



# SING

Canada

Summer internship  
for Indigenous peoples  
in Genomics

**SING CANADA 2023**

**July 16-22, 2023**



# Hello!

Thank you so much for being a part of the Summer internship for INdigenous peoples in Genomics Canada (SING Canada)! We are excited to bring everyone together and add to our growing network of Indigenous community members, leaders, and scholars from across the world.



**GenomeCanada**



**GenomeAlberta**



**UNIVERSITY OF ALBERTA**  
**FACULTY OF NATIVE STUDIES**



Oxford  
**NANOPORE**  
Technologies



Digital Research  
Alliance of Canada

Alliance de recherche  
numérique du Canada



## Accommodations

All participants are booked at the [Campus Tower Suite Hotel](#) located at [11145 87 Avenue, Edmonton](#). Each room is equipped with a private bathroom, seating area and full kitchenette.

## Meals

Continental breakfast will be provided each day starting at 8:00am or 8:30am (dependent on day) in the morning classroom. Sessions will start at approximately 9:00am or 9:30am with a recap of the previous day and a preview of the current day. Lunch will be provided each day in the classroom.

The welcoming reception meal, one mentor/mentee dinner, and the closing ceremony meal will be provided. For other evening meals, participants will receive a meal allowance and are welcome to either prepare food in their rooms using the kitchenette provided, or visit one of the many restaurants nearby. Edmonton has lots of great restaurants so we suggest you use your evenings to explore!

## Classrooms

Our welcome reception will be held in room **NS 2-06**, in [Pembina Hall](#). Starting Monday, our sessions will be held in **NS 1-56**, Pembina Hall. Pembina is about a 10 minute walk from the Campus Suites hotel. Our lab sessions will be held in **NS 1-19**, located downstairs in the same building. Our Friday celebration will be held in the **City Room** at [Peter Lougheed Hall](#), which is a little further but still very walkable. Please advise staff or faculty if mobility is an issue at any time.

## Transportation

Participants are encouraged to use an Edmonton Taxi to travel from the airport to the Campus Suites hotel. Uber is also a useful option. Where possible, ride sharing will be appreciated. Airport transfers will be covered through an expense claim process following the workshop. Please retain your receipts.

As all classrooms are within walking distance of the hotel, mid-week transportation will not be provided. A list of local things to do is provided at the end of this program. If options are not within a reasonable distance to walk, scooters and bikes can be rented through [Bird](#) (details provided in last section). If participants would like to further explore Edmonton, 2 bus tickets per day will be provided upon request.

## Emergency Numbers

Campus Protective Services - (780)-492-5050

Kim TallBear - (780) 807-1359

Tracy Howlett - (780) 991-7034

Pre Workshop: Sunday, July 16, 2023		
TIME	ACTIVITY/TOPIC	LOCATION
2:00pm - 4:00pm	Instructor Meeting	Pembina Hall NS 2-06
5:00pm - 7:00pm	Participant Registration and Welcome Reception Team Photos, Headshots ( <i>Be picture-ready!</i> )	





\*All times are in Mountain Time

## Day 1: Monday, July 17, 2023

TIME	ACTIVITY/TOPIC	READINGS/RESOURCES	PRESENTERS/PANELISTS/GUESTS	LOCATION
8:30am - 9:15am	Breakfast and Welcome <ul style="list-style-type: none"> <li>Expectations of the SING workshop</li> <li>Why LandBack and the soil microbiome? What are the connections?</li> <li>Introduction to Research Creation Project</li> <li>Faculty and Staff Introductions</li> </ul>	Faculty Bios	Kim TallBear and Warren Cardinal-McTeague	Pembina Hall NS 1-56
9:15am - 10:15am	Why SING? Participant Introductions (3 minutes each)	Participant Bios	Kim TallBear as facilitator	
10:15am - 10:30am	<b>BREAK</b>			
10:30am - 11:30am	From Indigenous Peoples as Genomic Objects to Decolonizing Science	<a href="#">TallBear 2015</a> ; <a href="#">Smith et al. 2021</a> ; <a href="#">Gaudry &amp; Lorenz 2018</a> Optional: <a href="#">Reardon &amp; TallBear 2012</a>	Kim TallBear	NS 1-56
11:30am - 12:30pm	Indigenous Peoples and the Politics of Colonial Science in Canada	<a href="#">Scheibinger</a> ; Optional: <a href="#">Manitoba Indigenous History</a> for more on colonialism in Canadian science, medicine, and healthcare	Jessica Kolopenuk	
12:30pm - 1:00pm	<b>LUNCH from Filistix</b>			
1:00pm - 1:45pm	Indigenous STS and Disrupting Genomics: 23andMe Case Study	<a href="#">Kolopenuk 2020</a>	Jessica Kolopenuk and Rick Smith	NS 1-56
1:45pm - 2:30pm	Ecologies of Colonial Sex and Masculinity	<a href="#">Smith 2021</a>	Rick Smith	
2:30pm - 2:45pm	<b>BREAK</b>			
2:45pm - 4:15pm	Metagenomics (Soils, Water, People)	<a href="#">Laudadio et al. 2019</a> ; <a href="#">Hugenholtz &amp; Tyson 2008</a> ; <a href="#">Mangola. 2022</a> Optional: <a href="#">Shamarina et al. 2017</a>	Betsy Nelson	NS 1-56
4:15pm - 4:30pm	Debrief and Closing		Kim TallBear	
4:30pm onward	<b>DINNER AND FREE TIME</b>			

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Day 2: Tuesday, July 18, 2023					
TIME	TOPIC	READINGS/RESOURCES	PANELISTS/PRESENTERS	LOCATION	
8:30am - 8:45am	Travel to Site; Breakfast on Road	Field Safety Plan		kihihikaw aski	
8:45am - 9:00am	Opening (Day 1 Recap, Day 2 Plan)		Rick Smith		
9:00am - 10:00am	kihihikaw aski: Site Visit and Welcome	Embed #LandBack / history	Elder Betty Letendre and James Knibb-Lamouche		
10:00am - 10:15am	Respectful Sampling and Research	Discussion about kihihikaw aski	Warren Cardinal-McTeague and Betty Letendre		
10:15am - 10:30am BREAK					
10:30am - 12:30pm	Research Instruction and Data Collection	Field Protocol Manual	Warren Cardinal-McTeague, Rick Smith, Betsy Nelson, Laurie Montour	kihihikaw aski	
12:30pm - 1:30pm LUNCH on site from Pei-Pei-Cei-Ow (after setting sample shaking)					
1:30pm - 3:00pm	Data Collection	Field Protocol Manual	Warren Cardinal-McTeague, Rick Smith, Betsy Nelson, Laurie Montour	kihihikaw aski	
3:00pm - 3:45pm BREAK (Travel back to campus and help unload truck if able)					
3:45pm - 4:30pm	Introduction to Art, Science, and Living Notebooks		Warren Cardinal-McTeague	NS 1-19	
4:30pm - 4:45pm	Debrief and Closing		Rick Smith		
4:45pm onward	DINNER AND FREE TIME				

\*All times are in Mountain Time

Day 3: Wednesday, July 19, 2023					
TIME	TOPIC	READINGS/RESOURCES	PANELISTS/PRESENTERS	LOCATION	
8:00am - 9:00am	Breakfast and Opening (Day 2 Recap, Day 3 Plan) & Haudenosaunee Thanksgiving Address		Laurie Montour	NS 1-56	
9:00am - 10:30am	SING 2023 - Nanopore MinION Library Preparation and Loading	Lab Manual	Warren Cardinal-McTeague, Rick Smith, Betsy Nelson		
10:30am - 10:45am	BREAK				
10:45am - 11:45am	Vanilla Ethics: Institutional Research Ethics	Optional: <a href="#">Arbour &amp; Cook 2006</a>	Jessica Kolopenuk	NS 1-56	
11:45am - 12:45pm	Kinking Ethics and Empiricism: From Ethics to Relations of Governance	<a href="#">Kolopenuk 2020</a> Optional: <a href="#">Lorde, 1984</a> ; <a href="#">Miranda, 2002</a>	Rick Smith, Kim TallBear, Jessica Kolopenuk		
12:45pm - 1:45pm LUNCH from Bar Burrito & Discussion Circles					
1:45pm - 3:15pm	Governing Research Relations: A Policy-Making Activity		Jessica Kolopenuk	NS 1-56	
3:15pm - 3:30pm	BREAK				
3:30pm - 4:45pm	Art, Science, & Living Notebooks	Lab Manual; <a href="#">CBC Radio Interview</a>	<a href="#">Daphne Boyer</a> and Warren Cardinal-McTeague	NS 1-19	
4:45pm - 5:00pm	Debrief and Closing		Laurie Montour		
6:00pm - 7:30pm	SPEED MENTORING DINNERS (Location TBD)				

\*All times are in Mountain Time

Day 4: Thursday July 20, 2023					
TIME	TOPIC	READINGS/RESOURCES	PANELISTS/PRESENTERS	LOCATION	
8:00am - 9:00am	Breakfast and Opening (Day 3 Recap, Day 4 Plan)		Betsy Nelson	NS 1-56	
9:00am - 10:30am	Introduction to Bioinformatics		Betsy Nelson and Warren Cardinal-McTeague		
10:30am - 10:45am	<b>BREAK</b>				
10:45am - 11:45am	Community Genomics in BC: Silent Genomes Research Project - Lessons Learned in Building an Indigenous Background Variant Library	<a href="#">Silent Genomes Project</a>	Laurie Montour	NS 1-56	
11:45am - 1:00pm	<b>LUNCH at RATT on the Patio (Students Union Building)</b>				
1:00pm - 2:00pm	Discussion Circles			Disperse	
2:00pm - 3:00pm	Knowledge Mobilization: Communicating Complicated Ideas to Community	<a href="#">TED Talk by Dr. Marcel Danesi</a> <a href="#">Vernacular Studios</a>	Spencer Murray (Former Director of Communications at the Alberta Machine Intelligence Institute) and SJ Ogenow (Medical Illustrator)	NS 1-56	
3:00pm - 3:15pm	<b>BREAK</b>				
3:15pm - 4:45pm	Art, Science, & Living Notebooks	Supplemental Images: <a href="#">Birthing Tent</a> ; <a href="#">For Clémence, Moss Bag</a> Optional: <a href="#">Chronic Wasting Beads</a>	Daphne Boyer and Warren Cardinal-McTeague	NS 1-19	
4:45pm - 5:00pm	Debrief and Closing		Betsy Nelson		
5:00pm onward	<b>DINNER AND FREE TIME</b>				

\*All times are in Mountain Time

Day 5: Friday, July 21, 2023					
TIME	TOPIC	READINGS/RESOURCES	PANELISTS/PRESENTERS	LOCATION	
8:30am - 9:30am	Breakfast and Opening (Workshop Recap)		Jessica Kolopenuk	NS 1-56	
9:30am - 10:30am	Indigenous Data Sovereignty - Soil Microbiome	<a href="#">Tsosie et al 2021</a>	Krystal Tsosie (IndigiData)		
10:30am - 10:45am	BREAK				
10:45am - 11:30am	Podcasting 101: Social Media, Podcasting, etc.	<a href="#">SING Social Media Guidelines</a>	Kim TallBear, Elijah Buffalo, Rick Harp	NS 1-56	
11:30am - 12:30pm	Discussion Circles: Data Synthesis		Warren Cardinal McTeague	Disperse	
12:30pm - 1:30pm	LUNCH from Culina				
1:30pm - 2:15pm	Where to Next? A Funder’s Perspective		Matt Bryman (Genome Alberta)	NS 1-56	
2:15pm - 3:00pm	The Future of Indigenous Genome Science		Jessica Kolopenuk, Krystal Tsosie, Betsy Nelson		
3:00pm - 3:30pm	BREAK				
3:30pm - 4:30pm	SING Canada Alumni Afterlives		Warren Cardinal-McTeague, Alana Bennet, Cheyenne Reuben-Thomas, Elijah Buffalo	NS 1-56	
4:30pm - 5:00pm	Debrief, and Closing		Jessica Kolopenuk		
6:00pm - 9:00pm	CLOSING DINNER CELEBRATION (Presentation of Results and Certificates) at City Room, Peter Lougheed Hall				

**FULL CALENDAR AVAILABLE ON GOOGLE CALENDAR [HERE](#)**



## SING CANADA 2023 PARTICIPANTS

***Chantel Akinneah***



My name is Chantel Akinneah, and I identify with the pronouns she/her and am a Dene Tha First Nation member from Meander River, situated in Treaty Eight Territory. I am pursuing a BSc Specialization in Psychology at the University of Alberta and a Research Certificate in Science. My interest in science stems from my observations of the natural world and its intricate designs and systems developed by Mother Nature over generations. I aim to delve into the ontological natural laws and principles that govern our world, exploring their application in biology and psychology.

***Emily Bayha***



Emily is from the small community Délı̨ne on the shores of Great Bear Lake in the Sahtu region of the Northwest Territories. Emily is currently a student attending the University of British Columbia, majoring in Biochemistry. Emily is a Sahtı̨ot'ı̨ne Dene who is passionate about building bridges between western and traditional knowledge. Emily is hoping to further her passions in building a career in the healthcare system.

***Mackenzie Burnstick***



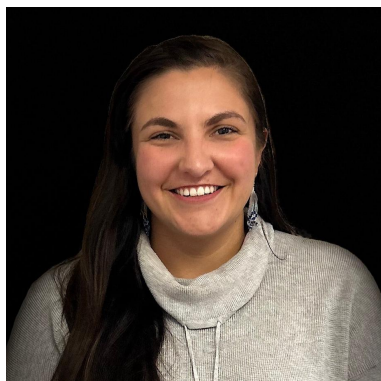
My name is Mackenzie Burnstick, I am Cree from Alexander First Nation but grew up in Edmonton my entire life. I am currently finishing up my undergraduate degree this upcoming semester in biological sciences and psychology at the University of Alberta and am passionate about working towards a degree in research in medicine in the future. While not studying or working, I also volunteer at the hospital with stroke patients or spend time with my partner and dog.

### ***Sarah Chapman***



My name is Sarah Chapman, I am a proud member of the Fond du Lac band and from Yellowknife, NWT. I am currently a third-year biology student at Queen's University, and I'm passionate about blending Indigenous knowledge with western medicine, specifically focusing on the field of genetics. Throughout the summer, I work as a water quality intern for the Government of the Northwest Territories, collecting water samples of NWT waters and engaging with community members, highlighting the importance of water in indigenous communities. When I'm not working, I enjoy reading, listening to podcasts, and shopping at thrift stores.

### ***Kali Dale***



Kali Dale was born and raised in Bemidji, MN with her parents, brothers, aunties, uncles, and many cousins. She is a member of the White Earth Nation of Ojibwe Indians. She earned her doctorate in Oncological Sciences from the University of Utah in 2022 researching transcriptional regulation in cell growth signaling that is often mutated in several cancer types. Dr. Dale is a postdoctoral researcher at the Native BioData Consortium where she manages the laboratory with the first next generation sequencer on a Tribal reservation. Her current areas of research are COVID-19 testing and sequencing, spatial transcriptomics, and Indigenous Data Sovereignty.

### ***Kathy Green***



Hi, my name is Kathy Green, a proud member of the Northern Secwepemc Community of Esk'eteme which is southwest of Williams Lake, British Columbia. I reside close to T'exelc (Williams Lake First Nation). I was born in Victoria, British Columbia on the unceded territory of the Lkwungen People. I was raised in Central Vancouver Island within the traditional territories of the Hupacasath and Tseshaht First Nations. I am part of the Sixties Scoop, as was most of my family. I am a retired Medical Laboratory Scientist and have retained my BCSLS / CSMLS Certifications. My career allowed me to live and work within varying First Nation Communities and see the commonalities of the struggle for health, wellness, traditional foods, economic sustainability and access to water and land. Knowledge sharing in a good way moves us forward.

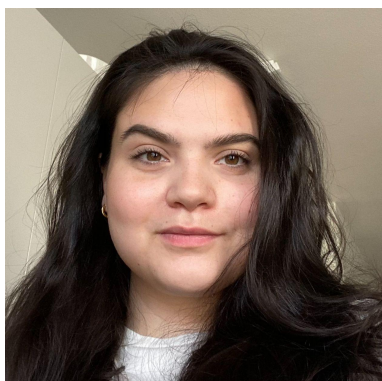


### ***Keara Lightning***



My name is Keara Lightning and I'm a member of Samson Cree Nation in Maskwacis, Alberta. I'm currently finishing my MA in the Faculty of Native Studies at the University of Alberta, working on a thesis exploring how scientific constructions of the landscape have worked to obscure Indigenous presence. I am moving into PhD research focusing on wildfire management with Indigenous communities, with a particular interest in revitalization of cultural burning practices. I've previously worked in landscaping, farmwork, and environmental education. Outside of the university, I also write and program interactive stories and have co-directed an animated short film.

### ***Alma Linke Nilsen***



My name is Alma Linke Nilsen and I am Sami from the Swedish and Norwegian side of Sábmme. I grew up in Sweden and primarily in the lule sami-area of Sábmme. I used to be a student at Luleå technical university where I studied history and music until I decided to switch directions completely. I am currently working on finishing the Swedish equivalent of a pre-medical, although I remain undecided about my future. I am interested in a lot of different subjects, amongst others, the historical effects of western medicine on modern society and how different indigenous groups can support each other globally.

### ***Teassa MacMartin***



Teassa MacMartin (she/her) was born in Winnipeg, Manitoba and raised by her endlessly supportive mother. She is now a proud mother to her 11 year-old son, and as her father and grandmother preceding her, she is a member of Brokenhead Ojibway Nation. Teassa completed her BSc in Biological Sciences at the University of Manitoba in 2020 and is currently working towards her PhD in Microbiology under supervision of Dr. Karen Brassinga. Her work focuses on lesser studied species of the respiratory bacterial pathogen, *Legionella*, and its persistence in potable water storage systems. She prioritizes Indigenous student mentoring and outreach in support of increased representation of Indigenous scholars in research.

## SING CANADA FACULTY

### [Kim TallBear](#) (Co-Principal Investigator)



Kim TallBear (Sisseton-Wahpeton Oyate) (she/her) is Professor in the Faculty of Native Studies, University of Alberta. With Dr. Jessica Kolopenuk, she is co-founder of SING Canada. As the Canada Research Chair in Indigenous Peoples, Technoscience, and Society, Dr. TallBear aims to reduce biases in science and technology research and shape policy to support Indigenous peoples' cultural and political self-determination. Through new curricula, research partnerships, publications and activities like social media, radio programs and podcasts, she and her research team aim to inform national, global and Indigenous self-governance and reconciliation work related to science and technology. Indigenous peoples have made substantial contributions to science and technology throughout history. But there is still more to learn about the value of integrating Indigenous science with western science. Dr. TallBear is the author of *Native American DNA: Tribal Belonging and the False Promise of Genetic Science*. In addition to studying genome science disruptions to Indigenous self-definitions, Dr. TallBear studies colonial disruptions to Indigenous sexual relations. She is a widely-known Indigenous public intellectual and commentator on Indigenous peoples, science, culture, and environmental topics in both academic and popular print, radio, and TV media outlets globally. She is a regular panelist on the weekly podcast, *Media Indigena*. You can follow Dr. TallBear's research group at <https://indigenousts.com/>. She tweets @KimTallBear.

### [Jessica Kolopenuk](#) (Co-Principal Investigator)



Dr. Jessica Kolopenuk (Cree, Peguis First Nation) is an Assistant Professor and Alberta Health Services Research Chair in Indigenous Health in the Faculty of Medicine and Dentistry at the University of Alberta. Dr. Kolopenuk completed her Ph.D. in political science from the University of Victoria in 2020 and was an Assistant Professor in the Faculty of Native Studies (UofA) from 2018 to 2022. With Dr. Kim TallBear, she co-founded SING Canada in 2018 and before that, the Indigenous Science, Technology, and Society Research and Training Program (Indigenous STS). Expanding Indigenous STS, Dr. Kolopenuk is currently building the *Indigenous STS – Health Research Core* from her satellite dry lab in the Faculty of Medicine and Dentistry. In 2018 she won the Canadian Science Policy Centre

Youth Category Award of Excellence and in 2021 she was the recipient of the Governor General's Gold Medal.

The promotion of Indigenous governance in science and technology fields requires the critical study of scientific knowledge production and its institutionalization. It also requires the training of Indigenous researchers and clinical practitioners. These are the spaces that Dr. Kolopenuk's work moves in. She researches what genomics mean for Indigeneity and, also, what Indigenous knowledges can mean for genome sciences. In particular, she analyzes the power dynamics involved in genomics research, ethics, and policy in Canada to consider how genomic knowledge of populations is affecting policy-based governance amidst a backdrop of colonialism in Canada. Crucially, she seeks to identify ways that Indigenous peoples might intervene and govern the scientific projects and policies affecting them.

Jessica has been involved with SING since 2013 when she participated in the SING US workshop at the University of Illinois Urbana-Champaign. She then served as a student-faculty liaison at the 2014 SING US workshop in Austin, Texas.

### Warren Cardinal-McTeague



Warren Cardinal-McTeague is Métis and Cree from the communities of Fort McMurray and Lac La Biche in northeastern Alberta, and is proudly gay, queer, and two-spirit. In July 2022, he started as an Assistant Professor in the Faculty of Forestry at the University of British Columbia, Vancouver. Warren first participated in SING Canada as a postdoctoral fellow in 2019, and joined as a faculty member in 2022.

As a botanist, his research weaves together plant biodiversity with methods in genomics, taxonomy, and leaf spectroscopy. His NSERC funded Ph.D. and postdoctoral work focused on tropical plant systematics and trait evolution in the euphorb and legume families. His current research explores the interactions and

influences of leaf microbiomes and functional traits on leaf spectral profiles of Canadian plants. In the future, these interactions will help estimate ecosystem health and function using hyperspectral remote sensing. His upcoming research program aims to reorient plant biodiversity research to come from Indigenous perspectives through Indigenous-led and co-produced projects at the nexus of food systems, environmental management, and capacity building/sharing of advanced technologies (like genomics), to further Indigenous self-determination. Warren also examines how to engage Indigenous data sovereignty principles within biological collections, in an act to rematriate Indigenous data and specimens to communities and protect against exploitation from the hasty move towards open digital data.

Warren is also passionate about art and the idea that it is co-constituted with science. He aims to further integrate art into the process and communication of research and education. Warren is also involved with the Árramāt project on Indigenous-led conservation and sustainability, co-leading Pathway T5 with Dr. Kim TallBear and Dr. May-Britt Öhman on Decolonial Science and Education. He aims to explore the important differences between Indigenization and decolonization of science and education through the support and material return of Indigenous voice and language in education, exploring the use of virtual technology in teaching, and placing emphasis on place-based and land-based learning and research.

### Laurie Kariosta Montour



I wanted to be a biologist before I knew what the word was for it. I went to a small university overshadowed by the University of Michigan, which was too big for me. It had a flowering tree from every state and a new ecosystem biology program to celebrate 10 years of Earth Day. Classes were small. There were 4 Native students in the whole university. After coming from a big reserve with a few thousand people, I was already homesick and wondering why us young Native adults were treated as if we were oddities from near extinct tribes. In my second year, I locked my apartment up for 3 months and went home, but decided that if I wanted to change my life from the expected pattern of early pregnancy and alcoholism, I had to commit to something different, and set up a support system of good people to keep me in

school. I was extremely fortunate to be chosen to attend a week-long American Indian Science & Engineering Society event in Colorado, where I met dozens of other Indigenous students in similar programs, in universities where they made up a significant population. It was so comforting to be amongst my own, all first-generation university students, holding similar worldviews similar to mine.



When I first started working, I was one of the few Indigenous ecologists in Canada. I knew how to write the chemical formulas, but my first real-world job was to figure out with an Anishnawbe and Potawatomi community how to deal with a 22,000 l spill from Ontario's upstream Chemical Valley. There were no textbooks and the minimal research papers out there did not serve our purposes, so we created a first-of-its-kind research plan to answer questions important to that community. That experience taught me that Indigenous peoples need to create entities that meet our needs, in ways that make sense to us.

Nowadays most Indigenous nations and organizations have natural resource management programs of one sort or another. Genetics is as old as first life; and the issues of ownership and control are as old as first contact with eventual colonizers. The socio-scientific field of genetics is also in exponential growth right now, and SING is a first for Canada to move Indigenous students and professionals forward with the strength and guidance learned from those ahead of us. This is why I am committed to the goals and participants of the Summer Internship for Indigenous Peoples at University of Alberta, to build a growing cadre of Indigenous professionals in school and eventually into a career. In turn, you too may find yourself in a position to reciprocate.

### [Elizabeth \(Betsy\) Nelson](#)



Elizabeth A. Nelson (Turtle Mountain Band Chippewa) (she/her) is a postdoctoral Research Assistant in the Microbial Paleogenomics Unit, Department of Genomes and Genetics, Institut Pasteur in Paris, France. She was awarded her Doctorate in the subject of Archaeological Science and Human Evolution from the Eberhard Karls University of Tübingen with the Max Planck Institute for the Science of Human History, Germany. Her scholarship and research cover bioarchaeology, paleopathology, and pathogen genomics. As a biological anthropologist, Dr. Nelson employs a synergistic approach incorporating socio-political, environmental, demographic, and genomic data to examine patterns of pathogen evolution within their biocultural and environmental contexts. Her primary work investigates tuberculosis in ancient, historic, and modern contexts of the Americas to evaluate the impact of colonialism and the consequences of structural violence on the evolution of the pathogen and disease demographics today. Through active participation and co-production with community members, she seeks to employ ancient DNA as a tool to reconstruct the past with Indigenous perspectives. She also contributes to studies of other infectious diseases from ancient, historic, and modern contexts of the Americas, environmental microbes, and the evolution of pathogens infecting non-human hosts. Twitter: [@eanelson42](#).

### [Rick W. A. Smith](#)



Rick W. A. Smith is a non-Indigenous critical scientist currently working as an Assistant Professor of Anthropology and Women and Gender Studies at George Mason University. Rick completed his Ph.D. in Anthropology at the University of Texas at Austin in 2017 and a postdoctoral fellowship with the Neukom Institute for Computational Science at Dartmouth College in 2020, where he worked between the Anthropology Department and the Geisel School of Medicine.

Rick's thinking sits at the intersections of genomics and feminist, queer, and Indigenous science studies to trace how shifting conditions of power become molecular. As both a geneticist and a critical science scholar, Rick uses the concept

of “molecular” not only to account for the conjoined histories of social, political, ecological, and genetic change over millennia – but also to track the ways in which normative genome science, as a technology of colonialism, has attempted to naturalize the colonial order and its epistemes. Based on this history, Rick’s work seeks to take on the genome lab as a site of contestation to unsettle and reconfigure the power relations through which genomic knowledge gets made. In 2020, he founded the Critical Molecular Anthropology Lab at George Mason University – which provides infrastructures for lab members, collaborators, and community partners to do genomics out of our own critical knowledges of science and its history. He has co-created a variety of projects with Maya people in Belize, descendants of Indigenous peoples in New Mexico, and within his own community of multi-racial descendants of plantation workers in the Blackland Prairies of Texas. The shared goal of these projects is to hold to people and to place in a way that counters colonial mythologies and re-stories our histories and our health.

Rick has been involved with SING since 2014 when he served as a Teaching Assistant in the SING US workshop in Austin, Texas. He has been affiliated with the Indigenous STS Lab since the completion of his Ph.D. in 2017 and has served as a core founding faculty member of SING Canada since 2018.

## SING CANADA TEACHING ASSISTANTS

### [Cheyenne I. Reuben-Thomas](#)



Cheyenne I. Reuben-Thomas (Oneida & Tonawanda Seneca) (she/they) is an enrolled member of the Oneida Nation of Wisconsin, Turtle Clan. After participating in SING Canada 2022, she is thrilled to join as a Teaching Assistant in 2023.

Currently, Cheyenne is a PhD Student in Ecology and Evolutionary Biology at Cornell University. Her research focuses on comparing the impacts of Traditional Ecological Knowledge (TEK) and settler colonialism (i.e., anthropogenic factors such as habitat fragmentation and soil contamination) on species diversity and genetic variation between insect populations. Specifically, she is interested in how TEK practices, such as cultural burning, affect insect biodiversity on Tribal lands.

Cheyenne recently obtained her MS in Biology with a focus in Ecology and Evolutionary Genomics from the University of Rochester. Her master’s thesis investigated the genomic mechanisms that facilitate range expansion of a widely disturbed species of social wasp. As part of this research, she sought to understand how a neotropical species has adapted to different environmental pressures through modeling the demographic history and testing for local adaptation to cooling climates by functionally testing candidate genes. Before entering her master’s program, Cheyenne worked with the United States Department of Agriculture (USDA) as a Tribal Liaison Officer to protect Indigenous rights and advocate for environmental justice on Tribal lands. While at the USDA, she joined a program focused on the eradication of harmful agricultural insects. This is where her love for insects blossomed and interest in exploring how insects can inform us about our ever-changing world.

Outside of her research, Cheyenne is passionate about increasing accessibility to science through advocacy and community-based workshops. She has a particular interest in educating youth about conservation, sustainability, and (of course) entomology. She is also partnered with her local zoo as an educator, hosting interactive presentations for inner-city schools and community events around Western and Central New York. Beyond that, Cheyenne enjoys staying active through backpacking, smokedancing, and fancy shawl dancing. Twitter: [@cheyenneathomas](#).

## Post-Lecture Self-Reflection Practice

In 2023 we are introducing a new method of workshop assessment that steps away from overtaxing survey culture and moves towards a personal self-reflective practice. At the end of each lecture, you will be given 2-3 minutes to make quick notes using the following prompts:

- What was something new or interesting that you learned in this lecture/activity?
- What was the most challenging or unclear concept(s)?

This is designed to help you keep track of your learning journey and also provide reminders or discussion prompts in our morning and evening debrief sessions. At the end of the week, you will be given an opportunity to provide free form feedback and testimonials, and your notes may also be helpful at that time.

## SING Canada Readings 2023

\* Please read what you can of this reader ahead of the SING Canada 2023 workshop. The reading list is a compilation of articles meant to introduce you to some of the main concepts, methods, and approaches that we will be exploring during the workshop. Do not be discouraged if you are unfamiliar with the material or if you have difficulty fully understanding it. Your goal in reading is to *begin* familiarizing yourself with the material. The rest will be learned during the program. Please use this link to [Google Drive](#) where you can find copies of most resources.

### **Day 1 – Monday, July 17**

#### *From Indigenous Peoples as Genomic Objects to Decolonizing Science*

TallBear, K. (2015). Who Owns The Ancient One? BuzzFeed News. [Buzzfeed News: TallBear](#)

Smith, R., Springs, L., Reynolds, A., and Bolnick, D. (2021) Making Kin in a Postgenomic World: Indigenous Belonging after the Genome. In: Daniels In and Beyond the Law. Kermoal N and Andersen C, eds.

Gaudry, A., & Lorenz, D. (2018). Indigenization as inclusion, reconciliation, and decolonization: navigating the different visions for indigenizing the Canadian Academy. *AlterNative: An International Journal of Indigenous Peoples*, 14(3), 218–227. [DOI: 10.1177/1177180118785382](#)

OPTIONAL: Reardon, J., & TallBear, K. (2012). “Your DNA Is Our History”: Genomics, Anthropology, and the Construction of Whiteness as Property. *Current Anthropology*, 53(S5), S233–S245. [DOI: 10.1086/662629](#)

#### *Indigenous Peoples and the Politics of Colonial Science in Canada*

Scheibinger, 2005. Forum Introduction: The European Colonial Science Complex. *Isis*, 96:52–55 [DOI: 10.1086/430677](#)

OPTIONAL: Review <https://indigenoustbhistory.ca/> for more on colonialism in Canadian science, medicine, and healthcare.

#### *Indigenous STS and Disrupting Genomics: 23AndMe Case Study*

Kolopenuk, J. (2020). Miskâsowin: Indigenous Science, Technology, and Society. *Genealogy*, 4(1), 21. [DOI: 10.3390/genealogy4010021](#)

#### *Ecologies of Colonial Sex and Masculinity*

Smith, R. (2021). Miskâsowin: Indigenous Science, Technology, and Society. *Current Anthropology*, 62:S23, S155–S168. [DOI: 10.1086/711661](#)

#### *Metagenomics (Soils, Water, People)*

Laudadio, I., Fulci, v., Stronati, L., and Carissimi, C. (2019). Next-Generation Metagenomics: Methodological Challenges and Opportunities. *OMICS: A Journal of Integrative Biology*.

327-333. [DOI: doi.org/10.1089/omi.2019.0073](https://doi.org/10.1089/omi.2019.0073)

Hugenholtz, P., Tyson, G. (2008). Metagenomics. *Nature* 455, 481–483. [DOI: 10.1038/455481a](https://doi.org/10.1038/455481a)

Mangola, S.M., Lund, J.R., Schnorr, S.L. et al. (2022). Ethical microbiome research with Indigenous communities. *Nat Microbiol* 7, 749–756 . [DOI: 10.1038/s41564-022-01116-w](https://doi.org/10.1038/s41564-022-01116-w)

OPTIONAL: Shamarina et al.(2017). Communicating the promise, risks, and ethics of large-scale, open space microbiome and metagenome research. *Microbiome*. 5:132. [DOI: 10.1186/s40168-017-0349-4](https://doi.org/10.1186/s40168-017-0349-4)

## **Day 2 – Tuesday, July 18**

*Field Trip (sampling and analysis at kihcihkaw aski)*

Lab Manual

## **Day 3 – Wednesday, July 19**

*Kinking Ethics and Empiricism: From Ethics to Relations of Governance*

Kolopenuk, J. (2020). Provoking Bad Biocitizenship. For “All of Us”? On the Weight of Genomic Knowledge, ed. J. M. Reynolds and E. Parens, special report, Hastings Center Report 50, no. 3: S23-S29. [DOI: 10.1002/hast.1152](https://doi.org/10.1002/hast.1152)

OPTIONAL: Lorde, A. (1984). The Uses of the Erotic.

OPTIONAL: Miranda, D.A. (2002). Dildos, Hummingbirds, and Driving Her Crazy: Searching for American Indian Women’s Love Poetry and Erotics. *Frontiers: A Journal of Women Studies* 23(2), 135-149. [DOI: 10.1353/fro.2002.0036](https://doi.org/10.1353/fro.2002.0036)

*Vanilla Ethics: Institutional Research Ethics*

OPTIONAL: Laura Arbour & Doris Cook. “DNA on loan: Issues to consider when carrying out genetic research with Aboriginal families and communities.” *Public Health Genomics*, 9(3) (2006): 153-160. [DOI: 10.18357/IJH11200412290](https://doi.org/10.18357/IJH11200412290)

*Art, Science, & Living Notebooks*

[CBC Radio Interview](#)

## **Day 4 – Thursday, July 20**

*Community Genomics in BC: Silent Genomes Research Project - Lessons Learned in Building an Indigenous Background Variant Library*

Review [Silent Genomes Project Website](#)

*Knowledge Mobilization: Communicating Complicated Ideas to the Public and Community*





[TED Talk by Dr. Marcel Danesi](#)

[Vernacular Studios Website](#)

*Art, Science, & Living Notebooks*

Supplemental Images: [Birthing Tent](#); [For Clémence](#); [Moss Bag](#)

OPTIONAL: [Chronic Wasting Beads](#)

## **Day 5 – Friday, July 21**

*Indigenous Data Sovereignty – Soil Microbiome*

Tsosie, K.S., Yracheta, J.M., Kolopenuk, J. and Smith, R.W.A. (2021), Indigenous data sovereignties and data sharing in biological anthropology. *Am J Phys Anthropol*, 174: 183-186.  
[DOI: 10.1002/ajpa.24184](#)

*SING Social and Media Indigena Panel*

[SING Social Media Guidelines](#)



## SING Canada Social Media Guidelines

*Inspired by & adapted from ASHG annual meeting guidelines*

While we encourage the use of social media before, during, and after SING Canada 2023 as a way to share information and network with participants and faculty, we remind you to adhere to SING's social media do's and don'ts:

**Special Note for 2023:** Please do not mention or tag *kihcihkaw aski* or the Indigenous Knowledge and Wisdom Centre (IKWC) in your social media posts. SING Canada has been welcomed to use the site in advance of its grand opening so IKWC has requested we limit media attention until that happens.

### Do:

- Follow SING Canada on Twitter (@canada\_sing) and use the #SINGCanada2023 meeting hashtag to join the conversation about the SING Canada 2023 workshop.
- Like SING Canada on Facebook at: <https://www.facebook.com/SINGCanada/>.
- SING participants and faculty, join the SING Alumni group on Facebook at: <https://www.facebook.com/groups/1761564850754337/>.
- Blog or tweet about what you hear and learn at SING Canada 2023, but **refrain from sharing when the speaker explicitly asks not to share**. Talks are tweetable and shareable by default, unless speakers ask that attendees not share entire talks, or specific details or slides.
- Communicate with respect and consideration for others, and keep criticism constructive.

### Don't:

- Capture, transmit, or redistribute data presented at the meeting – this may preclude its later publication in a scientific journal.
- Capture, transmit, or redistribute comments or conversations held where participants have reasonable expectations of confidentiality or privacy, e.g. talking circles. This means that conversations among participants and faculty, and comments/questions shared during group discussions, are off-limits for public disclosure unless one gets explicit permission to share them. This ensures a safer space and allows participants to feel comfortable speaking up.
- Post copyrighted or trademarked material or material protected by other intellectual property rights.
- Use SING or other social media platforms to comment on private comments made in conversations where participants have reasonable expectations of confidentiality.
- Post photographs of SING participants or faculty without permission on social media. (We will do a separate media release for official and media photographs).
- Post derogatory, demeaning, inflammatory, offensive, disrespectful, hateful, sales-oriented, or otherwise inappropriate comments.

People who participate in social media activity associated with SING Canada 2023 are expected to:

- Maintain a courteous and respectful demeanor in their comments and posts.
- Contribute value and expertise.
- Represent themselves and their organizations truthfully and professionally.
- Recognize that SING social media conversations include genetics and non-genetics students, faculty, Indigenous policymakers, community members, media, and the general public.
- The views and opinions posted on SING's social media do not necessarily reflect the views, opinions, or policies of SING, its faculty, advisory board, or alumni. SING reserves the right to remove comments it deems, in its sole discretion, to be inappropriate.







## Things to do in Edmonton

### Transportation

If options are not within a reasonable distance to walk, scooters and bikes can be rented through [Bird](#) - you must download the mobile app to locate devices and pay. If you choose this option, you can pay per ride or purchase a \$25 pass that allows 5 rides within 3 days. If participants would like to further explore Edmonton, 2 bus tickets per day will be provided upon request.

### Weather

Below is the week's weather forecast. Please plan accordingly if you are exploring Edmonton!

Mon 07/17	Tue 07/18	Wed 07/19	Thu 07/20	Fri 07/21	Sat 07/22	Sun 07/23
Risk of strong thunderstorms	Rain	Chance of a shower	Sunny	Mainly sunny	Mainly sunny	Sunny
						
21°	17°	22°	25°	27°	28°	26°

### Local Recommendations

#### *Nature: Hikes and Walks*

##### Emily Murphy Park (Part of River Valley System\*)

3.7 km from hotel, ~40 minute walk

*\*This specific park is part of the River Valley System, which is close and easy to get to, so this can be closer/shorter on time.*

11904 Emily Murphy Park Rd NW, Edmonton AB, T6G 2B6



#### *Attractions:*



##### Muttart Conservatory (Botanical Garden)

3.5 km from hotel, ~40 minute walk

Hours: M/Tu/F, 10:00am - 5:00pm; Sa/Su, 9:00am - 5:00pm; W/Th, 10:00am-9:00pm

Admission Rate: \$14.95 per adult

**Fort Edmonton Park (Outdoor Museum, Escape Room Option)**



5.8 km from hotel, ~60 minute walk

7000 143 St, Edmonton AB, T5J 2R7

Hours: W/Th/F/Sa/Su, 12:00pm - 2:45 pm

Admission Rate: \$26.20 per adult

Escape Room Hours: Th/F, 7:00pm - 9:30pm

Admission Rate: \$30 per adult

**University of Alberta Botanic Garden (Outdoor Botanical Garden) \*not feasible to walk\***

28.4 km from hotel, best to take bus or Uber

51227 AB-60, Parkland County AB, T7Y 1C5

Hours: 10:00am - 6:00pm every day

Admission Rate: \$19.75 per adult; \$10 student admission



***Restaurants and Bars on Whyte Ave:***

**O'Byrne's Irish Pub** (Restaurant, busy bar at night)

10616 82 Ave NW, Edmonton AB, T6E 2A7

~4 minute walk from hotel

Hours: Tu/W/Th/F, 12:00pm - 12:00am; Sa, 11:00am - 2:00am; Su, 11:00am - 12:00am

**The Buckingham** (Vegan bar with food)

10439 82 Ave NW, Edmonton AB, T6E 2A1

~4 minute walk from hotel

Hours: 3:00pm - 2:00am every day

**The Black Dog Freehouse** (Dive bar with darts)

10425 82 Ave NW, Edmonton AB, T6E 2A1

~4 minute walk from hotel

Hours: 2:00pm - 2:00am every day

**Spotlight Cabaret** (Restaurant and rooftop patio)

8217 104 St NW, Edmonton AB, T6E 4E7

~6 minute walk from hotel

Hours: M/Tu/W/Th, 2:00pm - 2:00am; F/Sa/Su, 12:00pm - 2:00am



El Cortez (Mexican restaurant)

8230 Gateway Blvd NW, Edmonton AB, T6E 4B2

~9 minute walk from hotel

Hours: Su/M/Tu/W/Th, 3:00pm - 10:00pm; F, 3:00pm - 1:00am; Sa, 12:00pm - 1:00am

***Restaurants and Bars in ICE District (\*best to rideshare if going\*):***

Alchemy Bar (Cocktail bar hidden behind bookshelf)

10344 102 St NW, Edmonton AB, T5J 0K9

Hours: W/Th, 5:00pm - 12:00am; F/Sa, 5:00pm - 1:00am

Baiju & Little Hong Kong (Cocktail bar with Asian-inspired food)

10359 104 St NW, Edmonton AB, T5J 1B9

Hours: Tu/W/Th/Su, 5:00pm - 12:00am; F/Sa, 5:00pm - 1:00am

Fu's Repair Shop (Cocktail bar and Asian restaurant)

10524 Jasper Ave, Edmonton AB, T5J 1Z7

Hours: W/Su, 5:00pm - 10:00pm; Th, 5:00pm - 12:00am, F/Sa, 5:00pm - 2:00am

***Upcoming Events:***

Thursday July 20:

[Taste of Edmonton Festival](#), July 20 - July 29: 11:00am - 11:00pm

Sir Winston Churchill Square, Edmonton AB, T5N 0M1

Free to attend; purchase tickets for food if interested

Friday July 21:

[The Public Night Market](#), 5:00pm - ?

12420 102 Ave NW, Edmonton AB, T5N 0M1

Free to attend

Saturday July 22:

[ZooBrew at Edmonton Valley Zoo](#), 5:00pm - 11:00pm

13315 Buena Vista Road, Edmonton AB T5J 2R7

\$33.96 per adult