

NORTHWESTERN CONNECTICUT COMMUNITY COLLEGE

COURSE SYLLABUS

Course Title: Data Science in R

Course # DTS *201

Course Description: 3 credits

Introduction to the field of data science and the programming language of R. Explores the data science lifecycle, including question formulation, data collection and cleaning, exploratory data analysis and visualization, statistical inference and prediction, and decision-making. Focuses on quantitative critical thinking and key principles and techniques needed to carry out this cycle. No prior programming experience required.

Pre-Requisite: C or better in MAT*167

Goals:

Students will develop a strong foundation in the programming language of R, including the various concepts, methodologies, and competencies that a data scientist must possess in order to be successful. These include the data science lifecycle, decision-making, and quantitative critical-thinking.

Outcomes:

Upon successful completion of this course, each student will be able to:

1. Explain the field of data science.
2. Apply techniques to import, clean, and transform data.
3. Practice exploratory analysis and visualization of data techniques.
4. Analyze and interpret data to tell a story.
5. Utilize the programming language R to manipulate data.

NORTHWESTERN CONNECTICUT COMMUNITY COLLEGE
Fall 2020

Course: Data Science in R
Course Number: DTS*201-01 (CRN 3266)
Meeting Days/Times: Online
Instructor: Prof. Crystal Wiggins
Communication:
 MS Teams Chat (See Blackboard for information)
 Email cwiggins@nwcc.edu
Office Hours: Online via MS Teams

Resources:

DataQuest: www.dataquest.io (**FREE**)

RStudio: This course will use RStudio. We will be using the cloud-based version (rstudio.cloud) however you can also use the downloadable version of RStudio (instructions on how to download will be given during the course). (**FREE**)

Course Overview: See “Course Overview” document posted under “Syllabus & Course Overview” in the Blackboard menu. The Course Overview is a quick guide to assignments, exams, and projects and their due dates.

Grading Policy

The semester grade will be calculated as follows:

Intro Discussion Posts	5%
Miscellaneous Assignments	15%
DataQuest Missions	20%
DataQuest Projects	30%
Final Project	30%

Final Project: The final project will be announced and explained on Blackboard.

Grading will be in accordance with the college catalog as follows:

		<u>Percentages</u>	
A	93 – 100	C-	70 – 72
A-	90 – 92	D+	67 – 69
B+	87 – 89	D	63 - 66
B	83 – 87	D-	60 – 62
B-	80 – 83	F	below 60
C+	77 – 79		
C	73 – 76		

Attendance: You are expected to check blackboard, including MS Teams, **at least 3** times a week.

Online Policies—Netiquette

If you were attending an on-ground class, I would make you aware of behavior expectations (cell phones are shut off, common courtesy toward your classmates, etc). Online courses can be a bit more tricky. There is a tendency to “hide” behind the computer and emails, and often, things get said in emails or discussion posts that you might otherwise not have said if you were face to face. So please, **THINK BEFORE YOU POST**. Ask yourself if what you are about to

post or email is something you would say to me or a classmate in person; *if you wouldn't say it in person, then don't post/email it!* Remember, EVERYONE can see what you post on the Discussion Board! If you have something of a more personal nature to discuss with me, feel free to message me via BlackBoard Messenger.

Week	Dates	Topic	Assignments	Due Dates
0	8/26 – 8/30	Intro to Data Science and DataQuest	> Intro Post – Discussion Board > DataQuest Account	Sunday 8/30 by 11:59 PM
1	8/31 – 9/6	DataQuest – Intro to R: 1. Intro to Data Analysis in R <i>(You do NOT need to install RStudio, we will be using RStudio Cloud)</i> 2. Data Structures in R Lecture: RStudio Cloud Basics & how to export a project to submit in Blackboard	> Complete DQ Intro to R courses 1 & 2 > Project: Investigating COVID-19 Virus Trends	Sunday 9/6 by 11:59 PM Sunday 9/13 by 11:59 PM
2	9/7 – 9/13	DataQuest Project: Investigating COVID-19 Virus Trends	>Complete DQ Project: Investigating COVID-19 Virus Trends Submit in Blackboard under “Project Submissions”	Sunday 9/13 by 11:59 PM
3	9/14 – 9/20	DataQuest – Intro to R: 3. Control Flow, Iteration and Functions in R <i>(skip Guided Project)</i> 4. Specialized Data Processing in R <i>(skip Guided Project)</i>	> Complete DQ Intro to R courses 3 & 4	Sunday 9/20 by 11:59 PM Sunday 9/27 by 11:59 PM
4	9/21 – 9/27	DataQuest – Data Visualization in R: 1. Data Visualization in R	> Complete DQ Course: Data Visualization in R > Project: Analyzing Forest Fire Data	Sunday 9/27 by 11:59 PM
5	9/28 – 10/4	DataQuest Project: Analyzing Forest Fire Data	> Complete DQ Project: Analyzing Forest Fire Data – Submit in Blackboard under “Project Submissions”	Sunday 10/4 by 11:59 PM
6	10/5 – 10/11	DataQuest – Data Cleaning in R: 1. Data Cleaning in R <i>(skip Guided Project)</i>	> Complete DQ Course: Data Cleaning in R	Sunday 10/11 by 11:59 PM
7	10/12 – 10/18	DataQuest – Data Cleaning in R: 2. Advanced	> Complete DQ Course: Data Cleaning in R: Advanced	Sunday 10/18 by 11:59 PM

8	10/19 – 10/25	DataQuest – Working with Data Sources: 1. SQL Fundamentals <i>(skip Guided Project)</i>	> Complete DQ Course: SQL Fundamentals	Sunday 10/25 by 11:59 PM
9	10/26 – 11/1	DataQuest – Working with Data Sources: 2. Intermediate SQL in R <i>(skip Guided Project)</i>	> Complete DQ Course: Intermediate SQL in R	Sunday 11/1 by 11:59 PM
10	11/2 – 11/8	DataQuest – Probability and Statistics: 1. Statistics Fundamentals in R	> Complete DQ Course: Statistics Fundamentals in R >Project: Investigating Fandango Movie Ratings	Sunday 11/8 by 11:59 PM Sunday 11/15 by 11:59 PM
11	11/9 – 11/15	DataQuest Project: Investigating Fandango Movie Ratings	> Complete DQ Project: Investigating Fandango Movie Ratings Submit in Blackboard under “Project Submissions”	Sunday 11/15 by 11:59 PM
12	11/16 – 11/22	DataQuest – Probability and Statistics: 2. Statistics Intermediate in R: Averages and Variability <i>(skip Guided Project)</i>	> Complete DQ Course: Statistics Intermediate in R: Averages and Variability	Sunday 11/22 by 11:59 PM
13	11/23 – 11/29	Final Project	> Work on the final project	Sunday 12/13 by 11:59 PM
14	11/30 – 12/6	Final Project	> Work on the final project	Sunday 12/13 by 11:59 PM
15	12/7 – 12/13	Final Project	> Complete Final Project Submit in Blackboard under “Project Submissions”	Sunday 12/13 by 11:59 PM