

Genomics for Precision Oncology 2025

Faculty: Daniel Gaston, Victor Martinez

November 4-5, 2025

Contents

| | | |
|-----------|-------------------------------|-----------|
| I | Introduction | 5 |
| 1 | Workshop Info | 7 |
| 1.1 | Pre-work | 7 |
| 1.2 | Class Photo | 7 |
| 1.3 | Schedule | 7 |
| 2 | Meet Your Faculty | 9 |
| 3 | Data and Compute Setup | 11 |
| II | Modules | 13 |
| 4 | Module 1 | 15 |
| 4.1 | Lecture | 15 |
| 4.2 | Lab | 15 |
| 5 | Module 2 | 17 |
| 5.1 | Lecture | 17 |
| 5.2 | Lab | 17 |
| 6 | Module 3 | 19 |
| 6.1 | Lecture | 19 |
| 6.2 | Lab | 19 |

| | |
|-----------------------|-----------|
| 7 Module 4 | 21 |
| 7.1 Lecture | 21 |
| 7.2 Lab | 21 |

Part I

Introduction

Chapter 1

Workshop Info

Welcome to the 2025 Genomics for Precision Oncology Canadian Bioinformatics Workshop webpage!

1.1 Pre-work

1.2 Class Photo

Coming soon!

1.3 Schedule

Chapter 2

Meet Your Faculty

2.0.1 Instructors

2.0.1.1 Dr. Dan Gaston (he/him)

Clinical Bioinformatician/Assistant Professor NS Health and Dalhousie University Halifax, NS, Canada

— daniel.gaston@dal.ca

Dan Gaston is a Clinical Bioinformatician working at NS Health in the Molecular Diagnostics Lab and an Assistant Professor in the Department of Pathology at Dalhousie University. His work and research focuses on high-throughput genomic and transcriptomic profiling of solid tumours and hematological cancers of patients in Nova Scotia and the rest of Atlantic Canada. He also works on the design and application of bioinformatics tools in clinical care and translational research settings.

2.0.1.2 Dr. Victor Martinez

JOB TITLE IWK Health and Dalhousie University Halifax, NS, Canada

2.0.2 Teaching Assistants

2.0.2.1 Riley Arseneau (she/her)

PhD Student Dalhousie University Halifax, Nova Scotia, Canada

— Rarseneau@dal.ca

Riley Arseneau (she/her) is a fourth-year PhD Student investigating the correlations between genetics, immune cells, and pancreatic cancer in the Boudreau lab at Dalhousie University.

2.0.2.2 Sarah Russell (she/her)

Genetic Analysis Specialist IWK Health Halifax, Nova Scotia,
Canada

— sarah.russell@iwk.nshealth.ca

Sarah Russell is a Genetic Analysis Specialist at IWK Health, where she applies bioinformatics tools to support the clinical interpretation of genomic data. Her work focuses on developing and maintaining NGS workflows that ensure the accuracy and quality of genetic test results and clinical reporting. Her previous work involved the development and validation of bioinformatic solutions for somatic profiling of solid tumor panels used in clinical diagnostics.

2.0.3 Facilitator

2.0.3.1 Ben Fisher (he/him)

Regional Coordinator, CBH Atlantic Canadian Bioinformatics Hub,
Dalhousie University Halifax, NS, Canada

— atlantic@bioinformatics.ca

Ben has a Master of Science degree in Microbiology and Immunology, completing his bioinformatics training under Dr. Morgan Langille at Dalhousie University. Throughout his training, he has instructed others in genetics, molecular biology, and microbiome data science. Ben is passionate about continued education of trainees and professionals, and firmly believes that enhancing bioinformatics and computational biology competencies will support the success of Canada's current and future scientists.

Chapter 3

Data and Compute Setup

3.0.0.1 Course data downloads

Coming soon!

3.0.0.2 Compute setup

Coming soon!

Part II

Modules

Chapter 4

Module 1

4.1 Lecture

4.2 Lab

Chapter 5

Module 2

5.1 Lecture

5.2 Lab

Chapter 6

Module 3

6.1 Lecture

6.2 Lab

Chapter 7

Module 4

7.1 Lecture

7.2 Lab