DOUGLAS COLLEGE
COMMERCE AND BUSINESS ADMINISTRATION

# CSIS 3860 003 Data Visualization

| | | | |
|---|---|---|---|
| **Semester:** | *Fall 2024* | **Instructor:** | *Rupa Manabala* |
| **Course Time:** | *Tuesdays 12:30 PM – 03:20 PM* | **Room:** | *Anvil Tower AOT 809* |
| **Email:** | *manabalas@douglascollege.ca* | **Telephone:** | *604-527-5080* |
| **Office Hours:** | Mondays 11:00 AM – 12:00 PM<br>Wednesdays 09:00 – 10:00 AM<br>Via Zoom | **Location:** | *Office room# N4335 D* |

*All times shown are in Pacific Standard times (Vancouver, Canada time)

## COURSE MATERIALS REQUIRED

Textbooks and Recommended Resources:

- *Learning Tableau 2022 – 5th Edition by Joshua Milligan ISBN* 9781801072328 – Packt Publishing - eBook available from publisher's website and/or Book store (https://www.packtpub.com/product/learning-tableau-2022-fifth-edition/9781801072328)
  *If purchasing from College bookstore, use the following URL*
  LEARNING TABLEAU 2022 5TH ED * VS DIGITAL ONLY ETEXT LIFETIME
  **https://douglascollege.vitalsource.com/products/learning-tableau-2022-joshua-n-milligan-blair-v9781801079648?term=9781801079648**
- *Tableau Desktop Manual/Documentation/Help*
  *http://www.tableausoftware.com/support/help*.
- Microsoft Power BI Quick Start Guide – 3rd Edition - Devin Knight, Mitchell Pearson, Bradley Schacht,, et al – ISBN 9781804613498 – Packt Publishing – eBook available from publisher's website (https://www.packtpub.com/product/microsoft-power-bi-quick-start-guide-second-edition/9781804613498 and/or Book store. Book Store URL –
- MICROSOFT POWER BI QUICK START GUIDE 3E *VS DIGITAL ONLY ETEXT LIFETIME
  **https://douglascollege.vitalsource.com/products/microsoft-power-bi-quick-start-guide-devin-knight-erin-ostrowsky-v9781804612668?term=9781804612668**
- *Microsoft Power BI – Documentation https://docs.microsoft.com/en-us/power-bi/fundamentals/desktop-get-the-desktop*

## COURSE SPECIFIC TECHNICAL REQUIREMENTS

Hardware: Recommended – A Windows based machine and one USB Drive – minimum 16GB

Software: Windows Operating System is recommended.

Note: If students are using Mac OS, it is expected that they find their own support system/resources and be able to run certain commands or use certain features

**Pre-Requisites – This course does not have any pre-requisites.**

**CALENDAR COURSE DESCRIPTION**

In this course, students will learn the skills to present analytics results in a clear, concise and visually appealing manner. This hands-on course will introduce students to various tools and techniques of data visualization, visualization best practices, and common pitfalls. Use of Data Visualization tools such as Tableau is adopted in this course for the hands-on skills. Students will also work on building targeted dashboards based on their audience's need. Other tools such as d3.js, dc.js, Google Charts, etc. are also introduced to reflect on the variety of data visualization tools available for a data analyst to visualize the results of analysis.

**COURSE OBJECTIVES**

The student will be able to:

1. Explain foundations of Big Data Analytics & Data Mining Process
2. Explain core skills for Information Visualization and available visualization tools available in market
3. Demonstrate the use of data visualization tools such as Tableau
4. Explore other data visualization tools such as D3.JS or Google Charts, etc.
5. Examine effective ways of visual analysis
6. Create compelling and effective interactive dashboards.
7. Incorporate geospatial visualization in Dashboards
8. Publish Dashboards
9. Choose the right visualization tool for different data sets.

**METHODS OF INSTRUCTION:**

*Lectures, seminars, demonstrations, and hands-on exercises* using Tableau Desktop and Microsoft Power BI Desktop – *in-person on campus.*

**COURSE EVALUATION**

*Course evaluation items and their weightage for the final grade*:

| | |
|---|---|
| Assignments - 3** | 15% |
| Term Project – 1** | 10% |
| Quizzes - 2** | 15% |
| Midterm Exam – 1** | 29% |
| Final Exam – 1** | 31% |
| TOTAL | 100**%** |

NOTE:

- ***In order to pass the course, students must, in addition to receiving an overall course grade of 50%, also achieve a grade of at least 50% on the combined weighted examination components (including quizzes, tests, and exams)*
- *A student must complete at least 70% of all the evaluations for this course in order to obtain credits; otherwise, the student will be assigned an UN Grade as the final grade.*
- *Attendance is required for this course and if you miss more than 30% of the class, you will* receive UN Grade for your course grade.
- *FINAL EXAM IS MANDATORY. If you do not attempt the final exam, you will receive UN as your final grade.*

**Douglas College Grading System**

| Grade | Numerical Value | Achievement Level |
|---|---|---|
| A+ | 4.33 | 90% to 100% |
| A | 4.00 | 85% to 89% |
| A- | 3.67 | 80% to 84% |
| B+ | 3.33 | 77% to 79% |
| B | 3.00 | 73% to 76% |
| B- | 2.67 | 70% to 72% |
| C+ | 2.33 | 65% to 69% |
| C | 2.00 | 60% to 64% |
| C- | 1.67 | 55% to 59% |
| D | 1.00 | 50% to 54% |
| F | 0.00 | 49% and below |
| UN | 0.00 | Students completed less than 70% of the total evaluation of the course or missed more than 30% of the class where the instructor's Course Outline specifies that attendance is a course requirement. |
| W | N/A | Does not include GPA calculation. |

**REGULATIONS FOR STUDENTS**

Late assignments: Late assignments/labs will not be graded and receive an automatic zero mark except for extraordinary circumstances or prior arrangements with the instructor. Students are encouraged to keep extra copies (i.e., photocopies or file backups) of their assignments in case of data loss in the digital world.

Missed tests or final examination**: Student** will receive a zero mark for any missed test(s). Exceptions may be considered in cases of extraordinary circumstances such as accidents, deaths in the family, family emergencies' including sick children. It is the responsibility of the student to inform the College and/or the instructor at the earliest reasonable opportunity. Notification of the possibility of missing the test or exam must be done prior to the test or exam date/time and based on the instructor's preference might require supportive documentation where applicable.

Classroom Civility and Shared Responsibility: Class time, online or in-person, will include interactive lectures, class-participative case analysis and the occasional computer simulation or project workshop. So, class time is valuable to us all. Students are expected to attend, complete all assignments and activities and are responsible for communicating with the instructor if they are unable to complete an assessment.

Student Conduct: Any student who displays disruptive or dangerous behavior will be asked to leave the classroom/lab by the instructor. Such behavior will be classified as misconduct. Reprimands and appeals will be exercised according to the Douglas College Student Conduct policy.

Timeliness: Students are expected to be in class at the start of class. Any late student should enter the session and try to not interrupt the flow of class activity as per Douglas College Student Conduct policy.

Class Cancellation: If a class is cancelled due to unforeseen circumstances, a notification will be made through Blackboard to every student enrolled in the course. It is the responsibility of students to be proactive and to check their announcements and/or e-mail before coming to class. Every effort will be made to ensure that the notification is made as soon as possible.

Illness and other unavoidable circumstances: Except in extraordinary circumstances, quizzes, tests, exam and assignment deadlines must be adhered too. If unable to attend or submit, advance notice must be provided via email at your earliest opportunity. On the email include

- Course and section number (e.g., CSIS 3860-003)
- Your name and student number (e.g., Student Number 212121212)
- Late assignment or missed quiz (e.g., Missed Quiz #1)
- Brief comment (e.g., Explanation of reasoning)

Without documentation such as a doctor's letter, the instructor will discuss the most appropriate course of action that will lead to fair evaluation of your overall learning in the course. Students must use their Douglas College email account to communicate with the instructor and communication must be in English.

Preparation, Attendance and Participation: Attendance will be taken on a regular basis. The method of delivery includes classroom discussion and lab exercises; and students need to be present in order to participate and to learn.

> Student Effort: In addition to the scheduled times for classes and labs, students are expected to spend at least 6 hours a week on this course. If you are consistently spending more time than this, consider speaking with your instructor or reaching out to the Accessibility Centre for assistance.

This following schedule is tentative and subject to change, as per the College policy.
Please do not make any travel arrangements during the final examination period – final exam scheduling is beyond the instructor's control. Please see the Registrar's office immediately with any conflict(s).

**COURSE TENTATIVE SCHEDULE:**

| WEEK # | DATES | WEEKLY TOPICS AND ACTIVITIES | READINGS AND ASSIGNMENT DUE DATES |
|---|---|---|---|
| Week 01 | 2024-09-03 | Course Overview<br>Understanding Big Data and Business Intelligence. Creating Visual Analytics with Tableau Desktop | Introduction, Excel Charts, Getting Tableau Desktop |
| Week 02 | 2024-09-10 | Taking off with Tableau and Connecting to your Data. Receive Assignment #1 | Tableau Chapters 1 & 2 |
| Week 03 | 2024-09-17 | Moving beyond your basic visualizations. Starting an adventure with calculations and parameters. Receive Term Project | Tableau Chapters 3 & 4<br>Assignment #1 Due |
| Week 04 | 2024-09-24 | Leveraging level of Detail and diving deep with Table calculations | Tableau Chapters 5 & 6 |
| Week 05 | 2024-10-01 | QUIZ #1 – Weeks 1 – 4. Visual Analytics: Trends, clustering, Distributions, and Forecasting; Receive Assignment #2 | Quiz #1. Tableau Chapter 9 |
| Week 06 | 2024-10-08 | Advanced visualizations<br>Exploring mapping and advanced geographical features. | Tableau Chapters 10 & 12 |
| Week 07 | 2024-10-15 | Telling a data story with dashboards | Tableau – Chapters 8 & 11. Assignment #2 Due |
| Week 08 | 2024-10-22 | Midterm Exam – Weeks 1 – 7 | Midterm Exam – Tableau Desktop. |
| Week 09 | 2024-10-29 | Promising Trends in Information Visualization. Microsoft Power BI Desktop – Getting started with importing Data | Microsoft Power BI Desktop Documentation & Chapters, 1 & 2 |
| Week 10 | 2024-11-05 | Monday Nov 04th – Last day to drop a course and receive 'W'. Data transformation strategies and building the data model. | Chapters 3 & 4. |
| Week 11 | 2024-11-12 | Leveraging DAX | Chapter 5. Receive Assignment #3 |
| Week 12 | 2024-11-19 | Quiz #2. Visualizing Data | Quiz #2. Chapter 6 |
| Week 13 | 2024-11-26 | Digital Storytelling with Power BI | Chapter 7 Assignment #3 Due |
| Week 14 | 2024-12-03 | Term Project Presentations | Group Presentations |
| Week 15 | Dec 06h – 15th | Final Exam period | Exam Date - TBA |

**LINKS TO IMPORTANT INFORMATION AVAILABLE ON COLLEGE WEBSITE:**

1. *Minimum technical requirements for taking courses online at Douglas College*
2. *Technical support information for students on the College website*
3. *Academic Integrity Policy (*Douglas College Educational Policy)
   Plagiarism and Cheating:

   The use and/or reference of any/all websites (e.g. coursehero.com or similar) which host copies of Douglas College course work assessments such as but not limited to Quizzes, assignments, midterms, labs, exams, practical work, etc. constitutes plagiarism**.**
4. *Course transferability*
5. *Covid-19 safety and guidance*
6. *Dates and Deadlines*
7. *Bookstore*
8. *Accessibility Services* – Carrie Keen for CBA Students
9. *Library*
10. Current Course Curriculum guideline - https://www.douglascollege.ca/course/csis-3860 You can find the course pre-requisite and other relevant information on this course that can help you further

!!!*** WISH YOU ALL THE VERY BEST FOR THIS COURSE ***!!!