

## D603 – Machine Learning

### Welcome, Study Plan, and Course Pacing Guide

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**NOT SURE WHERE TO START IN THE COURSE? You are in the right place!**

Your D603 instructor team has put together the following guide, which is full of resources and course tips, to help you get the most out of this course and to help you pass the course in the most efficient way possible!

#### Welcome to D603 – Machine Learning!

Machine Learning comprises the broad discipline of developing algorithms and statistical models to predict, classify, or cluster data and iteratively improve over time. Machine Learning focuses on building, training, running, and testing supervised and unsupervised models and quantifying the accuracy and precision of those models to determine which may best be used in a particular business situation. Supervised methods in this course discussed tree-based models, and unsupervised models discussed k-means and hierarchical clustering. The time series model is also covered. The following courses are prerequisites: Analytics Programming and Statistical Data Mining.

#### D603 STUDY PLAN OUTLINE (with Tips and Extra Resources!)

You can complete some aspects of the projects using skills you remember from previous courses, including analytics programming, like Statistical Data Mining. But there will likely be some aspects of the projects that will be more unfamiliar to you, like detecting stationarity in time series data, types of stationarity, and benefits of stationarity, among others.



As you encounter a task in the assessment you aren't as familiar with, that is a good time to review the course materials (DataCamp). The last page of this document contains more support resources, from academic coaching for writing assistance and instructor support resources for helping students understand new concepts and see examples of those new concepts and applications in action!

## D603 RECOMMENDED STUDY PLAN

1. **Read all the requirements of the Performance Assessments**, including the Task Descriptions, the Rubrics, and the Weblinks section for additional information.
  - a. You can access the Performance Assessment by clicking on the View Task link in the Assessment section of your course page.
  - b. After reading through all the information about the Performance Assessments, consider going through the **DataCamp for Python and R** for more detailed explanations about each section of each task and a ***walkthrough of the pain points*** showing you how to demonstrate differently.
2. **Work through TASK 1: Create your subgroup and project in GitLab as you have done in previous courses, and select a classification method (Random Forest, AdaBoost, Gradient boost); TASK 2: Select clustering method (k-means – continuous variables only, or hierarchical) to complete a clustering task. Task 3: Perform time series analysis.** For each section:
  - a. Include the answers to any questions asked in the PA in your written project document and a screenshot of any code you write for that section.
  - b. Always resubmit all parts of your Performance Assessment after each revision.
3. Before submitting your Performance Assessment for the first time, read through each requirement to help you maximize your chances of passing the Performance Assessment on your first attempt!
4. Submit your Performance Assessment! 😊
  - a. If you do not pass on your first attempt, don't panic! 😊 View the evaluator's feedback by clicking on the View Task link in the Assessment section of your course page and then clicking on the Evaluation tab on the next screen. Read the evaluator's comments and note what they ask you to change in each section that is not marked 'Competent' in green.
  - b. If you have any questions about how to go about making the requested changes, read through D603 Resources for extra tips and resources, and of course, **reach out directly to your course instructor if anything isn't clear!**

## D603 COURSE PACING GUIDE

Many students can complete this course in 8 weeks. To meet this **60-day Challenge**, we suggest the following pacing:

- **Week 1**: Read the Performance Assessment (PA) Task 1 and engage the Learning Materials. Additional Learning Materials are in the “Resource Library” link within the Course Information section at the bottom of the course of study, below the Assessment section.



- **Week 2**: Start working on the PA for Task 1 and plan to submit Task 1 at the end of Week 2. Don’t forget to email or schedule a time with your Course Instructor for clarifications.
- Focus on the “content of the learning materials that support the assessment”, then complete the remaining sections of the Performance Assessment, proofread, make final edits on your project documents, and submit the first attempt for evaluation.
- Reserve time for project revisions following evaluation; consult your course instructor as needed!
- **Week 3**: Read the Performance Assessment (PA) Task 2 and engage the Learning Materials. Additional Learning Materials are in the “Resource Library” link within the Course Information section at the bottom of the course of study, below the Assessment section.
- **Week 4**: Start working on the PA for Task 2 and plan to submit Task 2 by the end of Week 4. Don’t forget to email or schedule a time with your Course Instructor for clarifications.
- Reserve time for project revisions following evaluation; consult your course instructor as needed!
- **Week 5**: Read the Performance Assessment (PA) Task 3, read the requirements, and engage the Learning Materials—Additional Learning Materials are in the Resource Library under Course Information on the D603 course of study page.

Take the D603  
Business Process Engineering  
60-Day Challenge!  
  
Read Performance  
Assessment and complete  
the learning materials

## D603 – Business Process Engineering Course Guide

- Complete the remaining sections of the Performance Assessment Task 3, proofread, make final edits on your project documents, and submit your first attempt for evaluation.
- **Week 6**: Reserve time for project revisions as required following evaluation; consult your course instructor as needed!

## Tasks Requirements Overview

**Task 1 – Supervised Machine Learning Methods:** Thoroughly review the following:

- A. Introduction
- B. Requirements
- C. Rubric
- D. Don't forget the data sets and supporting documents below the rubric.
- E. Provide a Panopto video recording demonstrating the code's functionality used for the analysis and a summary of the programming environment.

**Task 2: - Unsupervised Machine Learning Methods: Thoroughly review the following:**

1. Introduction
2. Requirements
3. Rubric
4. Don't forget the data sets and supporting documents below the rubric.
5. Provide a Panopto video recording demonstrating the code's functionality used for the analysis and a summary of the programming environment.

**Task 3: - Time Series Method: Thoroughly review the following:**

- A. Introduction
- B. Requirements
- C. Rubric
- D. Don't forget the data sets and supporting documents below the rubric.

## Where to Get Help ...!

### PRIMARY LEARNING MATERIALS:

DataCamp

A

B

### Using & Citing Sources!

- Every source must be cited within your document.
- [Academic Coaching Center](#)
- [How to document sources \(article\)](#)
- [How to Cite Webpages \(article\)](#)
- [How to Cite Webpages \(video\)](#)

C

### Professional Communication!

- <https://www.grammarly.com/>
- [I Need Help with Professional Communication](#), which includes links to Writing Center resources on writing, grammar, and more!
- Contact Assessment Services at 877-HELP-WGU Option 2 if you: