

Course Calendar, Spring 2026

DTSC 5502: Analytic Tools, Techniques and Methods

Important links: [Syllabus](#), [Academic Calendar](#), [Zoom](#)

Week	Date	Topic	Activity	Readings (Data 8)
1	Jan 14	Course Overview Introduction to Jupyter Notebook and Python	<ul style="list-style-type: none"> ● Lecture <ul style="list-style-type: none"> ○ Course Overview [slides] ○ Python 1 [slides][demo] ● Topic Presentations <ul style="list-style-type: none"> ○ TA: Discover hidden patterns in big data through exploratory data analysis [📺 TA - Week 1] ● Lab <ul style="list-style-type: none"> ○ Lab 01: Expression [link] ● Homework <ul style="list-style-type: none"> ○ Topic Presentation [link] 	Chapter 1, 3, 4
2	Jan 21	Sequences Tables Visualization	<ul style="list-style-type: none"> ● Lecture <ul style="list-style-type: none"> ○ Python 2 [slides][demo] ● Topic Presentations <ul style="list-style-type: none"> ○ TA: Basic knowledge in machine learning [📺 TA - Week 2] ● Lab <ul style="list-style-type: none"> ○ Lab 02: Table Operations and Arrays [link] ● Homework <ul style="list-style-type: none"> ○ Prepare your topic presentation 	Chapter 5 - 7
3	Jan 28	Class Canceled Due To Weather		
4	Feb 4	Functions and Tables Randomness	<ul style="list-style-type: none"> ● Lecture <ul style="list-style-type: none"> ○ Python 3 [slides][demo] ○ Python 4 [slides][demo] ● Topic Presentations <ul style="list-style-type: none"> ○ Topic 3: Simpson's Paradox (Ajay Gottipati) ○ Topic 4: The Birthday Paradox (Nayeem Hasan) ● Lab <ul style="list-style-type: none"> ○ Lab 03: Functions and Visualizations [link] ○ Lab 04: Simulations [link] 	Chapter 8 Chapter 9

5	Feb 11	Exam 1 (9:40 am - 11:40 am) [Canvas]		
6	Feb 18	Data Visualizations Basic Data structures Dataframes	<ul style="list-style-type: none"> ● Lecture <ul style="list-style-type: none"> ○ Exam 1 Review [Link] ○ Data Science Tools [slides][demo] ● Topic Presentations <ul style="list-style-type: none"> ○ Topic 5: Visual Text Analysis (Arthi Kairam) ○ Topic 6: AI-Assisted Visualization (Abel Betru Nedessa) ● Lab <ul style="list-style-type: none"> ○ Lab 05: Data Visualizations, Basic Data Structures and Data Frames [link] ● Homework <ul style="list-style-type: none"> ○ Project Brainstorming [link][slides] 	Data Visualization Language Features Data Frames
7	Feb 25	Introduction to ML	<ul style="list-style-type: none"> ● Lecture <ul style="list-style-type: none"> ○ Learning from Data [slides] 	
8	Mar 4	Finalize projects Image Processing k-NN Classification	<ul style="list-style-type: none"> ● Lecture <ul style="list-style-type: none"> ○ Image Classification [slides] ● In-Class Activity <ul style="list-style-type: none"> ○ Finalize projects [topics] ● Topic Presentations <ul style="list-style-type: none"> ○ Topic 7: Object Detection (Abdul-Azeem Opakunle) ● Lab <ul style="list-style-type: none"> ○ Lab 06: Image Classification [link] ● Homework <ul style="list-style-type: none"> ○ Project Proposal [link] 	Image Processing Classification Chapter 17.1 - 17.4
9	Mar 11	Spring Break (No Class)		
10	Mar 18	Linear regression Polynomial regression Logistic regression Evaluation Metrics	<ul style="list-style-type: none"> ● Lecture <ul style="list-style-type: none"> ○ Regression [slides] ● Topic Presentations <ul style="list-style-type: none"> ○ Topic 10: F1-Score & Matthews Correlation Coefficient (Md Al Samiul Amin Rishat) ○ Topic 8: Facial Recognition (Sravani Panjala) ● Lab <ul style="list-style-type: none"> ○ Lab 07: Logistic Regression [link] ● Homework <ul style="list-style-type: none"> ○ Project Presentation [link] ○ Project Report [link] 	Polynomial Regression Linear Regression Logistic Regression Chapter 15, 17.5, 17.6

11	Mar 25	Exam 2 (9:40 am - 11:40 am) [Canvas]		
12	Apr 1	Sampling and Empirical Distributions Testing Hypotheses	<ul style="list-style-type: none"> ● Lecture <ul style="list-style-type: none"> ○ Sampling and Distributions [slides][demo] ○ Testing Hypotheses [slides][demo] ● Topic Presentations <ul style="list-style-type: none"> ○ Topic 11: Bayesian Hypothesis Testing (Ramis Shah) ○ Topic 12: The Kolmogorov-Smirnov Test (Tayyaba Shahwar) ● In-Class Activity <ul style="list-style-type: none"> ○ Project Individual Consultation ● Lab <ul style="list-style-type: none"> ○ Lab 08: Sampling and Distributions [link] ○ Lab 09: Testing Hypotheses [link] ● Homework <ul style="list-style-type: none"> ○ Project Individual Consultation [link] 	Chapter 10, 11
13	Apr 8	Comparing Two Samples	<ul style="list-style-type: none"> ● Lecture <ul style="list-style-type: none"> ○ Comparing Two Samples [slides][demo] ● Topic Presentations <ul style="list-style-type: none"> ○ Topic 13: Equivalence Testing & TOST (Fnu Syed Luqmanuddin) ○ Topic 14: The Bayesian Two-Sample T-Test (Niveditha Meka Sri Durga) ● In-Class Activity <ul style="list-style-type: none"> ○ Project Individual Consultation ● Lab <ul style="list-style-type: none"> ○ Lab 10: Comparing Two Samples [link] 	Chapter 2, 12
14	Apr 15	Estimation Why the Mean Matters	<ul style="list-style-type: none"> ● Lecture <ul style="list-style-type: none"> ○ Estimation [slides][demo] ● Topic Presentations <ul style="list-style-type: none"> ○ Topic 1: Web Scraping (Butz Zackary) ○ Topic 2: API Integration (Aishwarya Gajulapally) ○ Topic 9: Cross-Validation (Dipesh Rayamajhi) ○ Topic 15: Maximum Likelihood Estimation 	Chapter 13 - 14

			<ul style="list-style-type: none"> ○ Topic 16: Bayesian Estimation ● In-Class Activity <ul style="list-style-type: none"> ○ SPOT evaluation [in-person][online] ○ Project Individual Consultation 	
15	Apr 22	Course Review	<ul style="list-style-type: none"> ● Lecture <ul style="list-style-type: none"> ○ Course Review [slides] ● In-Class Activity <ul style="list-style-type: none"> ○ Project Presentation ○ Project Individual Evaluation [Canvas] ● Q&A 	
16	Apr 29	Exam 3 (9:40 am - 11:40 am) [Canvas]		