1 of 6 negotiation parties. The goal of the simulation was to reach a collective agreement that kept global warming below 2°C. Groups had to make difficult decisions regarding the use of fossil fuels, forestry and land, and funding.



Abel Rosado, Ph.D.

## "Plant Responses to Climate Change"

Dr. Rosado provided an excellent overview of the vital role plants have in the fight against climate change. In his lecture, he reviewed the causes and likely consequences of recent global climate change, while also describing the process of photosynthesis, and discussed predictions of plant responses to increased levels of carbon dioxide in the atmosphere.



Jim Little, Ph.D.

## "Robotics"

In this lecture, the rapid rise of robotics in practical settings was introduced. Dr. Little provided the class with the basics of how robotic systems sense the world, make intelligent decisions and act based on those decisions. Different types of robots were introduced, and the challenge of how to establish direct communication with a robot was explained.



# LECTURES



Carol Friedrich-Fong, Ph.D.

## "Biotechnology"

In this lecture, Dr. Friedrich-Fong provided the class with an introduction to the life science industry. She discussed the numerous applications of biotechnology, some of which students found quite surprising, and presented several examples of biotechnology in our lives at present, while also demonstrating potential applications of the technology.



Leah Edelstein-Keshet, Ph.D.

## "Math & Bird Flocks"

Dr. Edelstein-Keshet provided an informative lecture on the mathematics underlying bird flock formations. Importantly, she demonstrated how mathematics (is and) can be used as a tool for research in the life sciences, and she ran a variety of computer simulations/demonstrations which allowed the class to approach the subject in an interesting and relatable manner.



Jose Rodriguez Nunez, Ph.D.

## "Chemists: What we do & Why it matters"

Dr. Rodriguez Nunez introduced students to the wonderful world of chemistry. He discussed the three main types of chemists, and illustrated how easy and enjoyable it can be to be a chemist in everyday life. He also ran multiple exercises which allowed students to understand the breadth of the field.



# LECTURES



## "Vertabrate Skulls"

Dr. O'Neill taught us that there are many different types of skulls, from simple and tough, to complex and fragile. The many varieties of skulls reflect the many ways that animals feed. Dr. O'Neill showed many fascinating videos of animals feeding, including snakes and fish. She also brought in real skulls for us to examine!

Angie O'Neill, M. Sc.



Sarah Parker, MA,  
MFA, MLIS



Mayu Ishida M. Sc.,  
MLIS

## Library Tutorial

Sarah and Mayu showed us that the library isn't just about books – it's about the librarians, too! Students had the opportunity to learn about the many different resources available to any user of UBC's libraries, including online access to scientific texts, book-borrowing, in-person help from a librarian and an online chat designed to help librarians answer your research questions while you work. With a focus on the final project, this session provided an invaluable list of sources and a 'how-to' guide to getting started on independent research.



## "Tsunami & Oceanic Hazards"

Dr. May Ver, provided an in-depth look into world of Tsunami & other natural disasters. She explained why tsunami are so violent, and how they are different than common wind-driven ocean waves. She also distinguished the areas where tsunami's commonly occur, and why this is the case. Finally, she gave us all useful and very important tips to survive a tsunami if (and when) one ever strikes in Vancouver.

Leah May Ver, Ph.D.

# LECTURES



Brett Gilley, M. Sc.

## "Landslides"

Dr. Gilley introduced the class to landslides in this lecture. Students learned that there are many different forms of landslides, categorized by the type of material, type of motion, and rate of movement. He used multiple historical examples, pictures, and videos to illustrate the power and impact of landslides and the importance of urban planning.



Elisa Baniassad, Ph.D.

## "Computer Science"

Dr. Baniassad provided a fascinating lecture on computer science, and answered the question: "How do we make computers do what we want them to do?" The class was introduced to the basics of computer programming, and the various ways in which computers deal with a range of difficult issues, including (extremely) large amounts of data.



David Oliver, Ph.D.

## "Microbiology"

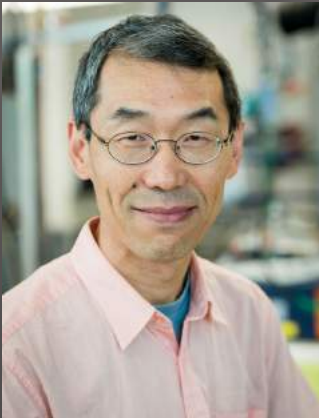
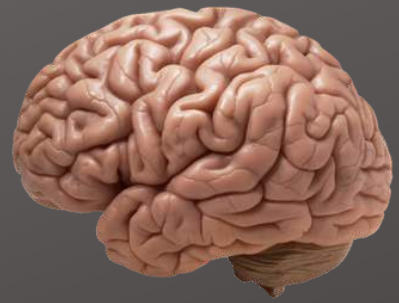
The 2 lectures covered by Dr. Oliver, Dr. Davies, and their colleagues (including our very own Andrew Sharon) explored different kinds of microbes and how they can be beneficial or pathogenic. A large amount of time was also spent discussing the role of microbes in the human body. The class also plated bacteria from multiple sources and viewed the bacteria under the microscope.



Julian Davies, Ph.D.



# LECTURES



James Feng, Ph.D

## "Everday Fluid Dynamics"

Dr. Feng provided the class with an introduction to fluid dynamics. He presented the class with a variety of demonstrations of Bernoulli's principle in action. In sharing some of his own publications, Dr. Feng also showed us how research at higher levels can be applied to everyday settings.



Molly Stanley , Ph.D

## "Neuroscience 2"

Dr. Stanley's lecture was our second Neuroscience lecture of the summer. In conjunction with what we learned from Dr. Robillard, Molly provided an engaging review of neurons, how they communicate, and why they are so important. She also shared some of her research currently being conducted at UBC, and following her lecture the class left with an appreciation for just how complex the brain really is.

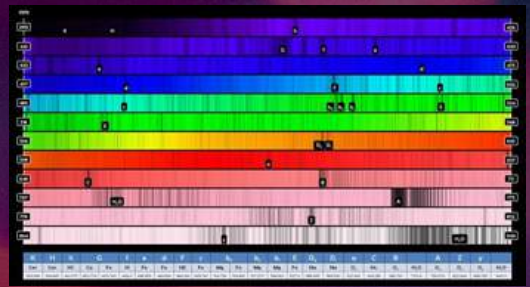


Shona Ellis, M. Sc.

## "Botany"

In this lecture, Shona Ellis introduced students to a range of plants and learned how they reproduce. From mosses to lilies the mysteries of plant sex were revealed. Many species of mosses (bryophytes) live in our forests, but are often overlooked. Shona also integrated the teachings and practices of First Nations culture into her lecture. Furthermore, we studied bryophytes in their habitat, examined them microscopically, and learned how to identify some of the most common species.

# LECTURES



Zoë Hackett, M. Sc.

## "Diversity in Science"

Zoë provided an outstanding lecture on Diversity in Science. The lecture was particularly helpful in outlining what "diversity in science" refers to, and its importance to the field in general. Importantly, Diversity is not limited to gender, and there are other underrepresented groups in the sciences including (but not limited to) ethnic and racial minorities, and members of the LGBTQ+ community. Following discussions surrounding such imbalances and biases that occur in faculties of science across the world, the class left with a deeper appreciation for the significance of equity and inclusion, in the classroom and beyond.



Jennifer Baker, Ph.D

## "Cancer Research"

As a staff scientist in the BC Cancer Research Centre, Dr.Baker provided the class with a first-hand look at cancer research. She provided students with an overview of cancer, the different forms it can take, and the stages of the disease. Additionally, she described the types of treatment offered for cancer patients, and how they work. Dr.Baker also addressed the process of cancer research, and identified the difficulties in finding a cure for it.



Mona Kwong,  
Pharm.D.

## "Pharmaceutics 1 & 2"

In this two part lecture, Dr.Kwong discussed the role of a pharmacist and some of the responsibilities they have, while also exploring specific challenges in drug design and delivery. We learned a great deal about emulsions, identified some issues encountered in making them, and finally were able to make our own emulsions in the form of ice cream and hand cream.



# LECTURES



## "The Science of Learning"

Dr. Stewart presented the class with an engaging review of scientific evidence regarding how people learn. She used a variety of experimental studies to demonstrate how certain study strategies are more effective than others including, using attention efficiently, varying your study habits and methods, and visualizing the information. She also discussed the process of meta-cognition; "thinking about thinking" and the factors involved in motivating individuals to learn, and concluded by sharing helpful study tips that the entire class can continue to use moving forward.

Jackie Stewart, Ph.D



## "Astronomy"

Professor Harvey Richer presented a lecture on what it means to be an observational astronomer. He talked about some of his early experiences observing with remote telescopes particularly in Chile; his successes with the Hubble Space Telescope, followed by a short discussion of some amazing instruments that Canada is currently involved in developing - namely the James Webb Space Telescope and the Thirty Meter Telescope.

Harvey Richer Ph.D

# THANK YOU

All of the lecturers for Science 101 donate their time and effort to share their knowledge, research, and passion with the class. Each lecture was filled with a bright energy that personified the spirit and goals of Science 101. Thank you to all the lecturers, for supporting the educational journey of the students, as well as the Science 101 program at large. Your kindness and generosity is greatly appreciated!



# TUTORIAL LEADERS



**Drew Seney**



**Chris Oatman**



**Sandra Peña**



**Emma Macfarlane**



**Vivek Joseph**

# THANK YOU

Thank you to all the tutorial leaders, for sharing their knowledge and experience with us. A special thank you to Matt, Eliza, Katie and the entire UBC learning exchange staff, for allowing us to make use of their wonderful space and being so generous and helpful in the process.



# STUDENTS



Without students, there could be no Science 101. You are the heart of this program, and a great source of inspiration for everyone else involved. Every year 20 – 25 students are accepted into the summer program.



We are exceptionally impressed by the curiosity and determination shown by each student who comes to class ready to listen, learn, and engage by asking thoughtful questions throughout the three-month term. Thank you for your hard work, positive attitudes, and open minds.





# SCIENCE 101 STUDENTS OF 2019



Laurie (Cate) Wikelund



Michael Nardachioni



Lawrence Tung



Shinya Ishizaki



# SCIENCE 101 STUDENTS OF 2019



Chris Marquis



Joseph Begin



Ghia Aweida



Eva Waterston



# SCIENCE 101 STUDENTS OF 2019



Kersey Katrak



Amanda Cao



Earl Sunshine



Wai Yu (Grace) Chan



# SCIENCE 101 STUDENTS OF 2019



Amy Lam



Jerry Shallow



Claudette Deseheneaux



# SCIENCE 101 STUDENTS OF 2019



DJ Bruce



John Sahmet





# MEMORIES FROM SCIENCE 101, 2019





# MEMORIES FROM SCIENCE 101, 2019





# MEMORIES & MESSAGES: SCIENCE 101, 2019



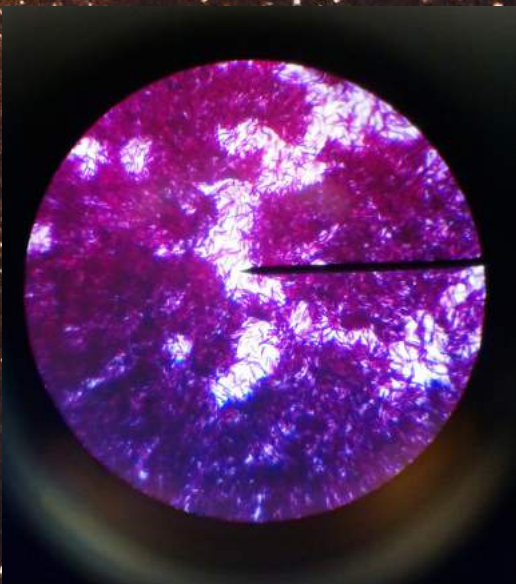
*Everyone can be a genius: If you constantly ask a bird to swim in deep water, he may spend his life trying and thinking that he's stupid. If you force him, he will eventually drown. If you guide him while letting him free, he will learn to fly with his own wings. You will then be able to see him in all his splendor, traveling distances that even the beings considered as the most brilliant cannot accomplish by themselves. Leave the birds free, and they will be able to guide you to unexplored heights, where you would never have believed that so much beauty and greatness could exist.*

*- Jo Begin*





# MEMORIES & MESSAGES: SCIENCE 101, 2019



*Dr Hadi - thank you for updating my urban dictionary. UBC Squatters Camp is much more appropriate! :)*

*Dr. Harris - Thank you for the interactive lecture/role play. My favourite way to learn!*

*-- Shawna*



# MEMORIES FROM SCIENCE 101, 2019





# MEMORIES & MESSAGES: SCIENCE 101, 2019



*Science 101 was a thoroughly empowering experience. It opened my eyes to new avenues of possibilities that I had not previously considered. The generosity of spirit, shown by staff, volunteer teachers, students' volunteers, mentors, classmates, was phenomenal. Thank you for all the gifts of time, nurturing, and the sharing of stories, wisdom, and knowledge. Thank you for shining some light into my darkness. Kindness was here. May you all walk with much love beside you.*

*- Amy Lam*



# MEMORIES & MESSAGES: SCIENCE 101, 2019

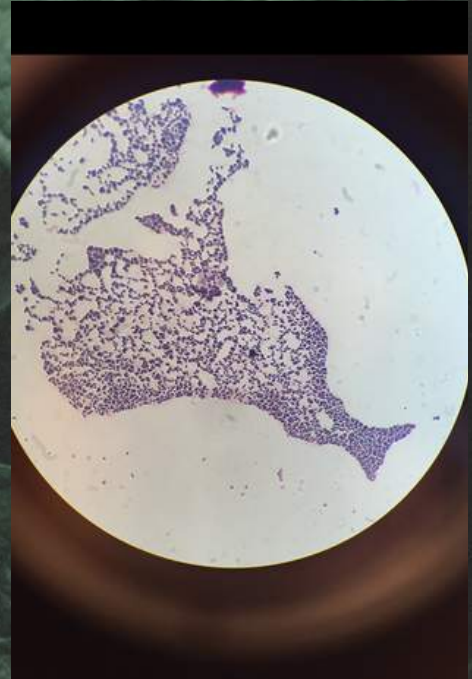


*Thank you all for  
persevering in the  
course.  
Knowledge is a  
wonderful thing,  
and I have enjoyed  
interacting with  
you all!*

*- Eva P.  
Waterston*



# MEMORIES & MESSAGES: SCIENCE 101, 2019



*The Sciences are all quite inter-related with each other, and we should learn as much as we can and observe everything around us. As our learning progresses and is put into use, we can improve our standard of living and the world may be greener and healthier.*

*- John Sahmet*



# MEMORIES & MESSAGES: SCIENCE 101, 2019



*To the class, Thank  
you for always helping  
me.*

*--Shinya Ishizaki*



# MEMORIES & MESSAGES: SCIENCE 101, 2019



*Never Stop Learning! Ask more questions!*

*- Cate Wikelund*

*To the class, don't give up when challenges come up, carry on.*

*- Ghia Aweida*



# MEMORIES FROM SCIENCE 101, 2019





# MEMORIES FROM SCIENCE 101, 2019





# MOST MEMORABLE: EXPERIENCES, TOPICS, & THANK YOU'S

*"Thank you to all the professors, staff, mentors, and volunteers of Science 101, class of 2019. Their knowledge and expertise were shared and taught me a lot about the science of life and an education that will never be forgotten. The diversity of our class was an unforgettable experience. I have forged new friendships and hope that they've instilled a better respect for academia and the community as a whole.*

*- Michael Edward Nardachioni*

*"I especially enjoyed all of the field trips, they were all great opportunities to listen to explanations from the specialists and experts. Particularly the UBC farm."*

*- Shinya Ishizaki*

*"I found cell biology, chemistry, and oceans fun. All the topics were related to our life."*

*- Amanda Cao*

*"The experiments and learning topics that we did not know about before the course was the most memorable experience. I also found the project different and better than term papers"*

*- Ghia Aweida*

*"UBC Science 101 team and partners are so very special persons. They give themselves fully by sharing their knowledge and experiences while keeping in mind that each one of us is different. Their love, passion, and dedication are matched only by their absolute confidence in the talent and potential of the students. Their testimony of what being a teacher really means is an example that should be taught everywhere; from preschools to universities. Thanks for being who you are, as you are... Thanks for your passion and dedication... We love you!"*

*- Joseph Begin*



# FINAL PROJECTS

At the end of the Science 101 program students complete a final project. The purpose of the final project is to provide students with the opportunity to explore a specific scientific topic of their choice in further detail.

The topic may be something previously covered in class or only briefly touched upon. The only requirement is that the topic is scientific and relevant to the course.



Students are given the opportunity to display their projects at the graduation ceremony.

Each year, the class demonstrates their learning through outstanding final projects presented in a variety of formats, including posters.



# FINAL PROJECTS

## **"Comparing Acetaminophen & Codeine" by Ghia Aweida**

Ghia investigated the various differences between acetaminophen and codeine. She explored components of each drug including their toxicity, molecular structure, effects, and availability.

## **"The Science of Persuasion" by Jerry Shallow**

Jerry explored the 'science of persuasion', a term coined by Stanford professor B.J. Fogg. His project focused on the manner in which technology (particularly smartphones and computers) have shaped our social lives on both a conscious and unconscious level.

## **"Physical Activity, & Health" by Amanda Cao**

Amanda explored the multiple health benefits of physical activity and having a proper diet. For instance, of some of the items explored, she notes the benefits of including the 'Jerusalem Artichoke' in one's diet, as well as the important of a daily exercise regime.

## **"Salton Sea" by Chris Marquis**

Chris completed his final project on the Salton Sea in southern California. Having previously lived in the area, his work involved researching and proposing a solution to the numerous issues facing the sea.

## **"Concussions" by Cate Wikelund**

Cate's project examined the causes, symptoms, and effects, of concussions. She also outlined the populations most at risk of concussions which included youth, the elderly, and females who engage in sports. In addition, Cate explained the complex recovery process of concussions.

## **"Radioactivity & Chemistry" by John Samhet**

John has had 25 years of previous experience with this topic through his work, prior to joining the Science 101 class. His final project explored the history of radioactivity, and his investigation included the half-life of certain elements, the units of radioactivity, as well as the various applications of radiation.



# FINAL PROJECTS

## **"What is the CFI" by Joseph Begin**

Jo explained and examined the role of the "Carbon Footprint Index" (CFI), ultimately arguing that the information regarding CO2 emissions which the CFI would make available to consumers would have immensely positive effects for the global climate.

## **"Composting Toilet" by Shinya Ishizaki**

Shinya explored the world of composting toilets. His project explained what exactly a 'composting toilet' was, the possible benefits of using one, how to make a composting toilet, and the creation of human manure (or humanure).

## **"Vancouver's Water" by Lawrence Tung**

Lawrence examined Vancouver's drinking water. His project included an investigation of metro Vancouver's water treatment process, as well as the differences between spring and mineral water.

## **"The Sun, & Sundials" by Wai Yu (Grace) Chan**

Grace completed her project on various aspects of the sun, including its size relative to the moon and both smaller and larger stars. Grace also provided a thoughtful overview of how a Sundial operates.

## **"The effects of Global Warming on Human Health" by Eva P. Waterston**

Eva conducted her final project on the effect of global warming on the health of human beings. Her research included investigating the negative effects of rapidly rising temperatures on humans both mentally and physically, as well as describing how changes in the weather effect entire communities.

## **"Climate Change & Biodiversity" by Michael Nardachioni**

Michael's project examined how the changing climate and global warming affects the region and biodiversity of northern Canada. Specifically, the Arctic Wolf, and Polar Bears.



# FINAL PROJECTS

## **"Climate Change" by Kersey Katrak**

Kersey outlined the main causes of global warming, and provided an overview of solutions which are at present the most promising according to scientists. He ultimately suggests everyone must do their part for future generations.

## **"The Medicine Wheel" by Earl Sunshine**

Earl's project involved researching and applying the teachings of "the Aboriginal Medicine Wheel". His research and presentation made use of his own experiences, culture, and history.

**DJ Bruce**  
TBD

## **"A Creative Project" by Amy Lam**

For her final project Amy decided to do a science themed craft, in addition to a reading.

**Claudette Deseheneaux**  
TBD



# MENTORS

Science 101 is extremely fortunate to have the assistance of Alumni mentors, who are Science 101 graduates of the previous year.



Claude Ranville

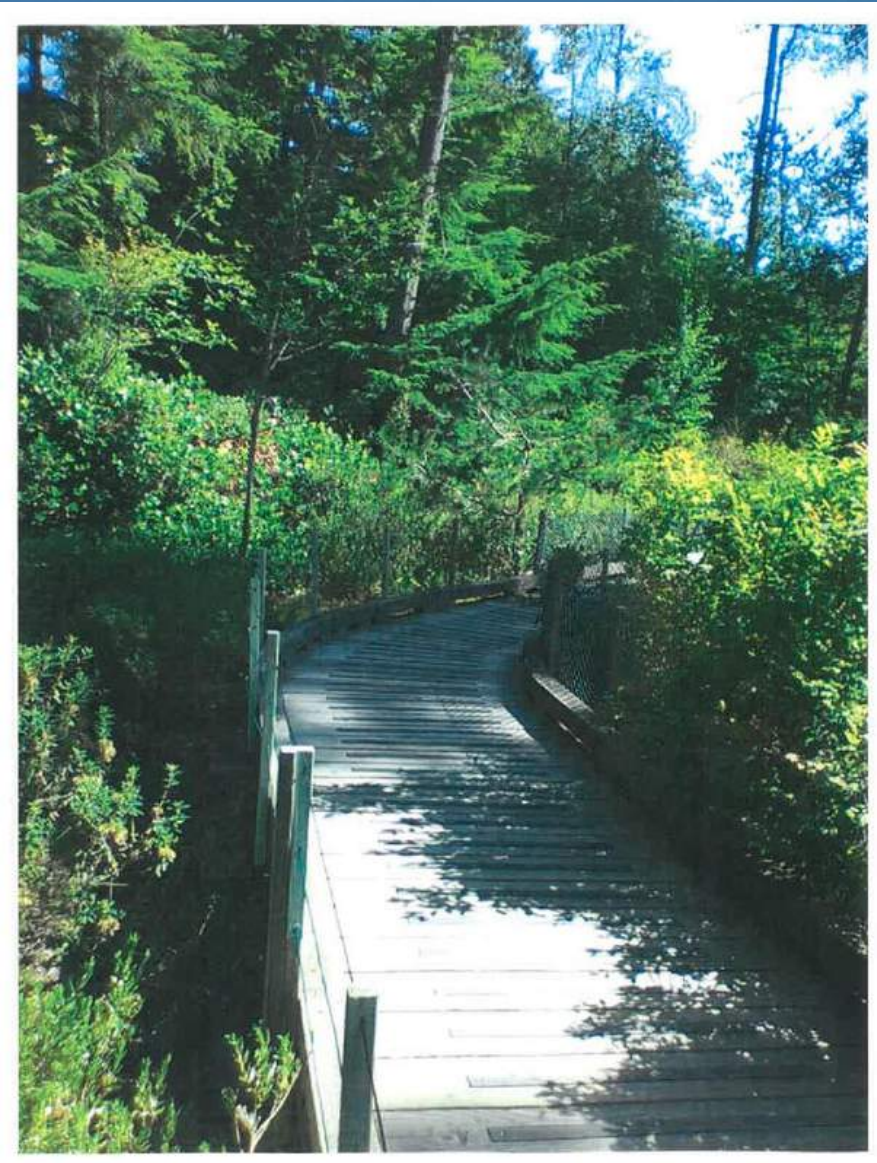
This past year, the mentors provided students with an incredible amount of support, and we thank them for their contribution to the program.



Shawna DiGuistini



# A MESSAGE FROM: CLAUDE



*It has been a great joy working with you all as one of your mentors in "science 101 -2019". Watching you all grow and change has had a huge impact on my own personal growth. AND; remember to always keep challenging yourself to continue learning; you never know what lies around the next curve in life.*

*Best wishes.  
- Claude*



# A MESSAGE FROM: SHAWNA

*Congratulations Science 101 Graduates!*

*It has been a true pleasure mentoring Science 101 this summer. Each of you have contributed to making this summer a memorable one for me through your commitment to this program, with the diversity of your skills & knowledge and your kindness & humour. You've helped me learn and want to learn more by asking such great questions during lectures and on field trips. The collective knowledge and passion for learning within this group is both impressive and inspiring. Thank you to all of the class of 2019 for making this summer so amazing!*

*To the amazing volunteers who honestly these lectures would not have been the same without. THANK YOU!!! I value and will cherish the conversations we've had so much. You have all offered unique perspectives that have encouraged me to look at things in a new way and I can't thank you enough for that. I can't wait to see how you all change the world.*

*A huge thank you to all of the faculty dedicated to delivering Science 101's amazing lectures and field trips each summer. Each and everyone of you have taught me something new and inspired me to want to learn more about the world around me.*

*Thank you for that! I have learned so much about Science, about teaching and about myself through this program. You have all sparked a curiosity in me that I'm looking forward to exploring further.*

*Thank you Nancy Cook, Sara Harris, Erin Evoy, Andrew Sharon and Regan Oey for providing the unique and rewarding opportunity to mentor Science 101 this summer. It has been an honour to work along side you. Your commitment, character and professionalism are admirable and present in all that you do. Thank you for providing a safe inclusive environment for all students to learn and grow through the Science 101 program. This is no small task and you manage to do it with ease.*

*Congratulations everyone on another successful year of Science 101! It has been my profound honour to learn and work along side each and every one of you this summer*

*- Shawna.*



# VOLUNTEERS



Amy Antosen



Chantal Percival



Leah Kuzmuk



Matthew Tester



# VOLUNTEERS



Kelly Matthews



Molly Stanley

# THANK YOU

Science 101 is also thankful to have the support of an exceptional team of volunteers, who are UBC undergraduate, graduate, and post graduate students. These amazing individuals make the program run smoothly from day one, and we are truly grateful for all the help they have provided us with this year.



# MESSAGES FROM: VOLUNTEERS

*Congratulations to all the Science 101 students for such an engaging and inspiring summer of learning! It has been a joy to be your peer in the classroom and to get to know you all over the course of the program. Thank you for a memorable summer of science, I wish you all the best in all your futures!*

*- Leah*



*As a long-time lover of science, I have felt very privileged to participate as a volunteer with Science 101 and have the opportunity to pass that enthusiasm on to this year's students. Thank you to all the students who have made this experience so remarkable, and to you I quote Carl Sagan: "somewhere, something incredible is waiting to be known." Remember to stop and smell the roses and to always stay curious!*

*- Matt*

*First of all, a huge thank you to all of the wonderful and amazing students, mentors, coordinators, lecturers and volunteers that made Science 101 a meaningful and inspiring experience! Your hard work and dedication made this summer one full of conversations and connections I will never forget.*

*Students, I loved hearing your stories, thoughts and questions and watching you all become comfortable talking about and celebrating science. You were all so curious and eager to learn, and your unique knowledge and personalities made Science 101 feel like a community that was inclusive, connected and supportive of each other. I hope that you each made new connections and friendships that will last well beyond graduation. I am very proud of what each and every one of you has accomplished! ConGRADulations!*

*-Amy Antonsen*



# MESSAGES FROM: VOLUNTEERS

*Congratulations to the graduating students of Science 101 2019! It has been such a pleasure getting to know you all this summer. You are an amazing group of people and it has been an honour to learn alongside you. Excited to hear about your future endeavours, so please keep in touch!*

*- Kelly*



*Thank you all for being fantastic students! It was a joy to get to lecture for the class, you made it one of my favourite lectures to date! Your thoughtful questions and unique insights continue to impress me. It has been an honour to meet all of you and attend class with you. Congratulations on completing Science 101 and I hope you all continue to appreciate the awesome science all around you!*

*- Molly*



# OPEN HOUSE POSTER 2019

## H.R. MACMILLAN SPACE CENTRE OPEN HOUSE

Science 101 and the H.R. MacMillan Space Centre  
invite Downtown Eastside Residents to our Open House:

**Wednesday, July 17th from 5:30pm – 8:00pm**

The Free Event includes:

1. Planetarium Show "Capcom Go! The Apollo Story"
2. Explore the Space Centre Gallery and Cosmic Courtyard
3. Food & Drinks

Free Bus service to and from the Space Centre from 2  
locations will also be provided:

1. Cordova & Gore @ 4:45pm, Return @ 8:15pm
2. Commercial & Grant @ 4:45pm, Return @ 8:15pm



Generously Supported by:



THE UNIVERSITY OF BRITISH COLUMBIA  
Faculty of Science



# GRADUATION INVITATION 2019

**YOU'RE  
INVITED**

**SCIENCE  
101**

**GRADUATION  
2019**



## **LOCATION**

Michael Smith  
Laboratories  
Room 101

2185 East Mall,  
Vancouver, BC  
V6T 1Z4



**AUG  
8TH  
5-8PM**

Refreshments: 5:00pm  
Ceremony: 5:30pm  
Buffet Dinner: 6:30-8:00pm  
Project display: 5:00-5:30 & 6:30-7:30pm



PLEASE RSVP BY AUGUST 6TH TO [SCIENCE101@SCIENCE.UBC.CA](mailto:SCIENCE101@SCIENCE.UBC.CA)



# GRADUATION PROGRAM



**5:00 p.m. Project Display and refreshments**

**5:30 p.m. Graduation ceremony commences:**  
*Opening remarks: Andrew Sharon*

*Address from Associate Dean of Science: Dr. Sara Harris*

*Certificate presentation to the graduating class:*

Ghia Aweida, Joseph Begin, DJ Bruce, Amanda Cao, Grace Chan,  
Claudette Descheneaux, Shinya Ishizaki, Kersey Katrak, Amy Lam, Chris  
Marquis, Michael Nardachioni, John Sahmet, Jerry Shallow, Earl Sunshine,  
Lawrence Tung, Eva Waterston, Cate Wikelund

*Guest speaker: Shona Ellis*

*Mentor and volunteer thank you:*

Claude Ranville and Shawna DiGuistini

Amy Antonsen, Leah Kuzmuk, Kelly Matthews, Chantal Percival,  
Molly Stanley, Matt Tester

*Open mic for graduating students*

*Guest speaker: Dr. Dave Oliver*

*Closing remarks: Regan Oey*

**6:30 p.m. Project display and dinner**

*Master of ceremonies: Erin Evoy*



# ACKNOWLEDGEMENTS

We are thankful to those that helped make the Science 101 Program possible.

## **Dean's Office, Faculty of Science, University of British Columbia**

Dr. Meigan Aronson, Dean of Science

Dr. Sara Harris, Associate Dean, Academic

Nancy Cook, Academic Project Manager

## **Program coordinators**

Erin Evoy, Andrew Sharon, and Regan Oey

## **Lecturers**

Hadi Dowlatabadi, Dave Ng, Julie Robillard, Sara Harris, Abel Rosado Rey, Jim Little, Carol Friedrich-Fong, Leah Edelstein-Keshet, Jose Rodriguez Nunez, Angie O'Neill, Sarah Parker, Mayu Ishida, Leah May Ver, Brett Gilley, Elisa Baniassad, Dave Oliver, Julian Davies, James Feng, Molly Stanley, Shona Ellis, Zoë Hackett, Jennifer Baker, Mona Kwong, Jackie Stewart, Harvey Richer

## **Tutorial presenters**

Drew Senay, Vivek Joseph, Chris Oatman, Sandra Peña Diaz, and Emma Macfarlane

## **Volunteers**

Amy Antonsen, Leah Kuzmuk, Chantal Percival, Kelly Matthews, Matthew Tester, and Molly Stanley

## **Science 101 Alumni Mentors**

Claude Ranville & Shawna DiGuistini

## **Field trips**

The H.R. MacMillan Space Centre, The Vancouver Trolley Company, Beaty Biodiversity Museum, TRIUMF, Grouse Mountain, UBC Farm, Vancouver Aquarium, Camosun Bog

## **Tutorials & workshop**

Matt Hume, Eliza Javier, & The UBC Learning Exchange

## **Humanities & Writing programs**

Margot Leigh Butler & Paul Woodhouse



# **SIGNATURES**



# UBC Science

[www.science.ubc.ca/101](http://www.science.ubc.ca/101)