



# Big Data Fundamentals and Impact

ICTC's WIL Digital Big Data Fundamentals and Impact course is designed for students who are interested in developing fundamental skills on the subject of data. This course is as a resource about data-driven technologies, data-centric professional roles, and its integral impact on the ecosystem of business and ethics.

Modules		Lessons	Learning Objectives	
Module 1	<b>Value of Big Data and Potential Applications</b>	<ul style="list-style-type: none"> <li>• What is Big Data?</li> <li>• Relation between Big Data and AI</li> <li>• Types of data and applications</li> <li>• Optional activity: Podcast</li> </ul>	<ul style="list-style-type: none"> <li>• Understanding big data technologies, fundamentals, and its relationship with other technologies such as artificial intelligence.</li> </ul>	Padlet Discussion
Module 2	<b>Working with Data</b>	<ul style="list-style-type: none"> <li>• Big Data Architectures</li> <li>• Principles of Data Integration and ETL</li> <li>• Data collection methods and APIs</li> <li>• Optional activity: API server simulation</li> </ul>	<ul style="list-style-type: none"> <li>• Exploring big data architectures, data integration methodologies, and companies providing data as a service.</li> </ul>	Padlet Discussion
Module 3	<b>Data Teams and Tools</b>	<ul style="list-style-type: none"> <li>• Data team activities</li> <li>• Typical roles and responsibilities</li> <li>• Optional activity: Podcast</li> </ul>	<ul style="list-style-type: none"> <li>• Understanding data teams, typical roles, activities, and tools.</li> </ul>	Quiz Padlet Discussion
Module 4	<b>Business Models and Strategic Analysis</b>	<ul style="list-style-type: none"> <li>• Identifying data-driven opportunities</li> <li>• Use-case prioritization</li> <li>• Project management</li> <li>• Calculation of ROI for Big Data projects</li> </ul>	<ul style="list-style-type: none"> <li>• Understanding the methods of leveraging existing tools to analyze business models and company strategies and determining big data project value.</li> </ul>	Padlet Discussion
Module 5	<b>Legal Implications</b>	<ul style="list-style-type: none"> <li>• Data Protection Regulation in Canada</li> <li>• Differences between Canada, US, China, and Europe regulatory approaches</li> <li>• Canadian Open Data Society – Interview with Derek Alton</li> <li>• Optional activity: Podcast</li> </ul>	<ul style="list-style-type: none"> <li>• Comparing data and AI regulations around the world.</li> </ul>	Padlet Discussion
Module 6	<b>Ethical Impacts</b>	<ul style="list-style-type: none"> <li>• Definition of ethics</li> <li>• Ethical aspects of data-centric projects</li> <li>• Main principles and guidelines</li> <li>• Canadian context of data and AI ethics</li> </ul>	<ul style="list-style-type: none"> <li>• Exploring data ethics approaches, guidelines, and principles.</li> </ul>	Padlet Discussion