

 2023-2024	DATA101N Intro to Data Analytics Section ES	Fall 2023
Department	Department of Mathematics & Science	
Instructor	Dr. K Seefeld, EdD	
NCC Email	kseefeld@ccsnh.edu	
Telephone Number	(603) 578–6815 ext. 1554	
Office Hours	Thurs 4-6 on tutoring or by appointment	
Office Location	167 Streeter Hall	
Class Days/Meeting Time	Online, asynchronous with a weekly deadline structure	
Class Location	Canvas	

Rationale

This course explores the field of data analytics and data science. It introduces the tools and concepts used in the field and acquaints students toward areas that may interest them. It also serves as the first ‘orientation’ course for the NCC data analytics program (certificate or degree).

Course Description

In this course students receive an introduction to the tools and processes used by data analysts. This course gives an overview of the data life cycle including collecting, storing, formatting, and preparing data. This course introduces the ideas behind analyzing data to make data informed decisions. Additionally, this course will introduce how to communicate results through visualizations. A basic understanding of spreadsheets is recommended.

Course Competencies

1. Describe data science in the context of big data.
2. Describe and apply the data science life cycle.
3. Describe data
4. Describe the extract, transform, and load process and why it is important.
5. Apply programming to the extract, transform and load process.
6. Analyze real-world problems based on data analysis techniques
7. Explain solutions

Essential Questions

1. Why does it mean for data to be “cleaned” and why is it so important?
2. What is the extract, transform and load process?
3. How can data be investigated to determine the answers to key business questions?

Required Materials

Textbook(s):

Textbooks (purchase through NCC bookstore, has paper and electronic version)

Intro to Data Science

ISBN: 9781506377537

Author Saltz

Publisher: Sage Publications, Incorporated

Copyright Year: 2018

Software (no cost to students, course videos will explain how to obtain/install)

Microsoft Excel software

Posit software (R studio)

Course Structure and Expectations:

This course is 100% online with no live meetings. It requires students to have the ability to work independently. There are however course activities designed to foster a sense of community in the class. Although we will not be together at the same time you will interact with each other and get to know your classmates during this course.

Canvas is the home base for the class – all work and course activities occur on Canvas. This course will follow a structured weekly pattern where weeks (except for week 1) begin on Friday 8 am and ends on the following Friday at 4 pm (there is an overlap on Fridays, and I am generally more available to assist online students on Fridays). All work for that week must be done when expected – this is not a self-paced course. Many of the course components build upon each other and several involve timely interaction with classmates.

Every week I will post a video for you as a weekly overview (I will be making these weekly, so they are current for the class). This is a short 'class' orienting you to the week's work and discussing any issues or special things for that week. This will be approximately 30 minutes long and will be the first thing you will do each week.

The text will be relatively closely followed (see schedule) and provides a reference for you and a guide for the class. You are expected to read it independently (I will highlight in weekly videos what's important).

Weekly activities will always involve some analytical lab activities (for which I will post guided activities and videos demonstrating), quizzes on what is covered in videos, and associated homework (for which you will do on your own and submit) using R Studio. Generally, there will be a discussion board to post on as well. It is very important you participate in discussions in this online class to foster community and create a learning environment. Some weeks there is a practicum assignment. Here you will do something 'practical' related to data analytics (think of it as a virtual exploration/field trip) and share it with the class in a discussion the following week. These practicums should be short video recordings you do and share with the class.

Grading:

Practicums	30%
Labs/HW	30%
Quizzes	10%
Discussions	30%

The time to negotiate a disappointing grade is immediately after the grade is awarded (within 72 hours of posting the grade) and not the end of the semester. I am generally very good about promptly posting grades.

Final course grades are assigned based on the standard scale below.

		B+	87-89	C+	77-79	D+	67-69		
A	93-100	B	83-86	C	73-76	D	63-66	F	< 60
A-	90-92	B-	80-82	C-	70-72	D-	60-62		

Available Support Services**NCC Library:**

Get help with research for your papers and assignments from the NCC librarian and staff. Email ncclibrary@ccsnh.edu

Tutoring and Writing Center:

The Tutoring and Writing Center, located in the library, offers free academic support services to all NCC students. <https://library.nashuacc.edu/home/tutoring>

Accessibility:

Students who think they may have or have a documented disability (physical, learning, or mental health) and/or had an IEP or 504 Plan in high school who may need classroom accommodations must meet with the Accessibility Services Coordinator to set up an NCC Reasonable Accommodation Plan (RAP). For more information view the Accessibility page: <https://www.nashuacc.edu/student-services/disability-accessibility-information> and/or contact Jodi Quinn, Accessibility Services Coordinator (office located in the library), at jquinn@ccnsh.edu or (603) 578-8996.

CARE Team:

Students in need of assistance in the areas of mental health or basic support services (such as food, clothing, shelter, substance abuse or others) should contact the [NCC CARES Team](#).

Student Assistance Program:

Students in need of confidential counseling services should visit the [NCC Student Assistance Program](#) page on the NCC website

English for Speakers of Other Languages:

The ESOL Program provides a variety of services for non-native speakers of English. <https://nashuacc.edu/programs/esol-esl/>

Department Policies

The data analytics program at NCC is part of the NCC Mathematics and Science department.

College Policies**Non-Discrimination:**

The NCC Equity Committee is designated to coordinate compliance with the Non-Discrimination Policy and handles all concerns of discrimination that occur on campus that are not covered under Title IX. View more information here [Non-Discrimination Policy and Grievance Procedure](#)

Title IX:

Classroom instructors at Nashua Community College are encouraged to create and maintain a safe learning environment in which students feel able to share opinions and related life experiences in classroom discussions, in written work, and in meetings with professors. To the greatest extent possible, this information will be kept private. However, staff and faculty have a legal obligation to report information concerning sexual misconduct, violence and exploitation of individuals per federal statute and in compliance with established policies and procedures at Nashua Community College. If you have been subjected to sexual misconduct, violence or exploitation, we encourage you to contact your NCC Title IX Coordinator, Vice President of Student and Community Affairs, Lizbeth Gonzalez, for support and assistance. She can be reached at Nashua Community College, 505 Amherst Street, Nashua, NH, 603-578-8928 or lgonzalez@ccsnh.edu. You may also contact Bridges, the local crisis center, for free and confidential services at their 24hr support line 603-883-3044. You do not need to be in crisis to call. Nashua Community College encourages you to download uSafeUS® <https://usafeus.org/>, a free and confidential app that helps protect yourself and your community. Additional information including resources can be found here [Title IX Policy and Grievance Procedure](#).

Attendance:

Regular attendance and active participation are essential for academic success and NCC takes student attendance very seriously.

Every student should carefully review the [NCC attendance policies](#).

NCC Academic Failure Policy

Students with excessive absences or who display disruptive classroom behavior may be subject to the college's Academic Failure policy. All students should carefully review the policy found here: [AF Policy | Nashua Community College](#)

Classroom Audio Recording Policy

[Classroom Audio Recording Policy | Nashua Community College](#)

Canvas:

Canvas is the online learning management system used by instructors and learners at Nashua Community College. Information regarding the specific uses of Canvas and Canvas help for students can be found here: [Canvas | Nashua Community College](#)

Forgotten Login Information:

If you have forgotten your Easy Login Password information, please visit the following link: <https://password.ccsnh.edu/accounts/Reset>

EAB Alerts:

Faculty can issue "Alerts" for students at any time. The administration at NCC encourages professors to issue alerts for any student who may be having difficulty in the course. When a faculty member raises an alert, both the student and student's advisor receive an automated email based on the alert raised. Faculty can issue an alert through EAB Navigate on the college website or directly using the following link: <https://nashuacc.campus.eab.com>

College Email System:

Nashua Community College utilizes a college email system as a means of the College sending official information to enrolled students, and for students to send communication to their instructors and College personnel. Specific details regarding the use of the college's email system can be found here [College Email System | Nashua Community College](#)

Sensitive Materials Policy:

During the semester, in order to cover certain academic topics, there may be occasions to view or discuss material which may not meet the student's own personal definition of

appropriateness. In those cases, students should refer to the [NCC Sensitive Materials Policy](#)

Academic Conduct:

All students are expected maintain high standards of academic integrity as they complete their coursework at NCC. Cheating and plagiarism are violations of the Student Code of Conduct and all instances of academic dishonesty are taken very seriously by the College.

[Cheating](#)

[NCC Plagiarism Policy](#)

Diversity, Equity, and Inclusion Statement:

[Diversity, Equity, and Inclusion Statement | Nashua Community College](#)

NCC Credit Hour Guidelines:

[Credit Hour Guidelines | Nashua Community College](#)

Course Calendar

Date start to end	Week	Theme	Coverage	Text
8/28 to 9/1*	1	Introduction	Install Posit (RStudio) and Excel	3 and 7
<i>NOTE *Weeks close at 4 pm on Fridays</i>			What is data science and data analytics?	
			Careers and opportunities in data analytics	
			Tools and skills used	
			<i>Targeted competencies</i>	
			1. Describe data science in the context of big data.	
			2. Describe and apply the data science life cycle.	
9/1 to 9/8	2	All about data	Types of data	4,5 and 6
			Unstructured vs structured data	
			Structured data row/column manipulation	
			Working with data in RStudio	
			<i>Targeted competencies</i>	
			3. Describe data	
			4. Describe the extract, transform, and load process and why it is important.	

9/8 to 9/15	3	Analytical foundations	Statistical concepts	8,9,10 and 16
			Data summaries	
			Functions	
			RStudio exercises	
			<i>Targeted competencies</i>	
			6. <i>Analyze real-world problems based on data analysis techniques</i>	
			7. <i>Explain solutions</i>	
9/15 to 9/22	4	Data wrangling	Data cleaning	
			Data import/export	
			Joining, merging, sub setting data	
			SQL	
			RStudio exercises	
			<i>Targeted competencies</i>	
			5. <i>Apply programming to the extract, transform and load process.</i>	
9/22 to 9/29	5	Data mining	Overview of data mining	17, 18 and 20
			Algorithms of data mining basics	
			Analyzing text data	
			RStudio exercises	
9/29 to 10/6	6	Data visualization	Graphs	12 and 13
			Maps	
			Storytelling and communicating	
			RStudio exercises	

10/6 to 10/13	7	AI and ethical issues	ChatGPT	
			Relation of AI to data analytics	
			Laws and ethical issues in analytics	
10/13 to 10/20	8	Course completion	Course reflection due	

[This schedule is subject to change](#)