# D326/D191 ADVANCED DATA MANAGEMENT
## Welcome, Study Plan and Course Pacing Guide!
*last update: August 2024*

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**NOT SURE WHERE TO START IN THE COURSE??  You are in the right place!**
Your D326/D191 instructor team has put together the following guide 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! 😊

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**Welcome to D326/D191 Advanced Data Management!**
In this course you'll be learning more advanced skills in SQL, including how to manage the ETL workflow in the database and how to use new SQL features to help you analyze data, including user-defined functions, triggers, and stored procedures.  The course culminates in a project that allows you to work with actual data in a PostgreSQL database to demonstrate these new skills!

All supplemental resources are located in the Course Resources folder.


# D326/D191 STUDY PLAN OUTLINE
## (with Tips and Extra Resources!)

This study plan outline is a result of lots of student feedback on what has helped your fellow Night Owls be successful!

Many students find that the most efficient way to complete this course is by working through the Performance Assessment course project directly, and researching new topics as you encounter them in the project.

There may be some aspects of the project you can complete using skills you might remember from previous SQL courses – like creating tables and inserting data into tables – but there will likely be some aspects of the project that will be more unfamiliar to you – like writing a custom function to transform data, creating a trigger, or writing a stored procedure.

As you encounter a task in the project you aren't as familiar with, that is a good time to consult the course materials and the supplemental resources shared below, for help in understanding new concepts and seeing examples of those new SQL commands in action!

# D326/D191 RECOMMENDED STUDY PLAN

1. **Watch** the Welcome video.
2. **Watch** the Course Material video.
3. **Read through Performance Assessment task:**
   a. Access the Performance Assessment by clicking on the View Task link in the Assessment section of your Course of Study page. Read through the Task Overview tab in its entirety. A diagram of the dvdrental database can be found here: DVDRental Database Diagram.
   b. Watch the Lab Environment video that demonstrates a walkthrough of the lab environment showing you how to connect to the project database to run queries.
   c. Watch the Performance Assessment Information video for detailed explanations about each section of the Performance Assessment.
   d. Read through FAQs

4. **Work through sections A through I of the Performance Assessment one at a time**.
   For each section:
   a. Include the answers to any questions asked in the PA in your written project document, as well as a text copy of any code you write for that section.

   > **PRO TIP: SAVE YOUR CODE FREQUENTLY!!** Be sure to **transfer** a copy of your code to your written document after completing each section. While rare, it is possible that the lab environment could be reset and you don't want to lose your code, so save a copy frequently! You can do this by retyping your code into your document, or by emailing yourself a copy of your code.
   > All students have an Office 365 account with WGU. Log into your account using the Edge browser on the virtual machine. Open your email or create a new Word document in your Office account. Copy and paste your code in the virtual environment to your email or document. Once you are back on your local machine, open your Office account in your local browser and retrieve the email or document you created. This is the **ONLY** way to "copy and paste" from the virtual machine to your local and vice versa.

   b. Write and test your code in the PA Virtual Lab Environment; and insert comments in your code so that you know where each section begins and ends (this will help your Panopto demonstration video go more smoothly!)

   c. Course Resources: in addition to the searchable Course textbook: ***SQL for Data Analysis***, and our recommended PostgresSQL documentation websites: www.postgresqltutorial.com and the PostgreSQL v13 documentation, the following supplemental course resources have been developed to help you through the course. All resources are located in the Course Resources folder.

      i. FAQs contains lots of detailed information about the Performance Assessment, and provides an introduction and walkthrough of how to use the virtual lab environment for your project

ii. [Functions Tutorial:](#) shows examples of creating tables, populating tables with data from a database, and several examples of creating functions for data transformation (helpful with parts B, C, and D of the project). Video explains concepts behind and syntax for writing user-defined custom functions in PostgreSQL and contains several comprehensive examples of creating your own data-transforming functions and how to use them when building tables. In addition, you'll find examples of creating tables and populating tables with data using CREATE TABLE and INSERT INTO ... SELECT statements.

iii. [Triggers & Stored Procedures](#) shows examples of creating tables, populating tables with data from a database, and several examples of triggers, trigger functions, and stored procedures (helpful for parts B, C, E, and F of the project). This video focuses on the concepts and syntax of Triggers and Stored Procedures commands, and provides two comprehensive examples of each, including writing and testing your PostgreSQL commands. In addition, this video cohort contains examples of creating tables using both the CREATE TABLE / INSERT INTO method and the CREATE TABLE AS SELECT method, JOINing more than two tables, using aggregate functions to create SUMs, COUNTs, and other calculations, and casting columns into different datatypes, all to help make your SQL reports more user-friendly and easy to read.

iv. [Common Pitfalls](#) outlines the most common reasons projects are returned to revisions by our evaluators on the Performance Assessment, includes tips for how to address those revisions; great reference to go over before you submit your project for the first time

v. [Practice Lab Environment:](#) Students can also access the **sqlda** practice database used in the [course textbook](#) exercises.

vi. [Lab Troubleshooting Guide](#) if you encounter any technical difficulties.

> If you need additional help: call, email or set up a time to meet with your course instructor or *use the list of supplemental resources for each section on the following pages!* ⬅⬅⬅

d. Before you submit your project for the first time, read through Common Pitfalls to help you maximize your chances of passing the Performance Assessment on your first attempt!

e. Submit your Performance Assessment! 😊
   i. If you do not pass on your first attempt, don't panic! 😊 View your evaluator's feedback by clicking on the View Task link in the Assessments section of your course page, and then clicking on the Evaluation Report tab on the next screen. **Read your evaluator's comments and note what they ask you to change in each section** that is not marked 'Competent' in green.

   ii. If you have any questions about how to go about making the requested changes, read through [Common Pitfalls](#) for extra tips and resources, and of course **reach out directly to your course instructor if anything isn't clear!**

# D326/D191 COURSE PACING GUIDE

Many students are able to complete this course in 4 weeks.  To meet this **28-day Challenge**, we suggest the following pacing:

- **Week 1**: familiarize yourself with the course, solidify your study plan, read the Performance Assessment and other introductory course materials, and complete section A of the Performance Assessment.

- **Week 2**: Watch Functions Tutorial, then complete sections B, C, and D of the Performance Assessment, making use of supplemental course resources as needed

- **Week 3**: Watch Triggers & Stored Procedures, then complete remaining sections of the Performance Assessment: E through I, create your project video, proofread and make final edits on your project document, and submit your first attempt for evaluation

- **Week 4**: Time reserved for project revisions as required by evaluation; consult your course instructor or Common Pitfalls as needed!

**Take the D326**
**Advanced Data Mgmt**
**28-Day Challenge!**

# Where to Get Help for Each Section of the Assessment!

**(Student favorites are marked with a red arrow: ← )**

## A

### Choosing a good business question!

- FAQs
- Common Pitfalls  ←

## B

### Writing Custom Functions!

- FAQs
- Common Pitfalls  ←
- Functions Tutorial for examples of creating data transforming functions and how to use function within a SELECT query to populate a column of a table
- From www.postgresqltutorial.com:
  - CREATE FUNCTION
  - DROP FUNCTION
  - How to call a function
- From the Course textbook, Chapter 8, pp 252-260

## C & D

### Creating Tables & Inserting Data!

- FAQs
- Common Pitfalls
- Functions Tutorial for examples of creating  ←
  tables and putting data into tables
- Triggers & Stored Procedures
  for examples of creating tables and putting  ←
  data into tables
- From www.postgresqltutorial.com:
  - CREATE TABLE
  - CREATE TABLE AS SELECT  ←
  - SELECT INTO
  - INSERT INTO SELECT (see example #6)
- From the Course textbook, Chapter 2, pp 60-62; table joins Chapter 3, pp 74-81; join with 3 tables, Ex 10, pp 82-83; using aggregate functions to create SUMs and COUNTs, Chapter 4, pp 101-120
- Table joins video: Exploring Join Types (joining 3+ tables starts around 5:20)

## E

### Creating Triggers!

- FAQs
- Common Pitfalls
- Triggers & Stored Procedures for examples  ←
  of triggers and trigger functions, and how to test your triggers
- From www.postgresqltutorial.com:
  - CREATE TRIGGER
  - CREATE FUNCTION
  - DROP TRIGGER
  - DROP FUNCTION
  - Intro to Triggers
- From the Course textbook, Ch 8, pp 261-268

# Where to Get Help … for Each Section of the Assessment!

**(Student favorites are marked with a red arrow: ➡ )**

## F

### Writing Stored Procedures!

- FAQs
- Common Pitfalls
- Triggers & Stored Procedures ⬅
  for writing stored procedures, how to run and test your stored procedures
- From www.postgresqltutorial.com:
  - CREATE PROCEDURE
  - DROP PROCEDURE
  - How to run a stored procedure using CALL
- Course Materials: Using Stored Procedures for creating and running stored procedures, An Overview of Job Scheduling Tools for ⬅ PostgreSQL for tools to automate running stored procedures (PA question F1!!)

## G

### Creating Your Panopto Video!

- FAQs
- Common Pitfalls
- Online Panopto resources:
  - How to Create a Video Using Panopto
  - How to Submit Your Performance Assessment including Video Link
- **Contact Assessment Services at 877-HELP-WGU Option 2 if you:** ⬅
  - Need Panopto access / no CREATE button
  - Can't adjust your video sharing settings / evaluator cannot access video
  - Can't find the D326 Student Assignments' folder to put your video into **(you might need to look for D191 / D326 folder!)**

## H

### Using & Citing Sources!

- FAQs
- Common Pitfalls ⬅
- Student Writing Center
  - How to document sources (article) ⬅
  - How to Cite Webpages (article)
  - How to Cite Webpages (video)

## I

### Professional Communication!

- FAQs
- Common Pitfalls ⬅
- www.grammarly.com
- WGU Student Writing Center
- I Need Help with Professional ⬅ Communication, which includes links to Writing Center resources on writing, grammar, and more!