DASC 5301: Data Science
Fall 2023

Instructor Information

Instructor(s)
Subharag Sarkar

Office Number
ERB 320

Email Address
subharag.sarkar@uta.edu

Office Hours
Timings: **Monday and Wednesday 5:30 pm to 6:30 pm**
Location: **ERB 320, ERB 128** or Ping me on **TEAMS**

If you are unable to meet during this time, please email instructor to setup an alternate meeting time.

Teaching Assistant
Sahithi Kowkuntla

Office Number
ERB 501

Email Address
sxk4654@mavs.uta.edu

Office Hours
Timing: **Tuesday and Thursday 11:30 am to 1:00 pm**

Teaching Assistant
Gaurav Singh

Office Number
TBA

Email Address
gaurav.singh4@mavs.uta.edu

Office Hours
Timing: **Monday and Wednesday 12:00 pm to 1:30 pm**

Course Information

Section Information
DASC 5301-002

Time and Place of Class Meetings
Class meetings will be On Campus
DASC 5301-002: **NH 105 – Monday and Wednesday 7:00 pm to 8:20 pm**

Course Webpage
Videos, Submission Links for Assignments, and other material will be posted on Canvas

Description of Course Content

This inspirational course follows a data-science-for-all perspective that views data acumen as part of literacy. It aims to instill in students the data acumen, i.e., the basic skills to wrestle with data, to draw insights from data, to make sound decisions responsibly using data, and to effectively communicate about data-driven findings and decisions. Topics include 1) data management: data curation, preparation, model, and querying; 2) data description and visualization: exploratory data analysis, graphics, user interface and user experience design; 3) machine learning and knowledge discovery: supervised learning, unsupervised learning, pattern and knowledge extraction, deep learning, model evaluation and interpretation. Prerequisite: MATH 1301, or MATH 1302, or MATH 1308, or MATH 1426, or equivalent and permission of advisor.

Student Learning Outcomes

A solid understanding of the basic concepts, principles, and techniques in data science; an ability to analyze real-world applications, to model data science problems, and to assess different solutions; an ability to design, implement, and evaluate data science projects.

Required Textbooks and Other Course Materials
Various Lecture notes, interactive notebooks and slides will be made available to students.

Descriptions of Assignments and Examination
- Quizzes (30%): 5 quizzes
- 3 Exams: (10%,10%,10%)
- Homework assignment (40%): 4 Homework Assignments

Late Submission policy for Assignments
For every 24 hour period an assignment is late, **20% of points** per assignment will be deducted from the graded result. This penalty cannot be waived, unless there was a case of illness or other substantial impediment beyond your control, with proof in documents from the school. (Instructor Approval needed)

Proof of timestamps/screenshots, UTA's infrastructure, Network Latency, Wi-Fi issues in apartment, etc **will NOT** be accepted as an excuse for late submissions.

Exam Absence policy
Absence from exams may be excused, with appropriate documentation, for illness, critical family emergencies, military service obligations, observance of major religious holidays, and certain university service commitments. Requests for excused absence, and documentation for such absences, must be provided as soon as possible. In case of excused absence, a makeup exam will be setup and conducted by the instructor at a date before the last day of finals week. **Even if the reason for an absence/non-attendance is valid, a request for an excused absence/re-attempt will be rejected if provided later than the day of the exam.** The dates for all the exams are subject to change. Any changes will be announced in class at least a week in advance. Students are expected to be available till the last day of finals week. No accommodations will be made if the student will miss an exam due to being unavailable before the last day of finals week.

Academic Dishonesty Policy
If you are caught colluding or copying in the assignments (or exams) the following consequences will be applied.
Per offence:
- You will be given a score of 0 points for that assignment (or exam)
- Your final grade will be reduced by 2 letter grades (Up to a minimum of F)
- An academic integrity violation form will be filed.
    - If you agree to sign the form
        - You will be placed on disciplinary probation for 1-year and a 7-year reportable disciplinary record being created.
        - Additional violations may result in increasing sanctions up to and including suspension or expulsion.
    - If you do not agree to sign the form
        - You will be temporarily given a grade of Incomplete (I)
        - The Office of Academic Integrity will conduct a formal investigation based on evidence provided.
        - Based on decision, either the grade will be calculated with penalty with the consequences being as though you signed the form or grade will be calculated without penalties.

This policy is not up for discussion/negotiation under any circumstances.

Technology Requirements
Students will need to be able program in Python for their programming assignments. They will need to be able to use Canvas to view supplementary material provided by the instructor, view any video material posted by the instructor and to submit assignments. They are also strongly recommended to get used to TEAMS as an alternative way to get in touch with the instructor. If due to the COVID-19 pandemic, any exams must be moved online, students will have to use the Lockdown browser with the Respondus monitoring system for the exams in which case they will need a computer with a webcam and an internet connection to take their exam.

Grading Information

Grading
You will be assigned a numerical score based on your performance in your assignments and in your exams. Please note that all assignments/mini projects will be weighed equally in this calculation.

Material	Contribution to Final Score
Quiz (5)	30%
Exam 1	10%
Exam 2	10%
Exam 3	10%
Homework Assignments (4)	40%

This numeric score is converted to a letter grade according to the following rubric.

Numerical Score	Grade
>=85	A
>=70 & <85	B
>=55 & <70	C
>=40 & <55	D
Otherwise	F

For the Exams and Assignments, if any tasks were graded incorrectly (a correct answer given less than full credit) or if there is a totaling error, please contact either the TA or the instructor ASAP. Any partial credit obtained for incorrect tasks is not up for discussion/negotiation. Students are expected to keep track of their performance throughout the semester and seek guidance from available sources (including the instructor) if their performance drops below satisfactory levels. **No makeup exams or assignments will be provided for the purpose of bumping up your grade under any circumstances.**

- All the assignments must be submitted through Canvas. We will NOT take hardcopy or email submission, unless the university verifies that Canvas was malfunctioning or unavailable. If you are not able to submit through Canvas due to its technical failure, you can email your assignment to us, together with a screenshot showing the technical failure. We will verify with the university.
- Everything is due by 11:59pm on the due date. The deadline is automatically managed by Canvas. You can still turn in an assignment after the deadline. However, you automatically lose 20 points per day after the due time, till you get 0. (Each individual assignment is worth 100 raw points.) We cannot waive the penalty, unless there was a case of illness or other substantial impediment beyond your control, with proof in documents.
- Grades will be posted to the Canvas gradebook.
- You can access your grades and feedback by entering the Canvas course and selecting "Grades" from the course menu

Grade Grievances
If a student believes an error has been made in the grading of an assignment, the student has **5 business days** after a grade is returned to resubmit an assignment for re-grading if you believe there is an error. No re-grading will be entertained after this period.
Errors may occur in grading, when a lot of students are present in a class. However, please bear in mind, that errors may have been made in your favor or not.,i.e., when anything is regraded, **your grade may go up or down.**

Course Policies

Programming Assignments:
- There will be 4 programming assignments. Each project will be done independently
- Details will be given out in class.

*Students who implement their project using irrelevant languages for a specific assignment, other than the languages mentioned strictly in the rubric/project document will receive a direct **ZERO** on their assignment.

Submission Instructions:
Whatever you submit on Canvas will give both the instructor and yourself a notification stating your submission. You would get a submission confirmation on your submission page itself, with the time, date and file name. This can be always accessed by the student.

Excuses such as Submission not showing up on the system despite submission by the student will **NOT** be accepted as an excuse to get points.

It is the **sole responsibility of the student** to make sure that they have submitted the file required for the respective assignment correctly and cannot be pushed to the GTA/Instructor

Course Schedule

Date	Lecture	Topic	Important Days
08/21/2023	1	Course Overview	
08/23/2023	2	Intro to Python	
08/28/2023	3	Intro to Python	
08/30/2023	4	Data Preparation: Numpy	
09/04/2023		Labor Day	Holiday
09/06/2023	5	Data Preparation: Numpy	
09/11/2023	6	Data Collection and Preparation	Homework 1
09/13/2023	7	Data Cleaning using Pandas	
09/18/2023	8	Probability and Hypothesis Testing	
09/20/2023	9	EDA	
09/25/2023	10	Review	
09/27/2023	11	Exam 1	Homework 2
10/02/2023	12	Intro to Machine Learning	
10/04/2023	13	Linear Regression	
10/09/2023	14	Linear Regression	
10/11/2023	15	Variable Selection	
10/16/2023	16	Variable Selection	
10/18/2023	17	PCA	Homework 3
10/23/2023	18	Clustering	
10/25/2025	19	Review	
10/30/2023	20	Exam 2	
11/01/2023	21	Classification	
11/06/2023	22	Logistic Regression	
11/08/2023	23	Support Vector Machines	
11/13/2023	24	Bayes Classifier and Naïve bayes	
11/15/2023	25	Decision Tree	
11/20/2023	26	Random Forest	Homework 4
11/22/2023		Thanksgiving	Holiday
11/27/2023	27	KNN	
11/29/2023	28	Review	
12/04/2023	29	Last Exam	

This schedule is tentative and subject to change at instructor's discretion. Changes will be announced in class. The instructor reserves the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. EXAM 1 and EXAM 2 and Last EXAM will be held at regular class timing in the same location as lectures. Students should be prepared to be available till the end of Finals Week in case of any changes to Last EXAM scheduling.

Institutional Information

UTA students are encouraged to review the below institutional policies and informational sections and reach out to the specific office with any questions. To view this institutional information, please visit the Institutional Information page (https://resources.uta.edu/provost/course-related-info/institutional-policies.php) which includes the following policies among others:
- Drop Policy
- Disability Accommodations
- Title IX Policy
- Academic Integrity
- Student Feedback Survey
- Final Exam Schedule

Additional Information

Face Covering Policy
While the use of face coverings on campus is no longer mandatory, all students and instructional staff are strongly encouraged to wear face coverings while they are on campus. This is particularly true inside buildings and within classrooms and labs where social distancing is not possible due to limited space. If a student needs accommodation to ensure social distancing in the classroom due to being at high risk, they are encouraged to work directly with the Student Access and Resource Center to assist in these accommodations. If students need masks, they may obtain them at the Central Library, the E.H. Hereford University Center's front desk or in their department.

Attendance
Students are expected to attend all lectures. Attendance will be taken during every lecture that occurs after census date and will be part of your final grade. Any material that the student missed will not be covered again in class. At random points during the lectures, I will conduct in class quizzes. The scores of these quizzes will be used as part of your final grade. Absence from classes may be excused, with appropriate documentation, for illness, critical family emergencies, military service obligations, observance of major religious holidays, and certain university service commitments. Documentation regarding any reasons for absence must be provided to the instructor by the end of the week of the missed lecture. If the student is unable to attend a class due to approved or personal reasons, it is the student's responsibility to use the slides/videos posted online or the lecture archives on canvas and the textbook to learn the content and to contact either the Instructor or the TA to clarify any doubts At the University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator of student success. Each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance. As the instructor of this section, I will be following the attendance policy described above. However, while UT Arlington does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients "begin attendance in a course." UT Arlington instructors will report when students begin attendance in a course as part of the final grading process. Specifically, when assigning a student, a grade of F, faculty report must the last date a student attended their class based on evidence such as a test, participation in a class project or presentation, or an engagement online via Canvas. This date is reported to the Department of Education for federal financial aid recipients.

Emergency Exit Procedures
Should we experience an emergency event that requires evacuation of the building, students should exit the room and move toward the nearest exit, which is given in the Evacuation Route Maps given below. When exiting the building during an emergency, do not take an elevator but use the stairwells 8 instead. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

Evacuation Route Maps

[Nedderman Hall 105](#)

Students should also be encouraged to subscribe to the MavAlert system that will send information in case of an emergency to their cell phones or email accounts. Anyone can subscribe at [Emergency Communication System.](#)

Academic Success Center
The Academic Success Center (ASC) includes a variety of resources and services to help you maximize your learning and succeed as a student at the University of Texas at Arlington. ASC services include supplemental instruction, peer-led team learning, tutoring, mentoring and TRIO SSS. Academic Success Center services are provided at no additional cost to UTA students. For additional information visit: [Academic Success Center](#). To request disability accommodations for tutoring, please complete this [form](#).

The IDEAS Center (https://www.uta.edu/ideas/) **(**2nd Floor of Central Library) offers **FREE** tutoring and mentoring to all students with a focus on transfer students, sophomores, veterans and others undergoing a transition to UT Arlington. Students can drop in or check the schedule of available peer tutors at www.uta.edu/IDEAS, or call (817) 272-6593.

The English Writing Center (411LIBR)
The Writing Center offers **FREE** tutoring in 15-, 30-, 45-, and 60-minute face-to-face and online sessions to all UTA students on any phase of their UTA coursework. Register and make appointments online at the Writing Center (https://uta.mywconline.com). Classroom visits, workshops, and specialized services for graduate students and faculty are also available. Please see Writing Center: OWL for detailed information on all our programs and services.

The Library's 2nd floor Academic Plaza (http://library.uta.edu/academic-plaza) offers students a central hub of support services, including IDEAS Center, University Advising Services, Transfer UTA and various college/school advising hours. Services are available during the library's hours of operation.

Librarian to Contact
Each academic unit has access to Librarians by Academic Subject that can assist students with research projects, tutorials on plagiarism and citation references as well as support with databases and course reserves.

Emergency Phone Numbers

In case of an on-campus emergency, call the UT Arlington Police Department at **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial 911. Non-emergency number 817-272-3381

Library Information

Research or General Library Help

Ask for Help

- [Academic Plaza Consultation Services](library.uta.edu/academic-plaza) (library.uta.edu/academic-plaza)
- [Ask Us](ask.uta.edu/) (ask.uta.edu/)
- [Research Coaches](http://libguides.uta.edu/researchcoach) (http://libguides.uta.edu/researchcoach)

Resources

- [Library Tutorials](library.uta.edu/how-to) (library.uta.edu/how-to)
- [Subject and Course Research Guides](libguides.uta.edu) (libguides.uta.edu)
- [Librarians by Subject](library.uta.edu/subject-librarians) (library.uta.edu/subject-librarians)
- [A to Z List of Library Databases](libguides.uta.edu/az.php) (libguides.uta.edu/az.php)
- [Course Reserves](https://uta.summon.serialssolutions.com/#!/course_reserves) (https://uta.summon.serialssolutions.com/#!/course_reserves)
- [Study Room Reservations](openroom.uta.edu/) (openroom.uta.edu/)

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