Instructional Plan – PROG 8420 Fall 2023			
Class Timings: Thrs 6 - 8.50pm & Sat 8 - 10.50 am			
Evaluation Summery : LAB Assignments 10* = 50%, Quizzes 5* = 25% & Final Project 25 %			
Faculty: Jomis John | jvarikayanickaljohn@conestogac.on.ca | additional academic support/meeting, email me for a schedule			
	Lecture Topics	**Required Preparation**	**Assignment (s)**
Week 1	**Introduction to Programming for Big Data** **Program Design** 1.1 Analyze problems. 1.2 Design computer code from written problems. 1.3 Troubleshoot and debug problems.	Review materials posted to eConestoga under the 'Weekly Plan folder.'	
Week 2	**Introduction to Python** 2.1 Describe the development cycle for Python programmers. 2.2 Install Python. 2.3 Use proper program structure. 2.4 Run programs.	Review materials posted to eConestoga under the 'Weekly Plan folder.'	**Final Project Requirements Released**
Week 3	**Data Types and Variables** 3.1 Dynamically and weakly type. 3.2 Define variables, expressions, and statements.	Review materials posted to eConestoga under the 'Weekly Plan folder.'	**Quiz 1 & Assignment 1 = 10 % - IN-Class**
Week 4	**Operators** 4.1 Use arithmetic operators. 4.2 Use logical operators.	Review materials posted to eConestoga under the 'Weekly Plan folder.'	**Quiz 2 & Assignment 2 = 10 % - IN-Class**
Week 5	**Flow Control** 5.1 Create conditional statements. 5.2 Create loops and iterations.		**Quiz 3 & Assignment 3 = 10 % - IN-Class**
	Functions	Review materials	**Quiz 4 &**

Week 6	6.1 Use pre-existing functions. 6.2 Create new functions. 6.3 Use parameters and return values.	posted to eConestoga under the 'Weekly Plan folder.'	**Quiz 4 & Assignment 4 = 10 % - IN-Class**
Week 7	**Data Structures** 7.1 Store and manipulate textual data using string variables and functions. 7.2 Open data files and read through the files. 7.3 Store more than one item in a list variable. 7.4 Store multiple values in a dictionary object and look up the values by their key. 7.5 Use simple and efficient data structures like tuples.		**Quiz 5 & Assignment 5 = 10 % - IN-Class**
Week 8	**Break**		
Week 9	**Object-Oriented Programming** 8.1 Manage larger programs 8.2 Use objects and classes 8.3 Discuss the object lifecycle 8.4 Building classes using inheritance	Review materials posted to eConestoga under the 'Weekly Plan folder.'	**Assignment 6 & 7 = 10 % - IN-Class**
Week 10	**Access Web Data** 9.1 Search for patterns in strings using the regular expression 9.2 Send and retrieve data over HTTP. 9.3 Access data available in a different server using web services. 9.4 Access large amounts of data using databases.	Review materials posted to eConestoga under the 'Weekly Plan folder.'	**Assignment 8 = 5 % - IN-Class**
Week 11	**Data Science** 10.1 Recognize the meaning of the term "Data Science" 10.2 Use lambdas, list comprehensions and the numpy library. 10.3 Create Series and DataFrame Data Structures 10.4 Use pandas math functions.	Review materials posted to eConestoga under the 'Weekly Plan folder.'	**Assignment 9 & 10 = 10 % - IN-Class**
Week 12	**Data Science** 10.5 Employ the pandas library to import and manipulate data. 10.6 Learn and apply different data representation techniques. 10.7 Learn and apply Python tools for machine learning. 10.8 Use simple programs in R.	Review materials posted to eConestoga under the 'Weekly Plan folder.'	

Week 13	We will keep this week free in the event we spend more time on a concept and need to add in an extra class before the final week.		**Final Project Due 25%**
Week 14	**Final Project In-Class Presentation**		
Week 15	**Final Exam Week - No Class**		
NOTE: DATES ARE SUBJECT TO CHANGE. Please check this page regularly to access the most current schedule.			
Additional notes: please familiarize yourself with the program Handbook. The Program Handbook contains many policies that affect your studies at Conestoga.			