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Srikanth Deti

has successfully completed

Databases and SQL for Data Science with Python

an online non-credit course authorized by IBM and offered through Coursera

Rav Ahuja
Global Program Director,
Skills Network

Hima Vasudevan
IBM

**COURSE
CERTIFICATE**



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Coursera has confirmed the identity of this individual and their
participation in the course.

Databases and SQL for Data Science with Python

by IBM

About this Course

Much of the world's data resides in databases. SQL (or Structured Query Language) is a powerful language which is used for communicating with and extracting data from databases. A working knowledge of databases and SQL is a must if you want to become a data scientist.

▼ More

The purpose of this course is to introduce relational database concepts and help you learn and apply foundational knowledge of the SQL language. It is also intended to get you started with performing SQL access in a data science environment.

The emphasis in this course is on hands-on and practical learning. As such, you will work with real databases, real data science tools, and real-world datasets. You will create a database instance in the cloud. Through a series of hands-on labs you will practice building and running SQL queries. You will also learn how to access databases from Jupyter notebooks using SQL and Python.

Taught by:

Rav Ahuja, Global Program
Director
IBM Skills Network

No prior knowledge of databases, SQL, Python, or programming is required.

Anyone can audit this course at no-charge. If you choose to take this course and earn the Coursera course certificate, you can also earn an IBM digital badge upon successful completion of the course.

Taught by:

Hima Vasudevan, Data
Scientist

LIMITED TIME OFFER: Subscription is only \$39 USD per month for access to graded materials and a certificate.

IBM

Basic Info	Course 5 of 13 in the IBM Data Engineering Specialization
Level	Beginner
Commitment	4 weeks of study, 2-4 hours/week.
Language	English, Subtitles: Persian Volunteer to translate subtitles for this course


<div> <div></div> <div>Hardware Req</div> </div>	<div> <div> <div></div> <div>course</div> <div>era</div> </div> <div>Only browser access is required. Access to cloud based environment will be provided for hands-on labs.</div> <div></div> </div>
<div> <div></div> <div>How To Pass</div> </div>	<div> <div>Pass all graded assignments to complete the course.</div> </div>
<div> <div></div> <div>User Ratings</div> </div>	<div> <div> <div>★ ★ ★ ★ ☆</div> <div>4.7 stars</div> </div> </div>

Syllabus

WEEK 1

Getting Started with SQL

In this module, you will learn some basic SQL statements and practice them hands-on on a live database.

 6 videos, 1 reading, 1 practice quiz

1. **Video:** Welcome to SQL for Data Science
2. **Video:** Introduction to Databases
3. **Video:** SELECT Statement
4. **Ungraded Plugin:** SELECT statement examples
5. **LTI Item:** Hands-on Lab: Simple SELECT Statements
6. **Video:** COUNT, DISTINCT, LIMIT
7. **LTI Item:** Hands-on Lab: COUNT, DISTINCT, LIMIT
8. **Video:** INSERT Statement
9. **Video:** UPDATE and DELETE Statements
10. **LTI Item:** Hands-on Lab: INSERT, UPDATE, and DELETE
11. **Reading:** Summary & Highlights
12. **Practice Quiz:** Practice Quiz


Show less

 **Graded:** Graded Quiz: Basic SQL

WEEK 2



In this module, you will explore the fundamental concepts behind databases, tables, and the relationships between them. You will then create an instance of a database, discover SQL statements that allow you to create and manipulate tables, and then practice them on your own live database.

 5 videos, 1 reading, 1 practice quiz

1. **Video:** Relational Database Concepts
2. **Video:** How to create a Database instance on Cloud
3. **Ungraded Plugin:** Hands-on Lab: Sign up for IBM Cloud, Create Db2 service instance and Get started with the Db2 console
4. **Video:** Types of SQL statements (DDL vs. DML)
5. **Video:** CREATE TABLE Statement
6. **Video:** ALTER, DROP, and Truncate tables
7. **Ungraded Plugin:** Examples to CREATE and DROP tables
8. **Ungraded Plugin:** Hands-on Lab: CREATE, ALTER, TRUNCATE, DROP
9. **Ungraded Plugin:** Hands-on Lab: Create and Load Tables using SQL Scripts
10. **Reading:** Summary & Highlights
11. **Practice Quiz:** Practice Quiz

Show less

 **Graded:** Graded Quiz: Relational DB Concepts and Tables

WEEK 3

Intermediate SQL

In this module, you will learn how to use string patterns and ranges to search data and how to sort and group data in result sets. You will also practice composing nested queries and execute select statements to access data from multiple tables.



 7 videos, 2 readings, 2 practice quizzes

1. **Video:** Using String Patterns and Ranges
2. **Video:** Sorting Result Sets
3. **Video:** Grouping Result Sets



4. **Ungraded Plugin:** Hands-on Lab : String Patterns, Sorting & Grouping
5. **Reading:** Summary & Highlights
6. **Practice Quiz:** Practice Quiz
7. **Video:** Built-in Database Functions
8. **Video:** Date and Time Built-in Functions
9. **Ungraded Plugin:** Hands-on Lab: Built-in functions
10. **Video:** Sub-Queries and Nested Selects
11. **Ungraded Plugin:** Hands-on Lab: Sub-queries and Nested SELECTs
12. **Video:** Working with Multiple Tables
13. **Ungraded Plugin:** Hands-on Lab: Working with Multiple Tables
14. **Reading:** Summary & Highlights
15. **Practice Quiz:** Practice Quiz


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-  **Graded:** Graded Quiz: Refining Your Results
-  **Graded:** Graded Quiz: Functions, Sub-Queries, Multiple Tables

WEEK 4

Accessing Databases using Python

In this module you will learn the basic concepts related to using Python to connect to databases. In a Jupyter Notebook, you will create tables, load data, query data using SQL, and analyze data using Python.

 5 videos, 1 reading, 1 practice quiz

1. **Video:** How to Access Databases Using Python
2. **Video:** Writing code using DB-API
3. **Video:** Connecting to a database using ibm_db API
4. **Ungraded Plugin:** Lab: Create Database Credentials
5. **LTI Item:** Hands-on Lab: Connecting to a database instance
6. **Video:** Creating tables, loading data and querying data
7. **LTI Item:** Hands-on Lab: Creating tables, inserting and querying Data
8. **Ungraded Plugin:** Introducing SQL Magic
9. **LTI Item:** Hands-on Tutorial: Accessing Databases with SQL magic



10. **Video:** Analyzing data with Python
11. **LTI Item:** Hands-on Lab: Analyzing a real World Data Set
12. **Reading:** Summary & Highlights
13. **Practice Quiz:** Practice Quiz


Show less

 **Graded:** Graded Quiz: Database access from Python

WEEK 5

Course Assignment

In this assignment, you will be working with multiple real world datasets for the city of Chicago. You will be asked questions that will help you understand the data just as you would in the real world. You will be assessed on the correctness of your SQL queries and results.

 2 videos, 1 reading

1. **Video:** Working with Real World Datasets
2. **Video:** Getting Table and Column Details
3. **Ungraded Plugin:** LOADING Data
4. **LTI Item:** Hands-on Lab: Practice Querying Real World Datasets
5. **Ungraded Plugin:** Instructions for Peer-graded assignment
6. **LTI Item:** Jupyter Notebook with Problems for Peer Reviewed Assignment
7. **Reading:** Congratulations & Next Steps

Show less

 **Graded:** Submit Your Work and Review Your Peers

 **Graded:** Final Exam

WEEK 6

Bonus Module: Advanced SQL for Data Engineering (Honors)

This module covers some advanced SQL techniques that will be useful for Data Engineers. If you are following the Data Engineering track, you must complete this module. Completion of this module is not required for those completing the Data Science or Data Analyst tracks. In this module, you will learn how to build more powerful queries with advanced SQL techniques like views, transactions, stored procedures and joins.

6 videos, 3 readings, 2 practice quizzes **expand**

1. **Reading:** About this Honors module
2. **Graded:** Graded Quiz: Views, Stored Procedures and Transactions
2. **Video:** Views
3. **Graded:** Graded Quiz: JOIN operations
3. **Ungraded Plugin:** Hands-on Lab: Using Views
4. **Video:** Stored Procedures

- View Less**
5. **Ungraded Plugin:** Hands-on Lab: Stored Procedures
 6. **Video:** ACID Transactions

- How It Works**
7. **Ungraded Plugin:** Hands-on Lab: Committing and rolling back a transaction

8. **Reading:** Summary & Highlights

General **Practice Quiz:** Practice Quiz

10. **Video:** Join Overview

How do I pass the course?

12. **Video:** Outer Joins

To earn your Course Certificate, you'll need to earn a passing

grade on each of the required assignments—these can be quizzes,

peer graded assignments, or programming assignments. Videos, readings,

and practice exercises are there to help you prepare for the graded

assignments.

16. **Ungraded Plugin:** Practice Hands-on Lab: Joins

Peer-graded assignments

17. **Ungraded Plugin:** Final Project: Advanced SQL for Data Engineers

What do start dates and end dates mean?

Peer-graded assignments require you and your classmates

to

you'll have access to all videos, readings, quizzes, and programming assignments (if applicable). If you choose to

More

explore the course without purchasing, you may not be able to access certain assignments. If you don't finish all graded assignments before

the end of the course, you can reset your deadlines. Your

progress will be saved and you'll be able to pick up where you left off.

View the course in catalog

After you submit your assignment, you will review some of your peers' assignments.

The number of assignments you must review is set by the instructor of the course.

Related Courses
What are due dates? Is there a penalty for submitting my work after a due date?

I re

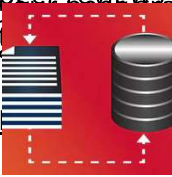


Are design information Seeking?

Coursera

pe, there are suggestions to help you
University of Copenhagen, Technical University of Denmark
schedule and keep coursework from piling up. Quizzes and
Even though your peers' assignments, they'll review yours. If you submit
assignments can be submitted late without consequence.

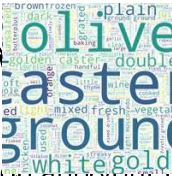
your assignment on time, you'll get your grade within a week, as long as at least one
However, it is possible that you won't receive a grade if you submit
peer reviews your assignment. If you submit late, you'll need all of the peer reviews
submitted assignment too late because classmates usually review
Calculate Data in SQL using MySQL Workbench



Coursera Project Network
about Peer Graded Assignments.

Can I re-attempt an assignment?

How



Creating a Wordcloud using NLP and TF-IDF in

Python

How is your grade calculated? Your grade, you can always try again.

Attempting a peer-graded assignment, re-submit your work

Coursera Project Network

to review your work. In some cases you may need to wait before
the assignment. Final grades are calculated by combining the median scores you
received for each section.



Disease Screening in Public Health

University of Geneva, University of Lausanne

Wh

Feedback should I give?

Use the instructor's criteria in the rubric to grade honestly and fairly. If your
p are excellent, score them highly and tell them what they did well. If their
a as good as they deserve, and be sure to provide



Astro 101: Black Holes

University of Alberta

respectful, useful feedback

so they can do better next time they attempt the assignment.

Is there a penalty for submitting my work late?

No, but it's important to submit your work as close to the due date as you can.

Classmates grade most of the assignments within three days of the due date.

If you submit yours too late, there may not be anyone to review your work.

If I fail an assignment, can I try again?

Yes! You can always try again, but you'll need to resubmit your work as

soon as possible to make sure your classmates have enough time to grade your work.



Can I edit my assignment?

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Yes, but you'll need to re-submit your work and any grade you've already received will be deleted.