WELCOME

to the 2020-2021 Nova Scotian Institute of Science public lecture series!

The public lecture series is one of the Institute's primary means of highlighting the great work of scientists across the province, we have a particularly interesting line-up this year. Many of our lectures will likely be virtual so please check our website for announcements.

On behalf of the NSIS Council, a sincere thank you to all of the speakers for their contribution to the Institute's goal of communicating and celebrating science in Nova Scotia. Thank you also to NSIS members for your support of the speakers, and for your support more generally of Nova Scotian science and scientists. We also thank WISEatlantic for sponsorship. Council is especially grateful to the Museum of Natural History for hosting many of our monthly meetings and lectures.

Dr. Tamara Franz-Odendaal
2020-21 NSIS President

Connect With Us!

Meet our 2020-2021 Executive

NSInstituteOfScience@gmail.com

www.nsis1862.ca

@NSIS - NovaScotianInstituteofScience

Due to Covid-19, some lectures may be virtual. Visit our website, nsis1862.ca, for venue changes and cancellation information.

ABOUT US

The Nova Scotian Institute of Science has been promoting science since 1862.

We are a membership organization that represents & promotes science to Nova Scotians; students, academics, and the general public.

We invite you to get involved, regardless of your affiliation or level of experience.

1. Attend a Lecture
   Our free NSIS public lectures take place the first Monday of each month, September - May

2. Write For Our Publication
   Write for the peer-reviewed NSIS Proceedings

3. Student Writing Competition
   Submit an article to the annual
   NSIS Student Science Writing Competition

4. Become a Volunteer / Be Mentored
   Explore our volunteer program, a great opportunity for future science leaders to shape their careers

5. Thirst for Knowledge?
   Read an issue of the Proceedings of the Nova Scotian Institute of Science, an online publication featuring a range of articles of relevance to Nova Scotia

   You can also browse articles in the historical online archive of the Proceedings of the NSIS, or visit the NSIS Virtual Hall of Fame to learn more about influential Nova Scotian scientists.

Partners

Women in Science and Engineering – Atlantic Region

discovery centre

Museum of Natural History

MEMBERSHIP

Membership in the Institute is open to anyone with an amateur or professional interest in science. As a member you enjoy the following benefits:

- ✓ Online access to the subsequent issue of the Proceedings of the Nova Scotian Institute of Science
- ✓ A copy of any special print issue of the Proceedings published within your membership year
- ✓ Email notices of monthly meetings and other special events
- ✓ A discount on page charges if your article manuscript is accepted for publication in the Institute's peer-reviewed journal
- ✓ Participate in discussions with experts on issues relevant to science in Nova Scotia
- ✓ You have the opportunity to meet scientists whose interests cover a wide range of topics

Membership Options

1) Regular member | $30 / year
2) Student member | $10 / year
3) Life membership | $300

We now accept PayPal for membership.
Learn more about becoming a member at
www.nsis1862.ca/membership

Special Lecture

SEPTEMBER 14

Diversity in a Minnow Trap

Dr. Anne Dalziel,
Associate Professor,
Department of Biology,
Saint Mary's University

The species of sticklebacks and killifishes living along the Nova Scotian shore show great diversity in physiology and behaviour among populations and species. Dalziel studies these small fish to better understand how aquatic species can adapt to changes in their environment. Dr. Dalziel will discuss her lab's current research on the breeding biology of an endemic Nova Scotian species of stickleback, the 'white stickleback', a fish that has evolved unique male breeding colors and behaviour. She will also present our research on the evolution of salinity tolerance and breeding behaviour among species of killifishes, including asexual hybrids.

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FREE LECTURE SERIES

MONDAYS
7:30 PM

MUSEUM OF NATURAL HISTORY
HALIFAX, NS

Nova Scotian Institute of Science – Since 1862

LECTURES

OCTOBER 5

Phytoplankton Need Their Vitamins Too:
How the foundation of ocean food webs depends on micronutrients

Dr. Erin Bertrand

Associate Professor,
Department of Biology,
Dalhousie University

Canada
Research Chair

Phytoplankton form the base of marine food webs and play important roles in ocean carbon cycling. Dr. Bertrand shares new tools to listen in on microbial conversations. She describes how we are applying these tools in the Arctic, Atlantic and Southern Oceans, and will show how we've used these tools to determine how phytoplankton growth depends on the availability of often scarce vitamins and minerals. Dr. Bertrand's work aims to understand what controls the growth of phytoplankton in the ocean, using tools that span from the molecular to the global.

NOVEMBER 2

Life & Times of Minas Basin Marine Invertebrates
A tale of polychaetes, plasticity, and microplastics

Dr. Glenys Gibson

Professor
Dept of Biology,
Acadia University

Marine life in the Minas Basin is subject to some of the highest tides in the world, exposing organisms to extreme currents, high levels of suspended sediment and anthropogenic contaminants associated with living in a coastal ecosystem. Learn how benthic invertebrates in this highly dynamic ecosystem develop, recruit, and cope with rapid change in their environment. Dr. Gibson and her students study how maternal environment alters the epigenome, leading to developmental plasticity on development, tissue structure, and the microbiome of high-risk tissues (gut and gills) in blue mussels, green crabs and polychaete worms.

DECEMBER 7

Evolution of the Oxford Sinkhole

Amy Tizzard

Nova Scotia
Geological Survey,
Department of Energy

The Oxford Sinkhole began as a slight depression only a few 10s of centimeters wide. In a matter of days, the hole grew to over 40 meters in diameter, swallowing trees, picnic tables and anything else in its path. Aerial imagery of the region shows a distinct band of ponds and lakes that reflect an underlying sinkhole laden terrain. Mapping the characteristics of the sinkhole belt is critical to understanding the associated risks to the public and infrastructure.

JANUARY 4

Metal Mining in Nova Scotia
Learning From the Past to Improve Future Environmental Performance

Dr. Michael Parsons

Research Scientist,
Geological Survey of
Canada

Our modern lives are full of gadgets, from smart phones to hybrid cars, wind turbines and medical imaging equipment. Have you ever wondered what's inside these devices and where the materials come from? This talk will explore the chemical elements that underpin our modern standard of living and examine Canada's current and future role as an environmentally responsible supplier of these minerals and metals. Dr. Parsons will discuss the environmental legacy of historical gold mining in Nova Scotia and how research results are being used to help clean up abandoned mines and reduce the impact of future development.

FEBRUARY 1

Seeing Through the Smoke
Cannabis and the Brain

Dr Derek Fisher

Associate Professor,
Department of
Psychology,
Mount Saint Vincent
University

Canada has the highest rates of cannabis use in the Western world, with Nova Scotia as the province with the greatest per capita use. However, there is much we do not know about cannabis use, and a significant amount of misinformation.

In this talk, Dr. Fisher will discuss how cannabis affects the brain, including the brains of adolescents, to improve understanding of how, why and who cannabis use affects.

MARCH 1

Brewing Civilization
The Science and Culture of Beer

Dr. Gordon McOuat

Director
History of Science and
Technology Program,
University of King's
College/Dalhousie

Most cultures can trace their origins and their lasting sustenance to beer and brewing. Surprisingly, many of the major developments in science can be traced to beer too.

This talk will explore those key moments in the long relationship between beer, civilization, and science.

APRIL 12

Wayfinding Under the Waves

Dr. Russell Wyeth

Dept of Biology,
St. Francis Xavier
University

Navigation behaviour is something almost every animal does, choosing where to move through their habitat. Animals use a range of cues to find their way towards prey and mates and away from predators. In aquatic habitats, vision is often much less useful: the destination cannot be seen. Instead, natural selection has led to a range of alternate strategies in aquatic animals, involving chemical, mechanical and magnetic senses for wayfinding. This talk will give a taste of how navigation behaviour is different for animals underwater, and how marine biologists and the ocean community are exploring these extraordinary adaptations for survival in the ocean.

MAY 3 | AGM 2021 | MSVU

The strength of a mother's heart:
What we can learn

Dr. Sarah Wells

Associate Professor,
School of Biomedical
Engineering,
Dalhousie University

The maternal cardiovascular system undergoes extraordinary changes during pregnancy. Blood volume increases nearly 50% to accommodate the placenta and the developing fetus; the maternal heart and its valves undergo remarkable adaptations. Dr Well's research uses a "materials science" approach to understand the beneficial structural and mechanical adaptations of the maternal heart during pregnancy. Understanding these changes and the triggers that drive them, could lead to development of treatments for cardiac pathologies.