

A photograph of a sunset over a beach, framed by the dark silhouette of a tree on the left and right. The sun is low on the horizon, creating a bright orange glow across the sky and reflecting on the water. The beach is visible in the foreground, with a few small figures of people in the distance.

Science 101

Class of 2014

Yearbook

An aerial photograph of a coastline. The top half shows a dense forest of green trees. Below the forest is a rocky, light-colored shoreline. The bottom half of the image shows clear, turquoise water with some rocks visible beneath the surface.

Science 101

is a 4-month summer program offered to individuals who have had difficulty accessing post-secondary education.

There are no fees associated with the course and no prerequisite knowledge is required. No university credit is given upon completion. The program is sponsored by the University of British Columbia Faculty of Science Dean's Office and private donations.

The objective of the program is to give students an introduction to topics in science, to help them better understand the world around them, to broaden their perspectives, and to have fun with science.

Students enrolled receive lectures from University of British Columbia professors and graduate students about fascinating topics in Science. Students are also given the opportunity to attend tutorial sessions as well as field trips in the Vancouver area. One of which, an evening at the H. R. MacMillan Space Centre, is an event open to the public and 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.

Volunteers are an important part of the program and are available to provide assistance to students inside and outside of class.

A message from Dr. Simon Peacock, Dean of Science

Dear graduates:

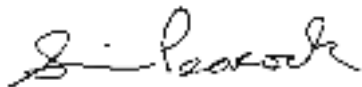
On behalf of the Faculty of Science, congratulations on your graduation from Science 101!

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 that reads "Simon Peacock". The signature is written in a cursive, flowing style.

Simon Peacock
Dean, Faculty of Science



A message from Elena Zaikova, Program Coordinator

Dear Graduates,

Congratulations on successfully completing the Science 101 program! I hope you are as proud of your accomplishment as I am.

I am honoured and grateful to have been part of your summer and shared in this special journey. I have learned along with you, as well as from you both inside and outside the classroom. Your enthusiasm, curiosity and willingness to share are inspiring and have made me think, laugh, and have enriched my life. I truly hope that this program has given you the confidence and encouragement to pursue further education or other endeavors you may have considered.

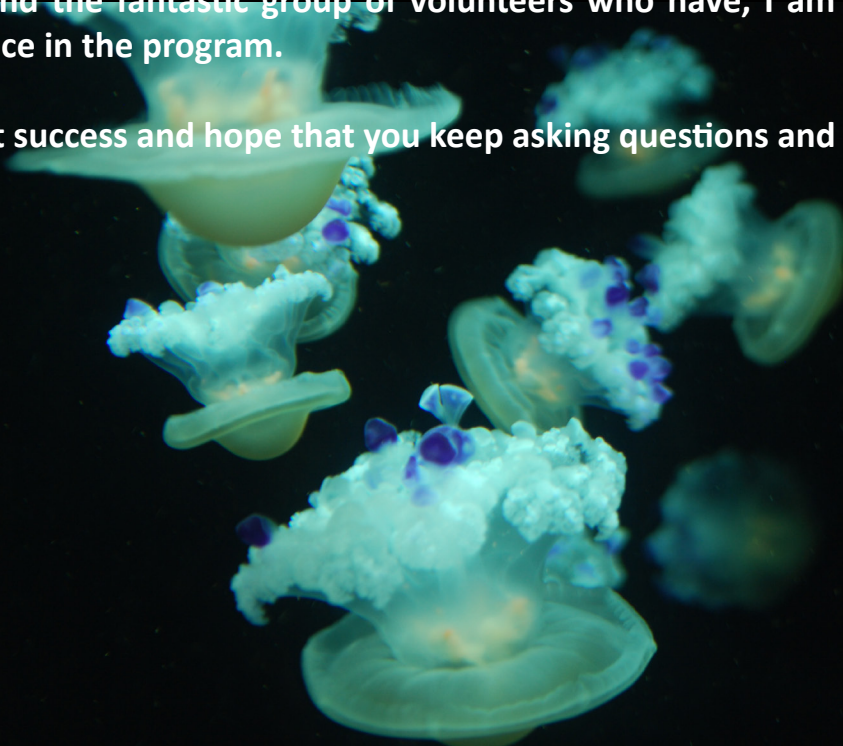
Science 101 is such a fantastic and important program and is the most rewarding experience in my development as a young scientist. Not only is it amazing to see you, the students, be so inquisitive and excited about Science, it is moving to see dedicated lecturers volunteer their time and expertise to help make this program a success! The obvious passion that the lecturers have for their specific topics, as well as Science and education, is infectious and makes for some stimulating discussions in class.

Science 101 is possible only due to the continued support from Dr. Ian Cavers and Nancy Cook. Thank you! A big thank you to Martha and Chad for being so wonderful - I couldn't imagine a better team to work with! I would also like to thank this year's awesome alumni mentors, Violet and Isaac and the fantastic group of volunteers who have, I am sure, enhanced the students' experience in the program.

I wish you the best success and hope that you keep asking questions and stay curious.

Sincerely,

Elena



A message from Chad Atkins, Program Coordinator

Dear Graduates,

It's been three months since your journey with Science 101 began and today you've officially made it to our finish line – congratulations!

I take enormous pride in the quality of this program and have always been extremely grateful to be involved. These feelings have nothing to do with me and everything to do with you, the students. Science can be an intimidating topic to learn, yet I was provided a front-row seat to watch the class of 2014 bravely accept that challenge. Your enthusiasm and curiosity was contagious, and your growth as budding scientists has been remarkable.

For the Science 101 program to successfully run from May to August, countless hours of work are spread throughout the Faculty of Science and beyond. The most obvious contributors are the scientific experts who lectured on a variety of topics, the outstanding cast of educators who ran tutorial sessions, and our UBC-student volunteers who became integrated with the class; I extend my most sincere thanks to all of you. The real pillars of the program, however, are Dr. Ian Cavers and Nancy Cook who continually do everything in their power to keep the ship sailing upright – your support is constantly appreciated.

When the dust settles from this graduation ceremony and your routine as a Science 101 student slowly disappears, I encourage the class of 2014 to reflect on the last three months and to summarize your experience. I suspect the following themes will recur with many of you: “science is fun!”, “I actually understood some of this”, and “I have a craving to learn more.” If you go through this process and share any of these sentiments, I'm going to let you in on a secret – today's graduation isn't actually the finish line. Your Science 101 journey may now be officially over, but your voyage as critical-thinking, lifelong learners should never stop. I challenge all of you to use this program as a launch pad to push your boundaries and to exceed your own expectations.

It's been a privilege sharing this summer with you,

Sincerely,

Chad

A message from Martha Liu, Program Coordinator

Congratulations graduates!

You guys have made this year spectacular! Your boundless energy and enthusiasm, your willingness to inquire and explore, and your unconditional positive regard towards everyone you met has made this a fantastically fun year (“Hip Hip Hooray!!!”).

We’ve all shared in some amazing lectures covering a wide variety of scientific facts, ideas, and opinions explained to us by expert lecturers who are passionate about each subject. I am struggling to pick a favorite moment because every time I start to write I think of yet another moment that I loved, so I think I will defer to what our mentor Isaac said on my first few days as a coordinator for this program. During an information session for potential students he was asked “What’s your favorite part of Science 101?” Isaac replied “Well. I’ll tell you that my least favorite part was when it ended. It’s like telling you my favorite fruit; they’re all really great. It’s impossible. Or telling you my favorite ice cream, everything is so good.” After having the honor of being able to share this experience with all of you for the last three months, I wholeheartedly agree. I hope that everyone was able to take away some awe-inspiring facts, ideas, and experiences that can be the topic of conversation for years to come.

It is with honor that we thank the amazing people who made all of these experiences possible. Dr. Cavers and Nancy, the solid foundations of Science 101, whose generosity and unwavering support have made Science 101 a success for more than a decade. Thank you to our mentors Isaac and Violet, and to our volunteers Adam, Al, Alex, Deb, Lindsay, Monica and Sandra for sharing their time, stories, and smiles with us. Most of all thank you to the amazing lecturers who volunteered their incredible scientific insight. To all these people, another cheer: “Hip Hip Hooray!!!”

Best of luck in your next adventures!

A final cheer to carry into the future: “Hip Hip Hooray!”

Martha



Program schedule

2014	Monday	Tuesday	Wednesday	Thursday	Friday
		Dinner 5 to 5:50pm, SUB atrium Lecture 6 to 8:30pm UBC campus, IBLC 182	Tutorial 3 to 4:45pm UBC Learning Exchange	Dinner 5 to 5:50pm, SUB atrium Lecture 6 to 8:30pm UBC campus, IBLC 182	
May	5 Orientation Day	6 Dr. David Ng Scientific Literacy	7 No tutorial	8 Dr. Chris Harley The Ecology of Rocky Shores	9
	12	13 Dr. Julie Robillard Neuroscience	14 Nicholas Thornton Tips on asking questions and talking to professors	15 Dr. Jim Little and Dr. Junaed Sattar Robotics	16
	19	20 Shona Ellis Botany	21 Nicholas Thornton Note-taking skills	22 Eugene Barsky Library Session In Koerner Library Computer lab Room 217	23 Field trip to Camosun bog with Shona Ellis (10 am to ~3pm)
	26	27 Field trip to Beaty Biodiversity Museum (~12:30 to 3pm) Phoebe Lu and Grace Leung Genetics	28 Computer Skills Workshop	29 Phoebe Lu and Grace Leung Evolution	30
June	2	3 Dr. Chris Waltham Acoustics of String Instruments	4 Computer Skills Workshop	5 Mona Kwong Pharmaceutics Lab I In Biological Sciences	6 Field trip to Anechoic chamber with Dr. Chris Waltham (4 to 5pm)
	9	10 Dr. Jaymie Matthews Astronomy Part I	11 Natalie Tole and Kathryn McTavish Goal Setting	12 Dr. Peter Raven Biodiversity of Fish	13 Field trip to the Vancouver Aquarium with Dr. Peter Raven (10
	16	17 Dr. Jaymie Matthews Astronomy Part II	18 Kimberly Rawes How to write a Bursary Application	19 Field trip to TRIUMF (2pm to 5pm) Dr. Mona Kwong Pharmaceutics Lab I In Biological Sciences	20
	23	24 Dr. Jane Buxton Epidemiology	25 Erin Green Time Management	26 Dr. Phil Hammer Earthquakes	27 Field trip to the Museum of Anthropology (1:30–4pm)

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July		1 Mid-term break	2 Mid-term break	3 Mid-term break	4 Mid-term break
	7	8 Dr. Julian Davies Microbiology Part I	9 Computer Skills Microsoft Word	10 Discussion The Process of Science Final project proposal due!	11 Field trip to Capilano Suspension Bridge (8:45am to ~12pm)
	14	15 Dr. Julian Davies Microbiology Part II	16 Open House at the HR MacMillan Space Centre	17 Dr. Sally Osborne The Lungs In Copp Building Lab	18
	21	22 Dr. George Homsey Newton's laws of motion and fluid mechanics	23 Work on final projects	24 Ben Paylor Stem Cells Final project outline due!	25 Field trip to Grouse Mountain (8:45am to ~1pm)
	28	29 Dr. Kerry Knox Atmospheric Chemistry	30 Work on final projects	31 Dr. Kerry Knox Science of Learning	
August	4	5 Brett Gilley Natural Disasters	6 Work on final projects	7 Graduation ceremony and final project display!	8

Program lecturers



Ben Paylor



Brett Gilley



Bud Homsy



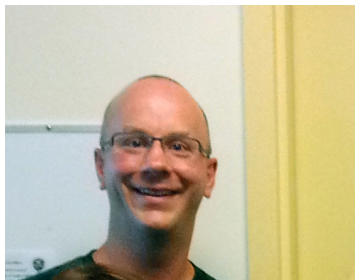
Chris Harley



Chris Waltham



David Ng



David Oliver



Eugene Barsky



Jane Buxton



Jaymie Matthews



Jim Little



Julian Davies



Julie Robillard



Junaed Sattar



Kerry Knox



Mona Kwong



Peter Raven



Phil Hammer



Phoebe Lu & Grace Leung



Sally Osborne



Shona Ellis

Lecture descriptions

Ben Paylor, “Stem Cells 101 The Science and Ethics of Regenerative Medicine”

What are stem cells? How are they different from the other cells in living organisms? The different classes of stem cells, how stem cells are being used in current research, the controversies, and the possible uses of stem cells were discussed in this lecture.

Dr. Bret Gilley, “Landslides - Dude where's your house!”

Students learned that there are many different forms of landslides, which are categorized by the type of material, type of motion, and rate of movement. Historical examples, pictures, and videos were used to demonstrate the power of landslides and importance of urban planning.

Dr. Chris Harley, “The Ecology of Rocky Shores, and Why Sea Stars are Happy When Skiers are Sad”

The rocky shores are a living laboratory for studying climate change. This class covered the types of intertidal shores and the importance of tides, water salinity, species interactions, water temperature, and ocean acidification on the ecology of these shores. Specific experiments were shown to demonstrate the effect of predator-prey relationships, and how the rocky shores have changed with the warming climate.

Dr. Chris Waltham, “Acoustics of String Instruments”

The physics of string instruments was discussed including examples of Western and Eastern instruments. Each of our vocal cords also produce sound in distinct frequencies, and students were given the opportunity to measure their vocal frequency.

Dr. David Ng, “Scientific Literacy”

Introduction to scientific thinking and the scientific method. This lecture discussed the differences between hypotheses, theories, and facts, and how scientists use critical thinking to design experiments based on current knowledge.

Elena Zaikova, Martha Liu, and Chad Atkins, “The Process of Science”

The types of science, educational requirements to become a bachelors, masters, or PhD scientist, and the scientific process were outlined. Detailed descriptions were provided to show the rigorous academic review required to publish a peer reviewed scientific article. Instances of pseudoscience were shown to illustrate the biases present in online articles.

Eugene Barsky, “Library Session”

How to locate books on your topics in the catalogue, by keyword, author or topic. How to locate and read electronic books in the library catalogue. How to evaluate print resources and electronic resources you find on the Web. How to search electronic databases in UBC. All this and more are available at the Science 101 guide online.

Dr. George Homsy, “Newton's Laws of Motion and Fluid Mechanics”

Newton's laws were introduced individually, and were then used as the foundation for describing the patterns of movement of solids, liquids, and gasses. This help refine the principles of fluid mechanics, as the theories of drag and lift were explained for various methods of transportation. An interactive assignment allowed the students to study the relationship between surface tension and gravity on the height of water in capillary tubes of different sizes.

Dr. Jane Buxton, “Critical Thinking in Epidemiology”

Being sceptical is part of being a scientist and it is important to think critically. Misconceptions, wishful thinking, and our emotions may sometimes make our opinions biased. Examples of claims made by advertisers, book authors, drug companies etc. were examined in more detail to determine the biases they try to project.

Dr. Jaymie Matthews, “Astronomy: Part I”

The first astronomy lecture discussed the recipe of the universe, and described the different kinds of stellar phenomena that we can observe. Students learned about Kepler's three laws of planetary motion and how these laws are still used today to find new planets. We have found thousands of new planets using many different methods, and the size, composition, and distance of orbit of these planets were compared to that of Earth.

Dr. Jaymie Matthews, “Astronomy: Part II”

The different kinds of satellites used to find new planets were described including MOST, CoRoT, Kepler and BRIT. The methods and sensitivity of these satellites in searching for new planets were illustrated. The new planets can be very different in comparison to Earth, and many examples including planets orbiting extremely close to their parent star, water worlds, and planets with erratic orbits were discussed.

Dr. Jim Little and Dr. Junaed Sattar, “Robots and Robotics”

The science of Robotics is very much on the rise, as testified by the increasing presence of smart machines and devices across many application domains. This lecture introduced 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.

Dr. Julian Davies and Dr. David Oliver, “Microbiology Part I”

The discovery of antibiotics in the 1950s led to the prediction that bacterial infections would soon be under control, if not eliminated. However, this has not happened and more and more antibiotics are becoming ineffective due to the development of antibiotic resistant strains. There is a great need for newer and more potent antibiotics but what has happened to research? What alternatives do we have to antibiotics?

Dr. Julian Davies and Dr. David Oliver, “Microbiology Part II”

Microbes are everywhere. This lecture covered the different kinds of microbes and how they can be beneficial or pathogenic, and discussed Koch's postulates for how to establish that a specific microbe or gene causes a specific disease. Students also plated bacteria from multiple sources and viewed the bacteria under the microscope.

Dr. Julie Robillard, “Memories are made of This: The Brain and the Science of Remembering”

The lecture discussed the basics of brain anatomy, neurotransmission and brain chemistry, and various brain diseases. Students learned common myths about the brain, the basics of brain anatomy and function, and the different methods used by researchers to study the brain. Memory, factors that affect memory, and false memories were also discussed.

Dr. Kerry Knox, “Atmospheric Chemistry”

The structure and chemistry of Earth’s atmosphere was described. The changes in the composition of the atmosphere (such as carbon dioxide, water vapor, dust particles, and cloud cover) was related to various aspects of global warming. Students thought about the topics individually and discussed specific questions in small groups to demonstrate the power of peer directed learning.

Dr. Kerry Knox, “The Science of Learning”

Learning is a complex process but can be aided by understanding the way people think, process, and store new information. The different methods of studying and remembering were discussed including study habits, pattern association, knowledge compartmentalization, and peer directed learning. Students worked individually, in small groups, and as a class to share opinions and answer questions.

Dr. Mona Kwong, “Introduction to Pharmaceuticals Part I”

This lecture discussed the role of a pharmacist and some challenges in drug design and delivery. Students learned about emulsions, identified some problems encountered in making emulsions, and made an emulsion in the form of ice cream!

Dr. Mona Kwong, “Introduction to Pharmaceuticals Part II”

Students gained an appreciation of areas where pharmaceuticals can be applied. In the lab section, the students made handcream as a continuation of their exploration into making emulsions.

Dr. Peter Raven, “The Biodiversity of Fish”

Water covers 70.8% of the Earth’s surface including trenches nearly 10 km deep and submerged mountain chains. Fish have adapted to every aspect of these environments in fantastic and elaborate ways. From fish that can live on land to others that can create electricity, and everything in between, this talk highlighted the fascinating variety of fish.

Dr. Phil Hammer, “Megaquake in Southwest BC”

What is an earthquake? Why do they happen? Will we really have a big earthquake here in Vancouver? Could there be a lot of damage here? In this lecture, we discussed the plate tectonic setting of British Columbia and looked at the evidence for major earthquakes in this area. We also covered the different kinds of earthquakes with in-class activities, and why some buildings may respond poorly to earthquakes.

Phoebe Lu and Grace Leung, “Introduction to Genetics”

The classic experiments that started the field of genetics (e.g Mendel and his experiments with pea plants) were discussed to demonstrate how genes that control different traits are passed down from parents to their offspring.

Phoebe Lu and Grace Leung, “Evolution and Epigenetics”

Evolution and natural selection depends on genetic variation, where individuals of a group are slightly different from each other, and selective pressure, where one trait is preferential to another trait. We discussed how the genes in DNA can be turned on and off without changing the genetic code. Students were also able to isolate and purify their own DNA.

Dr. Sally Osborne, “The Lungs and the Chest Wall. It Takes Two To Tango.”

The inner structure of the lungs, the muscles and motions required in order to take a breath, and the different types of breathing were discussed. This interactive lecture also consisted of a lab component where students measured their own lung capacities.

Dr. Shona Ellis, “Plant Sex”

Students explored a variety of plants and learned how they reproduce. From mosses to lilies the mystery of plant sex were revealed. Many species of mosses (bryophytes) live in our forests, but are often overlooked. They are a fascinating and beautiful group of plants. In this unit we studied bryophytes in their habitat, examined them microscopically, and learned how to identify some of the most common species.

Academics

At the end of the Science 101 program, students are required to complete a final project. The purpose of the final project is to give students the opportunity to further explore a scientific topic of their choice and to share with others what they have learned. 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.

The projects involve a wide range of topics and are often presented in a variety of formats, including posters.



Final Projects

“How Far and How Long? Is Interstellar Travel Possible?” by John Barbour

John translated the solar system from the massive scale of space to that of planet earth. He also addressed current and theoretical methods of propulsion.

“The Physiological Effects of Honey” by Poppy Barn

Poppy compared honey to commercially-available artificial sweeteners, and also investigated how honey affects human physiology.

“Engineering Physics” by Pak Chan

For his project, Pak focused on specific aspects of this developing multi-disciplinary field.

“The Effects of a Sedentary Lifestyle” by Don Clancy

Don scoured the scientific literature to understand the outcomes of sedentary behaviour and how they can be mitigated. The data led him to a series of negative health issues.

“What is Depression?” by Kelly Craik

Kelly was motivated to capture a better understanding of the known causes of depression and evaluate current treatment options.

“Proton Therapy at TRIUMF to Cure Choroidal Melanoma” by Elsie Dupuis

Elsie was interested in the medical research done at the TRIUMF facility and decided to further investigate the technique of proton therapy.

“Albert Einstein and $E = mc^2$ ” by Roody Etienne

For his project, Roody was interested in learning about “the coolest equation in science” by determining how much energy is in a grain of rice.

“The Solar System” by Jodi Fortune

Jodi chose to address fundamental questions about our solar system.

“Ecology and Economics” by Charmaine R. Giles

Charmaine’s project explained the dependency of economics with our natural resources.

“The Effects of Medicinal Marijuana” by Jaeme Grosvenor

For his project, Jaeme was keen on finding and evaluating peer-reviewed data on the health effects of medicinal marijuana.

“The Changing Brain” by Leith Harris

Inspired by the neuroscience lecture, Leith started her project early and decided to combine a traditional science poster with an element of art.

“Pluto: To Be or Not to Be ... a Planet” by Lorelee Judge

Lorelee was curious to know the accepted definition of a planet, and why former-planet Pluto suddenly qualified for a demotion.

“Food and Energy –What’s the connection?” by Stephen King

Steve chose to investigate the energy conundrum by exploring the connection between energy options and food prices.

“The Causes of Climate Change” by Hon Ming Poon

For his final project, Hon Ming decided to explore the complex issue of climate change.

“The Science of Learning” by Ting (Cindy) Qiu

Ting explored the science of how the brain learns new things. To ensure that learning is effective, her message is to keep practicing!

“Pollination” by Victor Ruballos

Victor’s final project was on pollination. He gained an appreciation of the topic from the program and decided to investigate some of the associated issues with food security.

“Robotics – Building Your Own Robot” by Benjamin Smith

Ben provided a brief history of robotics, and used current hardware manufacturers to design a schematic for a personalized robot.

Open House at the Space Centre

Open House @ H.R. MacMillan Space Centre

The H. R. MacMillan Space Centre invites Downtown Eastside residents to a fascinating Open House!

Free of charge

- See a planetarium show
- Touch a Moon rock
- Learn about space
- Visit the Cosmic Courtyard exhibit

Free transportation to & from the Space Centre :

- Pick up is at 5pm at 2 locations:
- Cordova and Gore street
 - Commercial and Grant (Grant street at East loading bay)

Free food and drink

H. R. MacMillan Space Centre
1100 Chestnut street, Vancouver

www.spacecentre.ca

Wednesday July 16, 2014
5:30 to 8:15pm

Event sponsored by the H. R. MacMillan Space Centre, the Vancouver Trolley Company, and the University of British Columbia

Students

John Barbour

“TRIUMF was the most exciting trip of the summer”, according to John. He was astonished how many people he’s talked to since who were unaware that UBC had a particle accelerator. “Thanks so much to TRIUMF and especially to our guide for showing us around.”

The most important thing John learned in Science 101 was “the scientific method itself; getting a chance to witness how scientists approach their disciplines and how they think.” Upon completing the program, he feels better equipped to be skeptical about the things he hears and to seek credible information for himself.

He wants to thank the student volunteers who gave their time and energy to the class. He enjoyed learning about their studies as much as from the professors. “Best of luck with the world-changing thing.”

John’s message for the rest of the class is to “Keep on sciencing.”



John at the Camosun Bog.



It’s always Science time! John learning about proteins from Sandra.

Poppy Barn

Poppy's favorite topics were astronomy, Newtonian fluids, and genetics. She also really enjoyed the lectures on the scientific method. Science 101 has helped her better understand what science is, how it works, and how scientists work, and this basic grounding in science will help focus her future research interests.

She would gladly recommend the Science 101 program to others because it is a fantastic learning experience – so much so, that she wishes there were more classes! Poppy “enjoyed everyone’s contributions. Success in all your future goals.”



Poppy looking at microbial colonies under the microscope.

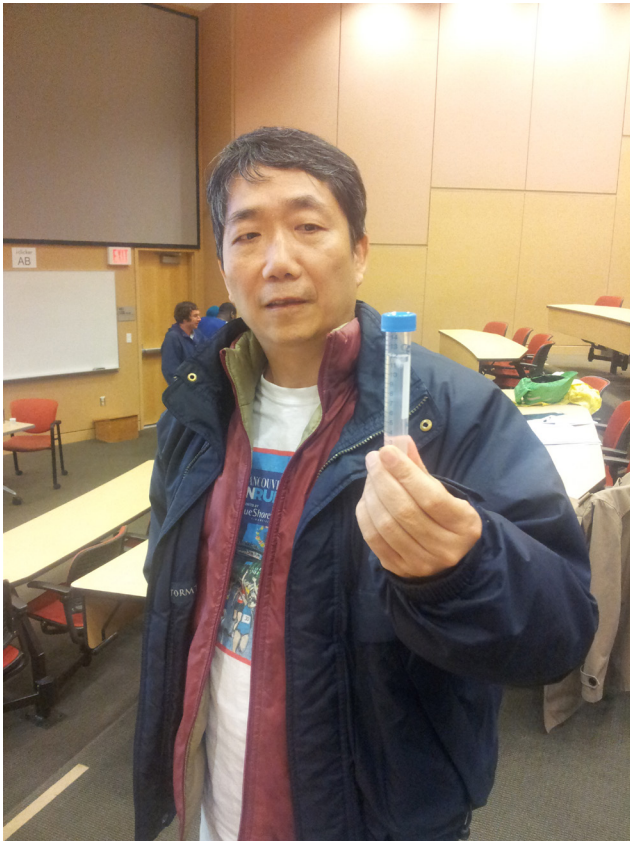


Poppy and classmates at the Earthquake lecture.

Pak Chan

His most memorable experience in Science 101 was the field trip to the TRIUMF national laboratory. The topic that he found most interesting was earthquakes, as lectured by Phil Hammer.

He would happily recommend the Science 101 program to others because it helped broaden his horizon and understanding of the world. Pak would like to thank all of his classmates and the program mentors who have helped him through his Science 101 journey.



Pak extracted his DNA!

Pak at the microbiology lab.



Don Clancy

Don had a wonderful experience with the Science 101 program. He found many topics especially interesting, including stem cells, astronomy, pharmaceuticals, and robotics. He emailed questions to Jaymie Matthews and was very thankful that the answers were addressed during lecture. He was impressed with Julien Davies' sharp wit, and appreciated the in-class discussions generated by Kerry Knox and Brett Gilley.

Science 101 contributed to Don's understanding of the world. In his own words, "my horizon was expanded in every topic covered. I especially liked doing the final poster as it really expanded my knowledge." He appreciated the ratio of volunteers to students at any given lecture as someone was always around to answer questions. In his future pursuits, he will be better equipped to distinguish medical internet sensationalism from scientific fact.

Don would recommend the program to others because he obtained answers to science questions directly from experts and learned how to answer them for himself. Don wants his classmates to know that he appreciated spending dinner time with them before each lecture.



Don keeps his hands warm while making ice cream.



Don at Grouse Mountain.

Kelly Craik

Kelly is thankful for her experience with the Science 101 program, which she described as an “awesome awesome party time.” She enjoyed all the lectures and field trips, with her personal highlight being the Grouse Mountain adventure.

Kelly would definitely recommend Science 101 to others. She never expected at this point in his life that she would still be able to learn, yet the program helped open her eyes to that possibility.

To her classmates Kelly says, “You never stop learning!”



Kelly makes friends with a sea urchin at the Rocky Shores Ecology lecture.



Kelly examines a flower in the Botany lab.

Elsie Dupuis

Elsie was a huge fan of the field trip to the TRIUMF national laboratory, and dedicated time researching the facility for her class project. She also enjoyed the Camosun bog walk, the Beaty Biodiversity Museum, learning how earthquakes happen, and taking a sample of her DNA. “Hands-on is the best!” After taking Science 101, Elsie is motivated to look into free lectures on campus to continue her pursuit of learning.

Elsie would recommend the program to others because “it’s a safe place to say ‘I don’t know’ among like minded people eager to explore.” She couldn’t imagine a better way to spend her summer and sends her thanks to all the instructors.

To her classmates, Elsie says “thanks for your enthusiasm, and for sharing your time and life experiences.”



Elsie on foggy Grouse Mountain.

Elsie at the Space Center.



Roody Etienne

Roody's most memorable experiences were the field trips which he described as "awesome". His favorite topics were genetics and robotics because the former explained "where we come from" and the latter explored the potential for redefining humanity.

He would most definitely recommend Science 101 to others because "science explains how the universe works." One thing he would like to share is his positive impression of science which he describes as "the best; choose science, go far." Roody hopes to continue his study of science in the future.



Roody at the Botany lab.



Roody making hand lotion.

Jodi Fortune

Jodi's most memorable experience came from the lectures by Jaymie Matthews on astronomy and our solar system. He was so intrigued by the topic that he completed his class project in the same field. Other lectures he enjoyed were microbiology and the lungs.

Jodi would recommend Science 101 to others if given the opportunity.

Jodi with jellyfish at the Vancouver Aquarium.



Jodi's clever strategy to keeping his fingers warm while making ice cream.

Charmaine R. Giles

Charmaine's most memorable experiences were the pharmaceuticals labs led by Mona Kwong, where she especially enjoyed learning about emulsions and making scented hand creams. She would recommend the program to others because it taught her "a new respect for science and life – it was intriguing, exciting, informative, interesting, and fun!"

Science 101 helped Charmaine to conclude that: "life, and the universe, is one big science experiment." To her classmates, Charmaine says "Remain teachable and you shall be eternally young."

Jaeme Grosvenor

Jaeme enjoyed all of the lectures and spending time with his classmates.



Jaeme shows off his finished ice cream.



Jaeme with his extracted DNA.

Leith Harris

Leith enjoyed all of the lectures and spending time with her classmates.



Leith at Grouse Mountain.



Leith with Ben and Steve in the Anechoic Chamber.

Johnny Jaworski

Johnny enjoyed the lectures and spending time with classmates. He had a great sense of humor and would bring a new joke each week to lecture.



Johnny at the Capilano Suspension Nature Walk tour.



Johnny looks at plant slides at the Botany lab.

Loralee Avé Maria Judge

Loralee enjoyed the lectures about plant sex and natural disasters in addition to the pharmaceuticals labs (emulsions and ice cream!). She also appreciated the Museum of Anthropology and other field trips to Capilano Suspension Bridge and Grouse Mountain.

As a result of taking the program, Lorelee feels that her understanding of the world “has been expanded on so many levels. Physics, the brain, the lives of plants, astronomy! And more!” She plans on using her experience in Science 101 to pursue further educational opportunities, and for that reason, she would definitely recommend the program to others “because it can change your life.”

Loralee appreciated the assistance of the volunteers and said the mentors were above and beyond spectacular.

Loralee with a seastar.



Loralee has fun making ice cream.

Steve King

“The hands-on experiences (labs & field trips) added so much to my learning experience.” Steve appreciated all the lectures, and enjoyed keeping an open mind while learning something new from them. The opportunity to learn from the experts in certain small areas strengthened his understanding of the world, and he would recommend Science 101 to others because it “gets us away from media bias and our own ignorance.”

A summer of science lectures reminded Steve that he loves to explore and discover. The program re-ignited his love for learning just for the sake of it! His message to classmates is to “enjoy exploring the world around us. Keep the curiosity of a child that you’ve shown all summer.”



Steve with flowers at the Botany lecture.

Steve makes hand lotion with Pak and Hon Ming at the Emulsions lab.



Hon Ming Poon

The Camosun bog and the space movie at the H.R. MacMillan Space Center were Hon Ming's most memorable experiences. He thought the neuroscience lecture with Julie Robillard was very engaging because of his personal interest in memory and the ageing of brain cells.

Science 101 has shaped his understanding of the world "because science has become a fact of our life." He believes moving forward that his experiences in the program will help improve his quality of life.



Hon Ming at TRIUMF.

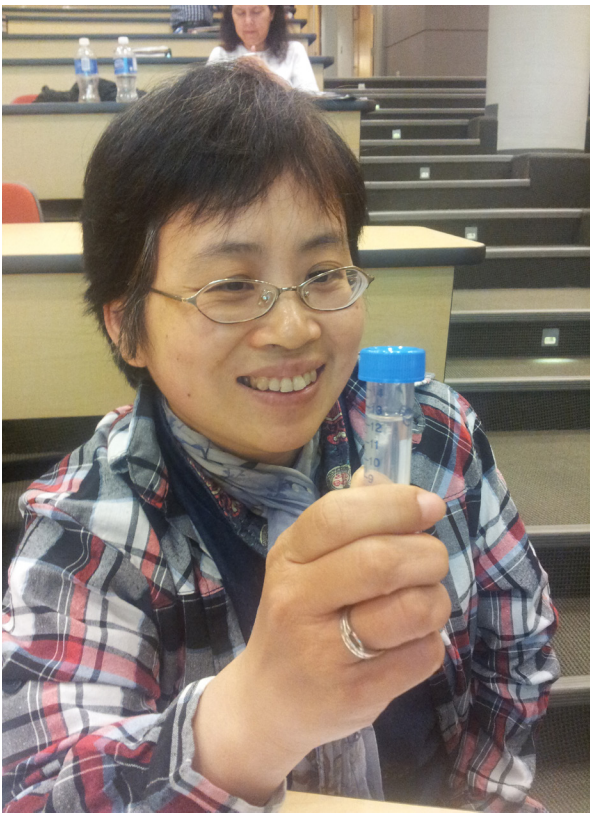


Hon Ming takes a break while making chocolate ice cream.

Ting (Cindy) Qiu

Cindy mentioned the lectures on botany and the science of learning as her personal highlights. Her understanding of the world has been “widely and deeply” influenced from completion of the program.

She would gladly recommend Science 101 to others because it’s been “a big help for getting ready to go back to school” which she now hopes to achieve. To her classmates, she says “nice to meet you and find me on Facebook!”



Cindy looks at her DNA.

Cindy at the computer skills workshop.



Victor Ruballos

Victor's most memorable experience was the field trip to Camosun bog led by Shonna Ellis. He credits the nature walk with stimulating his interest in the ecosystem, "where plants and animal lives together."

The topic Victor found most engaging was pollination: "it's an amazing and natural process that helps us produce food." He enjoyed it so much that he completed further research on it for his final project.

"The knowledge I have learned in Science 101 has made me a better human, and now I see my planet in a different way." To his classmates, Victor says "Continue studying! Don't stop, keep going."



Victor looks at plants at the Botany lab.



Victor at TRIUMF.

Benjamin Smith

Ben was extremely impressed by the robotics lecture and proceeded to design schematics for his own robot as part of his final project. He claims that “life is simple, but to keep it simple there are many scientists you will never know doing the math (literally in most cases) to keep this big machine rolling along.”

Science 101 has helped Ben immensely improve his research abilities.

Along with robotics, Ben also enjoyed the lectures on astronomy and atmospheric chemistry, and has actively shared his positive opinion of the Science 101 program through his social media outlets.

To his classmates, Ben says, “Keep looking with depth; never stop learning!” He also wants to share his gratitude to those that take time to develop and support the program behind the scenes.



Ben at Camosun Bog.



Ben couldn't wait to try the ice cream!

Don Swanston

Don enjoyed all of the lectures and spending time with his classmates.



Don at the Vancouver Aquarium.

Don stirs to make lotion with Kelly.



Alumni mentors

Violet Bittern

“I really enjoyed being a mentor for the 2014 Science 101 class. I loved everyone’s smiles and enjoyment of science and life. It was great to re-learn the science lectures with all of you. Thanks for the great laughs and new friendships. Congratulations to all of you! Good luck in your future education and goals.”



Violet at Grouse Mountain.



Story time with Isaac at the Beaty Biodiversity Museum.



Violet and Isaac serve snacks at break time.

Isaac White

“I really enjoyed the lecture by Dr. Sally Osborne on “The Lungs & Chest Wall” because it gave me a better understanding of my own lungs. I’d like to thank you for all of your questions and contributions to the lectures which made them more exciting and understandable. Science 101 has helped open new doors for my people and I hope it provides the same opportunity for you.”

Volunteers

A message from Alistair Eggo

I'm very proud of all of you for coming to these classes and learning with an open mind. It was a fantastic experience for me. Both the lecturers and all of your individual personalities have made this an unforgettable summer. Great job everyone. Thank you!

A message from Sandra Peña Diaz

I'm very grateful for this Science 101 experience, for learning more about science and from being a mentor, and especially for meeting such wonderful people as you. Watching your interest with different topics and always asking questions made us volunteers feel that we accomplished our goal of sharing our love for science to you. Also, I want to thank you for being so open and enthusiastic to learn, and for sharing your stories with me and the class. This was a growing experience for me, because I have never been a mentor before, so starting to explain or teach science to other people was sometimes challenging for me. I hope that I found the best way to help you understand something or at least that I helped you by being your friend. I really enjoyed this experience, and I hope you did too! Best of luck in the next objective you want to achieve.

Signatures

Graduation invitation

Science 101 Class of 2014

**You are cordially invited to
the graduation ceremony and
festivities to celebrate the success
of the graduates!**

Thursday August 7, 2014

**Michael Smith Building, Room 101
2185 East Mall
University of British Columbia**

Refreshments: 4:30pm

Ceremony: 5:30pm

**Project display: 4:30 to 5:30 & 6:30 to
7:30pm**

**Please RSVP by August 3, 2014 to
science101@science.ubc.ca**

Graduation program

Science 101 Class of 2014 Graduation ceremony

Thursday August 7, 2014 at 5:30pm
Michael Smith Building, UBC campus

Opening remarks by Elena Zaikova, Program coordinator

Guest speaker Dr. Jaymie Matthews

Certificate presentation to the graduating class

John Barbour, Poppy Barn, Pak Chan, Donald Clancy, Kelly Craik, Elsie Dupuis, Roody Etienne, Jodi Fortune, Charmaine Giles, Jaeme Grosvenor, Leith Harris, Johnny Jaworski, Lorelee Judge, Stephen King, Hon Ming Poon, Ting Qiu, Victor Ruballos, Benjamin Smith, Don Swanston

Address from Dr. Ian Cavers, Associate Dean

Mentor & Volunteer thank you

Violet Bittern & Isaac White

Monica Castellanos Kotkoff, Deborah Chen, Alex Dotto, Alastair Eggo, Adam Herman, Sandra Pena Diaz, Lindsay Petley-Ragan

Open mic for graduating students

Guest speaker Prof. Shona Ellis

Closing remarks by Chad Atkins, Program coordinator

Project presentation, food and refreshments to follow

Master of Ceremonies: Martha Liu, Program coordinator

Acknowledgments

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

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

Dr. Simon Peacock, Dean of Science

Dr. Ian Cavers, Associate Dean of Curriculum and Learning

Nancy Cook, Teaching and Curriculum Coordinator

Program coordinators

Elena Zaikova, Chad Atkins, Martha Liu

Lecturers

Dr. Brett Gilley, Dr. Chris Harley, Dr. Chris Waltham, Dr. David Ng, Eugene Barsky, Dr. George Hom-
sy, Dr. Jane Buxton, Dr. Jaymie Matthews, Dr. Jim Little, Dr. Junaed Sattar, Dr. Julian Davies, Dr.
David Oliver, Dr. Julie Robillard, Dr. Mona Kwong, Dr. Peter Raven, Dr. Phil Hammer, Phoebe Lu
and Grace Leung, Dr. Sally Osborne, Shona Ellis, Dr. Kerry Knox, Ben Paylor

Tutorial presenters

Erin Green, Kathryn McTavish, Chris Oatman, Kimberley Rawes, Nicholas Thornton, Natalie Tole

Volunteers

Monica Castellanos Kotkoff, Deborah Chen, Alex Dotto, Alastair Eggo, Adam Herman, Sandra
Pena Diaz, Lindsay Petley-Ragan

Science 101 Alumni Mentors

Violet Bittern & Isaac White

Field trips

The H.R. MacMillan Space Centre, the Vancouver Trolley Company, the Beaty Biodiversity
Museum, TRIUMF, the Vancouver Aquarium, Capilano Suspension Bridge, Grouse Mountain, the
Museum of Anthropology

Tutorials & workshops

The UBC Learning Exchange

Humanities & Writing programs

Margot Leigh Butler & Paul Woodhouse



Faculty of Science
University of British Columbia
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