Applied Computing – Data Analytics Program Description

Note: This program description is temporary until the official University of Saskatchewan Course and Program Catalogue is published for the 2022-2023 academic year (Winter 2022). ***Program requirements are subject to change up to that point.***

<table>
<tr><td></td><td><u>Bachelor of Science Four-year (B.Sc. Four-year) – Applied Computing – Data Analytics</u>

No more than 6 credit units from one subject may be used in Requirements C1, C2, and the Junior Course Requirements in C3.</td><td><u>Bachelor of Science Honours (B.Sc. Honours) – Data Analytics</u>

Students interested in entering an Honours program should consult advisors in the department concerned before registering for their second year. Of the 120 credit units required for the B.Sc. Honours degree, at least 66 credit units must be at the senior level. Application for admission to Honours is not considered until successful completion of at least 60 credit units with a Cumulative Weighted Average of at least 70% overall and at least 70% in the subject of Honours. For further details, please see the Academic Information and Policies section.

No more than 6 credit units from one subject may be used in Requirements C1, C2, and the Junior Course Requirements in C3.</td></tr>
<tr><td>C1 College Requirement (15 credit units)</td><td colspan="2">English Language Writing
Choose 6 credit units from the following:
Full list
Indigenous Learning
Choose 3 credit units from the following:
Full list
Quantitative Reasoning
MATH 163.3 Introduction to Mathematical Reasoning
MATH 164.3 Introduction to Linear Algebra</td></tr>
<tr><td>C2 Breadth Requirement (6 credit units)</td><td colspan="2">Choose 6 credit units from the following areas:

Fine Arts
Humanities
Social Sciences
Courses with No Program Type</td></tr>
<tr><td>C3 Cognate Requirement (12 credit units)</td><td colspan="2">(12 credit units)

Junior course requirements:
Choose 9 credit units from the following:
Biology
BIOL 120.3
BIOL 121.3
Chemistry
CHEM 112.3</td></tr>
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CHEM 115.3
CHEM 250.3

Earth Science

GEOG 120.3
GEOL 121.3
GEOL 122.3

Physics & Astronomy

ASTR 113.3
PHYS 115.3
PHYS 117.3 or PHYS 125.3

Senior course requirements:

PHIL 232.3 Ethics and Professional Responsibility in Computer Science

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<tr><td>C4 Major Require-ment</td><td>
(72 credit units)

CMPT 141.3 Introduction to Computer Science
CMPT 145.3 Principles of Computer Science
CMPT 260.3 Mathematical Logic and Computing
CMPT 270.3 Developing Object Oriented Systems
CMPT 280.3 Intermediate Data Structures and Algorithms
CMPT 317.3 Introduction to Artificial Intelligence
CMPT 318.3 Data Analytics
CMPT 384.3 Information Visualization
CMPT 423.3 Machine Learning
MATH 211.3 Numerical Analysis
MATH 266.3 Linear Algebra II
STAT 241.3 Probability Theory

Choose 3 credit units from the following:

MATH 110.3 Calculus I
MATH 176.3 Advanced Calculus I

Choose 3 credit units from the following:

MATH 116.3 Calculus II
MATH 177.3 Advanced Calculus II

Choose 3 credit units from the following:

STAT 242.3 Statistical Theory and Methodology
STAT 245.3 Introduction to Statistical Methods

Choose 12 credit units from the following:
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(75 - 78 credit units)

CMPT 141.3 Introduction to Computer Science
CMPT 145.3 Principles of Computer Science
CMPT 260.3 Mathematical Logic and Computing
CMPT 270.3 Developing Object Oriented Systems
CMPT 280.3 Intermediate Data Structures and Algorithms
CMPT 317.3 Introduction to Artificial Intelligence
CMPT 318.3 Data Analytics
CMPT 360.3 Machines and Algorithms
CMPT 384.3 Information Visualization
CMPT 423.3 Machine Learning
MATH 211.3 Numerical Analysis
MATH 266.3 Linear Algebra II
STAT 241.3 Probability Theory
STAT 344.3 Applied Regression Analysis
STAT 345.3 Design and Analysis of Experiments
STAT 346.3 Multivariate Analysis

Choose 3 credit units from the following:

MATH 110.3 Calculus I
MATH 176.3 Advanced Calculus I

Choose 3 credit units from the following:

MATH 116.3 Calculus II
MATH 177.3 Advanced Calculus II

Choose 3 credit units from the following:

STAT 242.3 Statistical Theory and Methodology

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	• CMPT 214.3 Programming Principles and Practice • CMPT 353.3 Full Stack Web Programming • CMPT 360.3 Machines and Algorithms • CMPT 370.3 Intermediate Software Engineering • CMPT 394.3 Simulation Principles • CMPT 484.3 Graph Drawing and Network Visualization • CMPT 489.3 Deep Learning and Applications Choose **6 credit units** from the following: • MATH 238.3 Introduction to Differential Equations • MATH 313.3 Numerical Linear Algebra • MATH 314.3 Numerical Solutions of Ordinary Differential Equations • MATH 325.3 Introduction to Optimization • MATH 327.3 Graph Theory Choose **6 credit units** from the following: • STAT 344.3 Applied Regression Analysis • STAT 345.3 Design and Analysis of Experiments • STAT 346.3 Multivariate Analysis Choose **3 credit units** from the following: • MATH 238.3 Introduction to Differential Equations • MATH 313.3 Numerical Linear Algebra • MATH 314.3 Numerical Solutions of Ordinary Differential Equations • MATH 325.3 Introduction to Optimization • MATH 327.3 Graph Theory • STAT 344.3 Applied Regression Analysis • STAT 345.3 Design and Analysis of Experiments • STAT 346.3 Multivariate Analysis	• STAT 245.3 Introduction to Statistical Methods Choose one of the following (**0 – 3 credit units**): • CMPT 409 • MATH 402.0 Honours Thesis in Mathematics Choose **12 credit units** from the following, with at least one course at the 400-level: • CMPT 214.3 Programming Principles and Practice • CMPT 353.3 Full Stack Web Programming • CMPT 370.3 Intermediate Software Engineering • CMPT 394.3 Simulation Principles • CMPT 484.3 Graph Drawing and Network Visualization • CMPT 489.3 Deep Learning and Applications Choose **6 credit units** from the following: • MATH 238.3 Introduction to Differential Equations • MATH 313.3 Numerical Linear Algebra • MATH 314.3 Numerical Solutions of Ordinary Differential Equations • MATH 325.3 Introduction to Optimization • MATH 327.3 Graph Theory
C5 Electives Require-	**(15 credit units)**	**(9 - 12 credit units)**

ment	Arts and Science courses, or those from other Colleges that have been approved for Arts and Science credit, to complete the requirements for 120 credit unit Four-year program, of which at least 66 must be at the 200-level or higher.	Arts and Science courses, or those from other Colleges that have been approved for Arts and Science credit, to complete the requirements for 120 credit unit Honours program, of which at least 66 must be at the 200-level or higher.