University of North Texas
G. Brint Ryan College of Business
Information Technology and Decision Sciences
DSCI 4700 Business Process Analytics

Subject to Change

Course Information

DSCI 4700 – Business Process Analytics
Fall 2025
Class Meeting on Thursday, 8:00 a.m. – 11:50 a.m.
Class Location: Sage 365
Class material through Canvas at: https://unt.instructure.com

Instructor Contact

Instructor: Dr. Donna Glenn
Phone 940.565.3668
Office location: 379E
Office hours: Thursday 11:00 a.m. – 12:00 p.m. Monday by zoom from 10:00 a.m. – noon and by appointment
Email: Use the Inbox in Canvas (MUST include DSCI 4700 in the Subject Line).
Normally, I will reply to an email within 24 to 48 hours.
To ensure a quick response over the weekends, please email me no later than Friday mornings.
Occasionally I will be unable to respond within that time frame but will inform the class in advance.

Required Text and Materials:

Textbook: *An Introduction to Six Sigma & Process Improvement (2nd edition).* Evans/Lindsay (2015), Cengage.

Other Reference: *Pande, Peter S., Neuman, Robert P. & Cavanagh, Roland R. The Six Sigma Way: Team Fieldbook, McGraw Hill, 2002 (Paperback)*

Fabio Nelli. Python Data Analytics: Data Analysis and Science Using Pandas, Matplotlib and the Python Programming Language. Apress L.P. Available online at UNT Library.

Hardware & Software Requirements for course

- Personal Computer (PC)
- Reliable Internet access
- Webcam
- Speakers
- Microphone
- Microsoft Office Suite
- UNT Zoom Web Conferencing Tool

Course Pre-requisites and/or Other Restrictions

Must be taken during the graduating semester.
Prerequisite(s): BCIS 4660 or ACCT 4100 or LSCM 3960 or OPSM 3830; 2.7 UNT GPA (2.7 transfer GPA if no courses taken at UNT); a grade of C or better in each previously taken DSCI course.

Course Description

Study of the analytics that underlie the process of decision making and the information requirements of decisions, decision support tool selection, process improvement and applications development. Utilization of problem-solving techniques applied to the functional areas of business under risk and uncertainty. Business process analysis concepts, methodologies and tools are utilized in solving real problems in the business, government and academic settings. The foundations for this are business process analysis employing business process software, six sigma analysis and state-of-the-art statistical software. Students will develop and present solutions to the problems chosen for analysis. Emphasis is placed on problem structuring, creating solutions and presentations of solutions.

Course Philosophy
A variety of instructional techniques are used to achieve the pedagogical as of this course. The lectures are designed to introduce the philosophies and methodologies in quality science. Problems and methodologies are illustrated in class with a workshop like approach. The project component is intended to provide students with the opportunity to actively pursue a topic of interest.

Students will present on the progress of the project, so the class can engage in interactive discussion about each continuous improvement project. Zoom breakout rooms may be utilized to engage and discuss the progress of their project throughout the semester.

Objectives

The product of this course is a capstone project. Therefore, by the end of this course, students will

- Identify a project that is of interest to them where they can apply some of the concepts learned in their past courses
- Build a structured framework for solving business problems using advanced analytics.
- Identify and implement predict models most appropriate for a business situation.
- Utilize Python or another analytic software to visualize data.

All organizations have business processes that produce and deliver products and services to customers. This course examines the design and management of key business processes by focusing on the process flow, key performance measures and the management of the levers that lead to process improvement. The goal is to develop an understanding of modern business processes and to introduce the student to several process management tools including simulation. This course focuses on the utilization of problem-solving techniques applied to the functional areas of business under risk and uncertainty. Throughout the semester we will be working together to learn about business processes, their role in organizations and several dominant paradigms in process analytics and process improvement, including Lean Six Sigma, Business Process Management (BPM) and Process Mining. However, no less important are the significance of bias, with its critical impact on problem-solving and decision-making assumptions, as well as diversity and working teams. Please note that it is not my intent to re-introduce new concepts in detail, but rather to briefly review them, discuss and to guide you through implementation of the team project. You may see a significant overlap with contents of previous DSCI course. This is your capstone course, and the intent of this class is demonstrating cumulative knowledge in business analytics.

We will use Lean Six Sigma as a process improvement methodology focused on continuous improvement of business process through the DMAIC process. Students will be expected to apply this methodology to their projects by using the textbook and discussing it through discussion forums.

GRADING

Point Distribution

Component	Weight
Assignments/Quizzes/Discussion Forums which include in-class assignments (ICA's)	30%
Entire Capstone Team Project which includes paper, presentation, and individual grade.	70%
Total	100%

Grading Scale

Percent	Grade
90.0 – 100 %	A
80.0 – 89.9 %	B
70.0 – 79.9 %	C
60.0 – 69.9 %	D
Less than 60 %	F

Course structure and deadlines are subject to change to accommodate specific circumstances that may appear throughout the semester.

In class Assignments (ICA) / attendance

In class assignments cannot be made up. Many times, these assignments will require team participation and therefore not be able to be duplicated outside of the classroom. Because this course is largely interactive and depends on contributions from the class each week, attendance is critical. Excessive absences will impact your grade. In addition, coming in late is not best business practice. Therefore, excessive lateness may also impact your grade. Coming to class late is defined as arriving at 8:05 a.m. or later. Your grade may be reduced by 5 points each time you arrive late for the in-class assignment that day. Treat this class as if you were showing up to work. What would your boss say if you constantly came in late or missed the meetings that required your attendance?

Regular and punctual attendance for the full class period is expected. Attendance will be recorded. You must attend the entire class to avoid being recorded absent. More than 2 absences without a documented medical reason will reduce your overall grade by ½ a letter and more than 4 absences will reduce your overall grade by 1 letter. This policy includes coming to class late more than 10 minutes. Students are responsible for all material, changes in the schedule, and other information given during class even if they are absent.

Team project/presentation

The project requires the selection of a real-world problem. Working in teams, you will choose and develop a REAL project. There are no free rides and all students on a team must contribute as a fully functional team member. This is an opportunity to pull together and utilize the concepts, methodologies and tools you have acquired in other classes in a "live" situation. You should employ other areas of your knowledge, such as data mining, statistics, modeling, process flow analysis, simulation etc.

A team of students (3-5 in each team) is required to select a topic relevant to the course, conduct research and present the finding at the end of the semester with a written report and presentation. Teams will choose a team leader. If the team cannot come to a consensus of a team leader, one will be appointed by the instructor. Members of a team must be approved by the professor of the course.

Part of the team project must be prepared according to the following requirements and suggestions:

- Search for a topic by looking for a dataset by scanning the textbook or discussing with the professor.
- Conduct research to expand the topic beyond what is discussed in the textbook.
- The research will include peer-reviewed journal articles along with secondary resources.

The report portion must be prepared according to the following requirements and suggestions:

- Search for a topic by looking for a dataset by scanning the textbook or discussing with the professor. This will be the same topic for the entire team project.
- Conduct research to expand the topic beyond what is discussed in the textbook.
- Suggested length of the report – 10 double-spaced pages.

More details will be discussed and provided in class which includes the portion of the team project and the individual grading of the deliverables. A rubric will be provided.

Group Participation Policy

Group work is the cornerstone of this course. Except for the discussion portion and in class assignments (ICA), everything else will be completed in groups. Details on group formation will be delivered in class and/or in Canvas. The grading policy for every group work (deliverable) will be an individual grade based on the quality of individual participation, contributions and peer-evaluation.

Based on the volume of group work and the possibility that some team members may not contribute to the overall team success, a team may document problematic behaviors and recommend that a non-performing member of the team be "fired". In such circumstances, I will meet with the team and discuss the matter with a performance improvement plan (PIP). If the behavior reoccurs with the non-performing member, the person will be removed from

the team and must complete all remaining deliverables alone. The maximum grade that may be achieved for the non-performing student will be 80% of those associated points and result in a loss of one letter grade. Be aware that the instructor reserves the right to ask one or more of the team members to leave the team and be responsible for a different case study from scratch by him or herself. If a student is removed from their team, they will forfeit their individual grade of 100 points. This is a very difficult and time-consuming path that students generally prefer not to pursue, so we highly suggest you learn how to maintain good and harmonious team interactions. Team dynamics is very important in the real world of employment, and therefore each student should be professional and respectful of other students. This course offers students an opportunity to work collaboratively with others and develop skills necessary to analyze real world business problems.

All students will complete a final peer evaluation for their group members using a 1-5 scale. Team members averaging 4 or above will receive no penalty. Team members averaging between 2 and 3.9 will receive a penalty equivalent to 25-50% of the possible grade. Team members averaging between 1 and 2.9 will receive a penalty equivalent to 50-100% of the possible grade on the group project deliverables. Much of the group work will occur during class time so that groups can meet with me about the progress and group topics. As such, you must be present to be assigned to a group and participate in group meetings. If you do not attend class, you are still responsible for group work assigned to you. A team member fired by a team of voluntarily leaves the team will not be able to submit a peer-review at the end of the semester for a grade.

Course Policies

1. Use of artificial intelligence for the course deliverables (assignments, discussions, group projects, etc.) is strictly prohibited and violation of this policy will result in an F in this course.
2. This class will use TurnitIn for academic integrity enforcement.
3. No make-ups for missed work. Please do not ask.
4. Assignments are due when specified. No late assignments will be accepted.
5. If you miss class, you miss the classroom activity and will receive a grade of zero on it.
6. An Incomplete Grade ("I") is a non-punitive grade given only during the last one-fourth of a term/semester and only if a student (1) is passing the course with a 70% or better and (2) has a justifiable and documented reason, beyond the control of the student (such as serious illness or military service), for not completing the work on schedule. The student must arrange with the instructor to finish the course at a later date by completing specific requirements.
7. Exceptions to rules 1, 2, 3, or 4 only by advance arrangements in extraordinary, well-documented, circumstances.
8. All written assignments must be (a) 1.5 line spacing, (b) using a 12-point Times New Roman font and (c) a cover page. The cover page will contain you name(s), team number and name if a group assignment, title of writing and date. Be sure to use proper grammar and spelling. Use APA-style for citations and references.
9. Academic Integrity & Academic Dishonesty. Academic integrity is essential in your work, methods, and conduct. You will be permitted and encourage to study with other students and collaborate on team assignments, your work must be your original, individual effort. Written assignments are checked by plagiarism detection tools.
    a. Academic dishonesty on exams or individual written assignments will result in failing the course with a grade of an "F". Be sure to have the webcam facing you the entire time during your exams. No exceptions.
    b. Academic dishonesty on team projects: Your entire team will receive a zero for the assignment and you will receive a failing grade (F) for the course. If it cannot be determined which team member(s) were involved, the entire team will receive a failing grade (F) for the course.

COVID-19 Impact on Attendance

If you are experiencing any symptoms of COVID-19 (https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html) please seek medical attention from the Student Health and Wellness Center (940-565-2333 or askSHWC@unt.edu) or your health care provider PRIOR to coming to campus. UNT also requires you to contact the UNT COVID Hotline at 844-366-5892 or COVID@unt.edu for guidance on actions to take due to symptoms, pending or positive test results, or potential exposure. A medical excuse must be provided to be an excused absence.

Miscellaneous Policies

Technology Use

No electronics are allowed during class. Laptops and mobile devices should be put away during class. There is no reason to use a device during the lecture portion of the class. You may however use your laptop and mobile devices during our in-class assignments (ICA) and when I have granted permission to do so. Failure to follow these guidelines will result in being asked to leave the classroom. The only exception to this rule is the University disability policy.

Audio and video recording of the class is not allowed unless required by the University's disability policy and relevant law which should be provided during the first week of class in writing. Any recording that is given by the instructor of this course according to the University's disability law is allowed is for the use of that student only and not be shared with any other student or on any social media platforms.

When emailing:

- Always and only use your official UNT email when contacting the professor. Emails from other email providers will not be answered.
- Be sure to include "DSCI 4700 in the subject line
- Use clear and concise language
- Remember that all college level communication should have correct spelling and grammar. Avoid slang and texting abbreviations. Limit the use of emoticons
- Avoid using the caps lock – AS IT BE INTERPRETTED AS YELLING
- Be cautious when using humor or sarcasm. Tone is sometimes lost in an email or discussion post and your message may be taken seriously.
- Use a professor's proper title – dr. or Prof. or if you are in doubt use Mr. or Mrs. Don't refer to faculty by their first name unless specifically invited to do so.
- Sign your message with your name.
- Think before you send an email to more than one person. Does everyone really need to see your message? Likewise, be sure you really want everyone to receive your response when you click, "reply all".
- Be sure that a message's author intended for the information to be distributed before you click the "forward" button
- Be careful with personal information (both yours and other's)

EMERGENCY EVACUATION PROCEDURES FOR BUSINESS LEADERSHIP BUILDING:
For those students who find themselves on campus in the Business Leadership Building, the following evacuation procedure are provided:

Severe Weather In the event of severe weather, all building occupants should immediately seek shelter in the designated shelter-in-place area in the building. If unable to safely move to the designated shelter-in-place area, seek shelter in a windowless interior room or hallway on the lowest floor of the building. All building occupants should take shelter in rooms 055, 077, 090, and the restrooms on the basement level. In rooms 170, 155, and the restrooms on the first floor.

Bomb Threat/Fire In the event of a bomb threat or fire in the building, all building occupants should immediately evacuate the building using the nearest exit. Once outside, proceed to the designated assembly area. If unable to safely move to the designated assembly area, contact one or more members of your department or unit to let them know you are safe and inform them of your whereabouts. Persons with mobility impairments who are unable to safely exit the building should move to a designated area of refuge and await assistance from emergency responders. All building occupants should immediately evacuate the building and proceed to the south side of Crumley Hall in the grassy area, west of parking lot 24.

Code of Conduct and Ethics
Academic integrity must be exhibited in your academic work, methods and conduct. Course work for which you receive an individual grade must be your original, individual effort. If any evidence exists of copying, cheating, or any other forms of academic dishonesty on all, or part, of your graded course work, you (and any others involved) will be awarded a ZERO for that work. Sharing files also counts as academic dishonesty. A second incident will result in a grade of F in this course and a recommendation for further action by the office of the Vice President for Student Development.

Statement Below:
ETHICAL ACADEMIC BEHAVIOR STATEMENT **FOR ALL ITDS CLASSES**

The UNT College of Business and the ITDS Department expect their students to behave at all times in an ethical manner. There are at least two reasons for this. First, ethical behavior affirms the personal value and worth of the individual. Second, professionals in all fields (but particularly in information systems, accounting, and HR) frequently handle confidential information on behalf of their employers and clients. Thus, employers of UNT College of Business graduates expect ethical conduct from their employees because that behavior is crucial to the success of the organization. Academic dishonesty is a major violation of ethical behavior.

Students are expected to read (https://policy.unt.edu/policy/06-003) UNT's Student Standards of Academic Integrity which defines academic dishonesty and sets out the consequences for unethical academic behavior. Cheating and plagiarism are the most common types of academic dishonesty.

The UNT's Student Standards of Academic Integrity policy defines cheating as: The use of unauthorized assistance in an academic exercise, including but not limited to:

1. Use of any unauthorized assistance to take exams, tests, quizzes or other assessments.
2. Dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems or carrying out other assignments.
3. Acquisition, without permission, of tests, notes or other academic materials belonging to a faculty or staff member of the University.
4. Dual submission of a paper or project, or re-submission of a paper or project to a different class without express permission from the instructor.
5. Any other act designed to give a student an unfair advantage on an academic assignment.

The university's policy defines plagiarism as the "Use of another's thoughts or words without proper attribution in any academic exercise, regardless of the student's intent, including but not limited to:

1. The knowing or negligent use by paraphrase or direct quotation of the published or unpublished work of another person without full and clear acknowledgement or citation.
2. The knowing or negligent unacknowledged use of materials prepared by another person or by an agency engaged in selling term papers or other academic materials.

Examples of academic dishonesty in an ITDS class include: copying answers from another person's paper; using notes during an exam; copying computer code from another person's work; having someone else complete your assignments or take tests on your behalf; stealing code printouts, software, or exams; recycling assignments submitted by others in prior or current semesters as your own; and copying the words or ideas of others from books, articles, reports, presentations, etc. for use as your own thoughts without proper attribution (i.e., plagiarism). It does not matter whether you received permission from the owner of the copied work; claiming the material as your own is still academic dishonesty.

The ITDS Department believes it is very important to protect honest students from unfair competition with anyone trying to gain an advantage through academic dishonesty. Academic dishonesty is not tolerated in ITDS classes, and those who engage in such behavior are subject to sanctions as outlined in the UNT's policy and/or the course syllabus. You are strongly encouraged to read the policy carefully so that you are aware of what constitutes academic dishonesty and the consequences of this unethical behavior.

DSCI 4700 Fall 2025

Schedule (subject to change)

In-class assignments may vary week to week and not by date – be prepared

Due by Wednesday 11:59 p.m. unless otherwise noted

Week	Date	Topic/Reading	Assignments and Deliverables
1	8/21	Introductions Meet Your Classmates Discussion	Form teams
2	8/28	Problem Statement and Research question Topic Selection Introduction to Literature Review Dataset discussion Chapter 1 - The Foundations of Six Sigma Principles of Quality Management	Team Contracts Due the following week Discussion Forum 1 Due the following week
3	9/4	Chapter 2 - The Principles of Six Sigma	Discussion Forum 2 Due the following week
4	9/11	Chapter 3 - Project Organization, Selection, and Definition	Discussion Forum 3 Due the following week
5	9/18	**Team Workshop** / **Project Proposal** (group work – working together with your team complete project/topic description as demonstrated in previous classes)	Project Proposal Due the following week
6	9/25	Project Proposal Chapter 4 - Process Measurement	**Project Proposal Presentation** Discussion Forum 4 Due the following week
7	10/2	**Team Workshop**	
8	10/9	Chapter 5 - Process Analysis	Discussion Forum 5 Due the following week
9	10/17	Chapter 6 - Process Improvement	Discussion Forum 6 Due the following week
10	10/23	**Team Workshop** Chapter 7 - Process Control	**Milestone progress presentation of data** Discussion Forum 7 Due the following week
11	10/30	Chapter 8 - Design for Six Sigma	Discussion Forum 8 Due the following week
12	11/6	Chapter 9 – Implementing Six Sigma	**Final summary of progress** Discussion Forum 9 Due the following week
13	11/13	**Small team appointments with professor**	
14	11/20	Final discussion on final report	**Team project final report**
15	11/27	**No classes - Thanksgiving**	
16	12/4	**Team Project Presentations**	**Team project presentation**
	12/11	**Team Project Presentations**	**Team project presentation**