



## MASTER COURSE OUTLINE

A. CPRO 1801 Intro to Programming for Data Analytics

B. COURSE DESCRIPTION

This course introduces students to the fundamentals of Python programming language for data analytics. Participants will gain practical skills in data manipulation, visualization, and basic statistical analysis using Python. Emphasis will be placed on hands-on coding and real-world applications. Prerequisite CPRO 1006 Scripting Fundamentals.

**(3 Cr – 3 lect, 0 lab)**

C. Core Theme: Critical Thinking

D. RIVERLAND INSTITUTIONAL LEARNING OUTCOMES:

This course addresses the following Riverland Institutional Learning Outcome(s):

- ILO 1: critical thinking (*Core Theme Goal 2*)
- ILO 2: awareness of the larger global community (*Core Theme Goal 7 or 8*)
- ILO 3: ethical, engaged citizenship (*Core Theme Goal 9 or Goal 10*)
- ILO 4: communication and collaboration (*Discipline Goal 1 and by any learning outcome(s) involving communication or collaboration*)

E. MAJOR CONTENT AREAS:

- Import, clean, and preprocess data
- Data visualization
- Perform basic statistical analysis
- Develop and execute scripts for common data analytics tasks

F. GOAL TYPE, OBJECTIVES, AND OUTCOMES:

<u>GOAL TYPE</u>	<u>OBJECTIVES</u> Students will be able to	<u>OUTCOMES</u> The student will successfully
<u>*Critical Thinking</u>	gather factual information and apply it to a given problem in a manner that is relevant, clear, comprehensive, and conscious of possible bias in the information selected.	1. import, clean, preprocess and display data.
<u>CS</u>	create a script to import data from database.	1. create a script to perform the tasks specified. Grading will be based on the efficiency of the code and number of errors in the code.
<u>CS</u>	create a script to clean imported data from database.	1. create a script to perform the tasks specified. Grading will be based on the efficiency of the

		code, number of errors in the code and the data integrity.
<u>CS</u>	create visual for imported data.	1. create a visual that represents an imported data set. Grading will be based on readability and accuracy of the graphic.
<u>CS</u>	compile data into a visual presentation.	1. develop script for the import, cleansing, and visualization of data, tailored to meet the requirements of a client within a specified case study. Grading will be on the accuracy and clarity of the dataset.

G. SPECIAL INFORMATION:

This course may require use of the Internet, the submission of electronically prepared documents and the use of a course management software program. Students who have a disability and need accommodations should contact Accessibility Services at the beginning of the semester. This information will be made available in alternative format, such as Braille, large print, or current media, upon request.

H. COURSE CODING INFORMATION:

Course Code T/Class Maximum 30; Letter Grade

Revision date: 04/01/25

AASC Approval date: 01/23/24; 05/13/25

\*These five MnTC Goals have been identified as Riverland Community College Core Themes. Every course in the Riverland Community College curriculum shall meet outcomes from one of these themes.

\*\*These five MnTC Goals have been identified as Riverland Community College Disciplines. Riverland's MnTC courses also shall meet outcomes from a Discipline Area.

NOTE: The Minnesota Transfer Curriculum "10 Goal Areas of Emphasis" are reflected in the five required discipline areas and five core themes noted in the Riverland Community College program of study guide and/or college catalog.

<b>*Riverland Community College Core Themes</b>	<b>MnTC Goal Number</b>
Critical Thinking (CT)	<b>2</b>
Human Diversity (HD)	<b>7A, 7B, 7A/B</b>
Global Perspective (GP)	<b>8</b>
Ethical and Civic Responsibility (EC)	<b>9</b>
People and the Environment (PE)	<b>10</b>

<b>**Riverland Community College Discipline Areas</b>	<b>MnTC Goal Number</b>
Communication (CM)	<b>1</b>
Natural Sciences (NS)	<b>3</b>
Mathematics/Logical Reasoning (MA)	<b>4</b>
History and the Social & Behavioral Sciences (SS)	<b>5</b>
Humanities and Fine Arts (HU)	<b>6</b>

Riverland