



**FACULTY OF HEALTH SCIENCES (FHS)**

**Clinical Bioinformatics**

**Program Guide | 2025-2026**



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*Durham College (DC) strives to ensure the accuracy of the information in this publication. Please note that the academic curriculum is continually reviewed and revised to ensure program quality and relevancy. As such, the college reserves the right to modify or cancel any course, program, fee, procedure, and timetable or campus location at any time. Please consult the DC website for the most current information. Publish date: July 2025.*

**Welcome from Vice President,**  
**Academic and Students**



Dear Students,

Welcome to Durham College (DC)! You've made an excellent choice with DC. We offer an extensive range of industry-informed and community-orientated academic programs and extraordinary student services. Our students develop the professional and durable skills needed to build meaningful careers and make a positive impact in the world.

DC continues to lead the way by supporting students, delivering exceptional teaching and learning that is enhanced with opportunities for experiential learning and technology-enabled education. Our goal is to inspire students to create success for themselves and their communities through innovative and transformative education.

As this new semester begins, it's essential to recognize that our world is evolving rapidly. By choosing to study at DC this year, you've demonstrated a commitment to growth and adaptability, which will serve you well in your chosen field. Embrace new ways of learning and connect with your fellow students, faculty members, program coordinators, student advisor, and associate deans. They are all valuable resources to support your academic journey and career planning.

We eagerly anticipate supporting your success and believe you'll soon discover why DC ranks among Canada's top colleges.

Have a successful academic year!

A handwritten signature in black ink, appearing to read 'J. Choi'.

Dr. Jean Choi

Vice President, Academic



## Welcome from the Executive Dean, Faculty of Health Sciences

Dear Students,

Welcome to the Faculty of Health Sciences at Durham College! I am thrilled to have you join our vibrant and supportive community, where your journey toward a meaningful and rewarding career in health care begins.

A career in health sciences is more than a profession, it's a calling to make a difference in the lives of others. At Durham College, we are committed to providing you with an education that is immersive, hands-on, and grounded in real-world experience. From our state-of-the-art simulation labs to clinical placements and on-campus facilities like the DC Dental Clinic, DC Kids Speech and Language Clinic, and DC Spa, you will gain the skills and confidence needed to thrive in today's dynamic health care environment.

Our programs are designed to empower you with the knowledge, competencies, and compassion required to succeed. But beyond academics, you'll find opportunities to connect, grow, and discover your passion. Whether you're just beginning your journey or continuing your studies, know that you are supported every step of the way by dedicated faculty and staff who care deeply about your success.

I encourage you to take full advantage of everything our Faculty and College has to offer. Ask questions, get involved, and never stop learning. You are now part of a community that believes in your potential and is here to help you achieve your goals.

I look forward to seeing all that you accomplish.



Dr. Rebecca Milburn  
Executive Dean, Faculty of Health Sciences

## Welcome from the Associate Deans, Faculty of Health Sciences

Welcome to the Faculty of Health Sciences at Durham College!

Whether you are beginning a one-year certificate, two-year diploma, or graduate certificate program, you are now part of a vibrant and inclusive learning community committed to excellence in healthcare education, practice, and research.

As you begin this exciting chapter, know that your program has been designed to support your growth both personally and professionally. Through a combination of classroom learning, hands-on experience, and field placement opportunities, you will develop the knowledge and practical skills needed to succeed in your chosen field.

Our faculty and staff are dedicated to your success. You will be supported by instructors who are passionate about their work and by student advisors, placement teams, and college-wide services that are here to help you navigate your academic journey. We encourage you to make the most of these resources and to actively engage with your peers and learning environment.

This guide contains key information to help you get started, including academic expectations, placement details, and support services for health, wellness, and academic success. We encourage you to review it carefully and reach out with any questions.

We are proud to welcome you to the Faculty of Health Sciences and look forward to supporting you in the year ahead.

Warm regards,



Gillian Dunn  
Associate Dean



Dr. Aimee Karagiorgakis  
Associate Dean



Lindsey MacIntosh  
Associate Dean

## Contact Information

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## [Quick Links | Student Services & Resources](#)

[International Centre](#)

[Access and Support Centre | ASC](#)

[Counseling Services](#)

[Financial Aid](#)

[Academic Support](#)

[Campus Health and Wellness Centre](#)

[Career Development](#)

[First Peoples Indigenous Centre | FPIC](#)

[Test Centre](#)

[Student Academic Learning Services | SALS](#)

[Get Involved](#)

[Library](#)

[Campus Safety](#)

[Student Conduct](#)

[Academic Policies](#)

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[Equity, Diversity, and Inclusion](#)

[Course Outlines](#)

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[Hired Portal](#)

## Important Information

### **DC 2030 – Strategic Vision**

Durham College's role as an educator, research hub, and partner has never been more critical. Graduates must be career-ready, equipped with skills and experience that align with industry demands and contribute to our local and global communities.

At this pivotal moment, our forward-thinking Strategic Vision will guide our growth, deepen our impact, and empower our students, employees, and communities to thrive.

**This Strategic Vision sets out our four Goals: Future-Focused, Sustainable, People Centred, and Community Connected.**

These goals provide a framework to guide decisions, align priorities, and drive meaningful outcomes, ensuring our resources and efforts are directed toward areas of greatest impact.

Read more about DC 2030 | Strategic Vision [here](#).

### **Academic Advising | Student Advisors**

Student Advisors are committed to your success and are available year-round to support, encourage, plan, and advocate for students needing academic assistance in the following areas:

#### **Academic Planning & Support**

- Develop individual academic plans, including support for:
  - Failed courses or low GPA
  - Re-entry into a program
  - Off-stream course mapping
  - Reduced course loads (in collaboration with the Access and Support Centre – ASC)
- Assist with decisions around full-time or part-time studies
- Map out courses and upcoming semesters
- Help with timetable changes
- Review graduation requirements

#### **Pathways & Program Decisions**

- Identify future career goals and align academic decisions accordingly
- Discuss short- and long-term academic goals
- Explore program transfers or additional course options (e.g., Professional and Part-Time Learning)
- Support pathway planning to university or postgraduate programs
- Help find equivalent credits

## **Connection to Services**

- Refer and provide access to key student supports such as:
  - Student Academic Learning Services (SALS)
  - Access and Support Centre (ASC)
  - Campus Health Centre
  - Other college resources to promote student success

## **Contact your Student Advisor**

Visit the [Student Advisor website](#) to find contact information and connect with your advisor.

## **Academic Integrity**

Academic integrity in teaching, learning and research is fundamental to our mission and is an expectation of the DC community. Acts that undermine academic integrity contradict our core values, erode educational inquiry and diminish the quality of our scholarship and reputation.

To ensure the highest academic standards, students are accountable for the work they produce, and student work must be the product of their efforts. The [Academic Integrity Policy and Procedure](#) provides a comprehensive explanation of DC's expectations regarding academic integrity.

## **Student Supports**

DC offers students a variety of services to help you achieve academic success. From accessibility accommodations, financial aid, health services and wellness coaching to student life, recreation and career development, our knowledgeable staff provide holistic support to help students reach their greatest potential.

Please visit the [Student Services](#) page for more information on each of the student service areas.

## **Access and Support Centre (ASC)**

The Access and Support Centre (ASC) provides services to students who are temporarily at-risk or identified with an exceptionality, to ensure equal access to all aspects of the academic environment. The ASC provides accommodations to meet students' individual needs through assistive technology, counseling and coaching.

The ASC team works in collaboration with faculty and other service areas to provide full opportunities for academic success for all students.

For more information on services available, please visit the [ASC website](#).

## **Wellness Coaching**

Wellness coaches will meet with you individually to assist with developing a success plan, explore ways to reduce your stress and support your overall mental health and wellness while at college. Wellness coaches provide a safe, confidential space to explore what is blocking you from being your best possible self. During times when you are feeling overwhelmed or need someone to talk to, the wellness coaches will be there for you. For more information on coaching, please visit the [Coaching webpage](#).

## **Important Dates**

DC strives to keep you informed of important dates throughout the academic year. Please review the 2025-2026 important dates that include fee payment deadlines, web registration, add/drop and grade release dates etc. You can find this information on the [Durham College website](#) and on [MyDC](#). Please review [MyDC](#) regularly for updates and reminders on important dates.

## **Academic Grading and Progression**

Please refer to the ACAD 112 – [Academic Grading Policy and Procedure](#) documents for a complete overview of grading practices and ACAD 127 – [Academic Progression Policy and Procedure](#) to clearly understand the requirements necessary for a student to progress through an academic program.

## **Student Conduct Policy and Procedures**

Durham College is dedicated to contributing to an academic community that is safe, inclusive, and respectful, where students develop individually and in concert with their peers. All members of the college community have the right to study or work without undue interference.

Students have the responsibility to respect the well-being, personal worth and dignity of all members of the campus community, which includes being mindful of individual accountability and self-regulation. Students must not adversely affect the rights of others or disrupt the constructive atmosphere of the College's learning environments.

Please refer to the [Student Conduct Policy and Procedures](#) for a complete overview of student rights and responsibilities, well-being and to ensure the campus community reflects the values of the college.

## **Student Academic Learning Services (SALS)**

SALS helps DC students to achieve their academic goals through free services and resources, including subject specific support (math, accounting, biology, chemistry, physics and statistics), academic reading and writing, learning strategies, and assistance with English language proficiency. Students also have access to peer tutoring, online resources located through the MyDC landing page (under "Learning Resources"), and SALS ONLINE academic resources, videos, and quizzes in DC Connect.

Please email [SALS](#), or visit the [SALS website](#), for information on accessing resources and services, scheduling an appointment, registering for workshops, or signing- up to request or be a peer tutor.



Program Of Study 2025-26			Faculty of Health Sciences		18-JUL-2025		
Communicative Disorders Assist (CDA)				Weekly Breakdown			
Course Name	Mod	Code	Prerequisites	Corequisites	Lec Hrs	Lab Hrs	FP/Alt Hrs
CDA-SEM1							
Anatomy and Physiology of Communication and Swallowing		ANAT 1100			2	0	1
Introduction to Audiology		AUDI 1100			3	2	
Augmentative and Alternative Communication and Assistive Technology		AUDI 1101			3	1	
Clinical and Professional Practice 1		AUDI 1102			3	0	
Child Language Acquisition and Related Disorders 1		LING 1100			3	0	
Articulation and Phonology		LING 1101			3	0	
Adult Neurogenic Disorders and Rehabilitation 1		REHA 1100			3	0	
					20	3	1
CDA-SEM2							
Stuttering and Voice		AUDI 1200			3	0	
Clinical and Professional Practice 2		AUDI 1201	AUDI 1102		2	0	1
Child Language Acquisition and Related Disorders 2		LING 1200	LING 1100		3	0	
Amplification Systems and Aural Rehabilitation		REHA 1200	AUDI 1100		3	2	
Adult Neurogenic Disorders and Rehabilitation 2		REHA 1201	REHA 1100		3	0	
Principles of Therapy and Programming for Diverse Populations		SOCI 1205			3	0	
					17	2	1
CDA-SEM3							
Integrated Practicum 1	MOD1	AUDI 1301	ANAT 1100, AUDI 1100, AUDI 1101, AUDI 1102, AUDI 1200, AUDI 1201, LING 1100, LING 1101, LING 1200, REHA 1100, REHA 1200, REHA 1201, SOCI 1205		0	0	250
Practicum Seminar	MOD2	AUDI 1300	AUDI 1301		10	0	2
Integrated Practicum 2	MOD3	AUDI 1302	AUDI 1300, AUDI 1301		0	0	250
					10	0	502

# Clinical Bioinformatics

## Program Information

### Program Description

The Canadian bio-health economy is on the rise, with an estimated 36,000 additional workers needed over the next five years to meet the growing demand. As healthcare increasingly depends on technology and data-driven insights, professionals trained in clinical bioinformatics are poised to revolutionize the field and shape the future of patient care.

Durham College's (DC) Clinical Bioinformatics Ontario Graduate Certificate program is uniquely designed to meet this demand. Developed to address the needs of medical informatics, computational biology, and medical technology, this program equips learners with the knowledge and skills necessary to leverage big data and data analytics for clinical research and healthcare innovations.

This program offers a comprehensive curriculum that covers:

- Omics (Genomics, Transcriptomics, Proteomics)
- High-throughput Data Management
- Bioinformatics Software Applications

Learners gain proficiency in both theoretical concepts and practical applications, preparing them for a competitive edge in fields such as pharmaceuticals, biotechnology, hospitals, and research institutions. With specialized training, graduates are adept at analyzing genetic data, uncovering disease mechanisms, advancing treatment development, and driving the precision medicine revolution.

Students learn to use industry-standard software to analyze biological data, identify biomarkers, and evaluate drug efficacy. Through hands-on experience, they gain the confidence to:

Develop methodologies and hypotheses

Manage large genetic datasets using advanced bioinformatics tools

Research disease pathology to propose innovative treatments

The program includes a mandatory 14-week, 210-hour field placement or a simulated project-based field experience, providing invaluable real-world exposure. DC actively supports learners in securing placements and ensures they are well-prepared to transition into the health sciences industry seamlessly.

## **Program Learning Outcomes (Synopsis of the Vocational Learning Outcomes)**

As a graduate of the Clinical Bioinformatics graduate certificate program, you will be able to:

1. Identify relevant evidence-based research, trends, technologies, and standards within the field of bioinformatics to maintain currency in the industry;
2. Apply bioinformatics and computational methods to the design, execution and interpretation of scientific research;
3. Employ programming language and scripting versatility to automate processes at the application level;
4. Examine bioinformatics data to discover patterns, draw conclusions and generate predictions for subsequent experiments;
5. Comply with legal obligations, as well as professional and ethical standards, to ensure privacy, security and confidentiality in the access, retention, storage and disposal of personal genetic data and related health information;
6. Use statistics in the analysis, collation and interpretation of data to draw conclusions and support informed decision-making;
7. Perform laboratory duties in compliance with pertinent health and safety legislation and regulations.
8. Complete complex genomic and proteomics applications using advanced principles of cell and molecular biology, pharmacology and toxicology, pathophysiology, endocrinology, and biochemistry;
9. Collaborate and communicate with inter-professional healthcare teams to optimize the health and well-being of individuals; and
10. Develop and implement effective strategies for ongoing personal and professional development that support currency, competence and ethics in clinical bioinformatics.

*Note: The learning outcomes have been numbered as a point of reference; numbering does not imply prioritization, sequencing, nor weighting of significance.*

## **Employment Opportunities**

**Employment is obtained in a wide variety of settings including:**

- Pharmaceutical
- Medical
- Research and Development
- Universities and Colleges

**What you could be:**

- Bioinformatics Analyst
- Bioinformatics Scientist
- Bioinformatics Technician
- Bioinformatics Engineer
- Scientific Data Analyst
- Biostatistician
- Computational Genomicist
- Computational Molecular Scientist
- Data Scientist
- Drug Discovery Researcher
- Research Scientist in Applied Genomics
- Genetic Counsellor
- Research Scientist in Applied Proteomics

## Courses

[Click Here for Course Outline Access Manual](#)

### Semester 1

- [Fundamentals of Data Science \(CLSC 1100\)](#)
- [Introduction to Omics \(CLSC 1101\)](#)
- [Computational Tools and Methods \(CLSC 1102\)](#)
- [Data Mining, Modelling, and Biostatistics \(CLSC 1103\)](#)
- [Knowledge Translation and Mobilization Strategies \(COMM 1116\)](#)
- [Ethics and Professional Development \(MGMT 1108\)](#)
- [Leadership and Project Management \(MGMT 1109\)](#)

### Semester 2

- [Capstone Research Project \(CBIO 1200\)](#)
- [Field Placement \(CBIO 1201\)](#)
- [Biosequence Pattern Analysis \(CLSC 1200\)](#)
- [Bioinformatics and Precision Medicine \(CLSC 1201\)](#)
- [Data Analytics and Storytelling \(CLSC 1202\)](#)