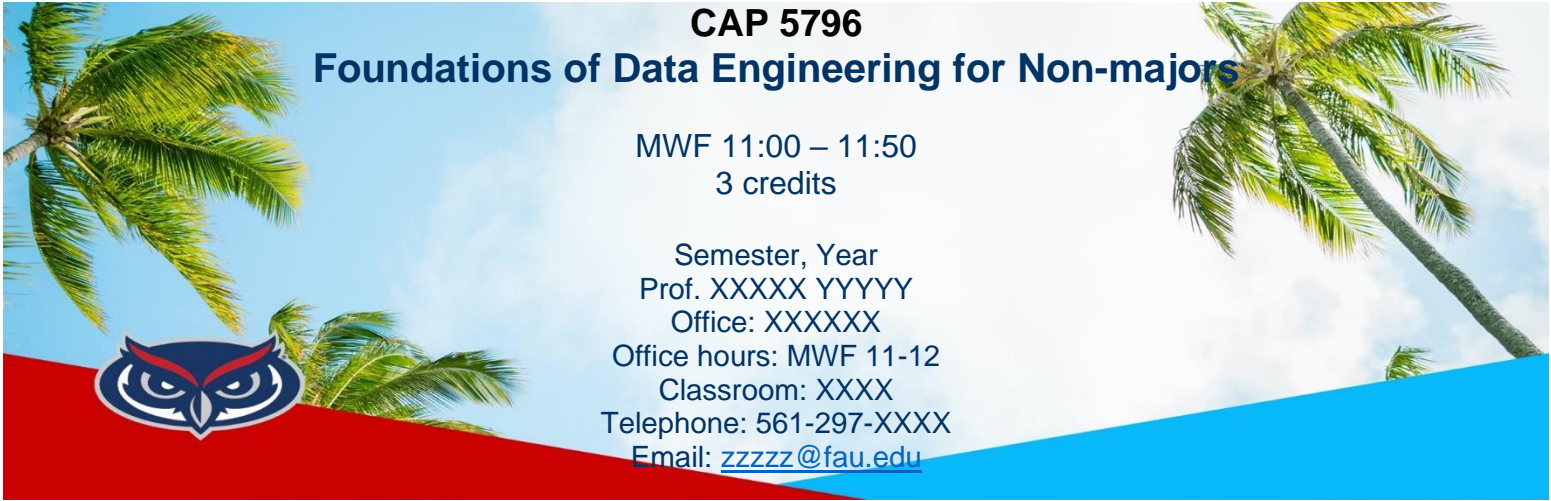
 FLORIDA ATLANTIC UNIVERSITY	NEW COURSE PROPOSAL Graduate Programs		UGPC Approval _____ UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner _____ Catalog _____	
	Department College (To obtain a course number, contact erudolph@fau.edu)			
Prefix Number	(L = Lab Course; C = Combined Lecture/Lab; add if appropriate) Lab Code	Type of Course	Course Title	
Credits (See Definition of a Credit Hour)	Grading (Select One Option) Regular Sat/UnSat	Course Description (Syllabus must be attached; see Template and Guidelines)		
Effective Date (TERM & YEAR)				
Prerequisites <i>Prerequisites, Corequisites and Registration Controls are enforced for all sections of course.</i>		Academic Service Learning (ASL) course Academic Service Learning statement must be indicated in syllabus and approval attached to this form.		
		Corequisites	Registration Controls (For example, Major, College, Level)	
Minimum qualifications needed to teach course: Member of the FAU graduate faculty and has a terminal degree in the subject area (or a closely related field).		List textbook information in syllabus or here		
Faculty Contact/Email/Phone		List/Attach comments from departments affected by new course		

Approved by Department Chair _____ College Curriculum Chair _____ College Dean _____ UGPC Chair _____ UGC Chair _____ Graduate College Dean _____ UFS President _____ Provost _____	Date 3/12/2025 3/13/2025 3/13/2025 _____ _____ _____ _____ _____
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Email this form and syllabus to UGPC@fau.edu 10 days before the UGPC meeting.



CAP 5796

Foundations of Data Engineering for Non-majors

MWF 11:00 – 11:50
3 credits

Semester, Year
Prof. XXXXX YYYYY
Office: XXXXX
Office hours: MWF 11-12
Classroom: XXXX
Telephone: 561-297-XXXX
Email: zzzzz@fau.edu



TA name	xxxxxx xxxxxxxxx
Office	xxxxxx
Office hours	MWF xx:xx – xx:xx
Telephone	561-297-xxxx
Email	xxxxxx@fau.edu

Course Description

This course provides an overview of data engineering and data science for students with no prior experience in computer science or programming. The topics include data cleaning, ETL (extract, transform, load) pipelines, databases, exploratory data analysis, data visualization, and introductory machine learning. By the end of the course, students will have a foundational understanding of how data drives decision-making in various fields and get hands-on skills to solve real-world challenges using a low-code environment. Students may not enroll in CAP 5796 if they have already taken CAP 4790.

Instructional Method

This class is designated as “In-Person w/Recorded Lecture” (section XXX) or “Videotaped Class” (section YYY). In-person class sessions will be automatically recorded and uploaded to Canvas within 24 hours. Student enrolled in section XXX may choose to attend in-person classes or view recordings, whereas students enrolled in section YYY are only able to view recordings.

Prerequisites/Corequisites

Graduate standing.

Course Objectives/Student Learning Outcomes

By the end of this course, students will:

- Understand the roles of data engineering and data science in the data ecosystem.
- Learn the basics of data collection, transformation, storage, and visualization.
- Develop foundational skills in exploratory data analysis (EDA) and machine learning.
- Build and present a small project combining data engineering and data science concepts.

Course Evaluation Method

Weekly labs	40%
Quizzes	30%
Term project	30%
Total	100%

The course will be applying the following popular low-/no-code tools:

- Google AutoML : <https://cloud.google.com/automl>
- Google Teachable Machine : <https://teachablemachine.withgoogle.com/>
- Apache NiFi : <https://nifi.apache.org/>
- Orange Data Mining : <https://orangedatamining.com/>
- Obviously AI: <https://www.obviously.ai/>

Course Grading Scale

Grade	Total (%)
A	[93 – 100]
A-	[90 – 92)
B+	[87 – 89)
B	[83 – 86)
B-	[80 – 82)
C+	[77 – 79)
C	[73 – 76)
C-	[70 – 72)
D+	[67 – 69)
D	[63 – 66)
D-	[60 – 62)
F	[0 – 59)

Policy on Makeup Tests, Late Work, and Incompletes (if applicable)

Late work will not be accepted. All assignments will be posted well in advance, and students may submit assignments early. Any assignment not turned in by the due date will result in a zero.

Make-up tests are given only if there is solid evidence of a medical or otherwise serious emergency situation that prevented the student from participating in the exam.

Incomplete grades are against the policy of the department, and they will only be assigned if there is solid evidence of medical or otherwise serious emergency situation.

Policy on the Recording of Lectures

Students enrolled in this course may record video or audio of class lectures for their own personal educational use. A class lecture is defined as a formal or methodical oral presentation as part of a university course intended to present information or teach students about a particular subject. Recording class activities other than class lectures, including but not limited to student presentations (whether individually or as part of a group), class discussion (except when incidental to and incorporated within a class lecture), labs, clinical presentations such as patient history, academic exercises involving student participation, test or examination administrations, field trips,

and private conversations between students in the class or between a student and the lecturer, is prohibited. Recordings may not be used as a substitute for class participation or class attendance and may not be published or shared without the written consent of the faculty member. Failure to adhere to these requirements may constitute a violation of the University's Student Code of Conduct and/or the Code of Academic Integrity.

Attendance Policy

Students are expected to attend all of their scheduled University classes and to satisfy all academic objectives as outlined by the instructor. The effect of absences upon grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of non-attendance. Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, court-imposed legal obligations or participation in University-approved activities. Examples of University-approved reasons for absences include participating on an athletic or scholastic team, musical and theatrical performances and debate activities. It is the student's responsibility to give the instructor notice prior to any anticipated absences and within a reasonable amount of time after an unanticipated absence, ordinarily by the next scheduled class meeting. Instructors must allow each student who is absent for a University-approved reason the opportunity to make up work missed without any reduction in the student's final course grade as a direct result of such absence.

Counseling and Psychological Services (CAPS) Center

Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to <http://www.fau.edu/counseling/>

Disability Policy

In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU's campuses – Boca Raton, Davie and Jupiter – however disability services are available for students on all campuses. For more information, please visit the SAS website at www.fau.edu/sas/.

Code of Academic Integrity

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see [University Regulation 4.001](#).

Required Texts/Readings

N/A

Course Topical Outline

Week	Session	Content	Lab	Tools
1	Introduction to Data Engineering and Data Science	What are Data Engineering and Data Science? The Data Lifecycle and Ecosystem.		
2	Databases and Data Storage	Relational Databases (RDBMS): Basics and SQL. Introduction to NoSQL Databases	Querying data	SQLite or MySQL Google BigQuery
3	Introduction to ETL and Data Pipelines	The ETL Process: Extract, Transform, Load. Batch Processing vs. Stream Processing	A simple ETL pipeline	Apache NiFi
4	Data Cleaning and Basics of Exploratory Data Analysis (EDA)	Common Data Quality Issues: Missing, Inconsistent, Duplicate Data. Cleaning Techniques: Imputation, Filtering, and Normalization.	Cleaning and transforming data Performing EDA	LowCode tools
5	Introduction to Statistics and Machine Learning	Descriptive and Inferential Statistics Supervised vs. Unsupervised Learning Definitions	Hands on statistical calculations	
6	Regression	Simple Linear and Multiple Linear regression	Hands on calculations	LowCode tools
7	Supervised Learning	Simple classification models : KNN, SVM	Hands on calculations	LowCode tools
8	Unsupervised Learning	Simple clustering models : Kmeans, Hierarchical	Hands on calculations	LowCode tools
9	Data Visualization	Principles of Effective Data Visualization. Introduction to Visualization Dashboards		LowCode tools
10	Model Evaluation	Model Evaluation Metrics: Accuracy, Precision, and Recall. Confusion Matrix	Hands on calculations	LowCode tools
11	Term Project	Term Project for real-world applications of machine learning		

Re: Fw: Getting permission from other departments for our non-majors courses

From Tamara Dinev <tdinev@fau.edu>

Date Thu 2/6/2025 4:29 PM

To Mehrdad Nojournian <mnojournian@fau.edu>

To Whom It May Concern,

The Department of Information Technology and Operations Managements will support the following course proposals for non-majors without any objections.

Data Engineering

Proposed 4000-level course (Introduction to Data Engineering for Non-majors; CAP 4790)

Proposed 5000-level course (Foundations of Data Engineering for Non-majors; CAP 5796)

Artificial Intelligence

Proposed 4000-level course (Introduction to Artificial Intelligence for Non-majors; CAI 4004)

Proposed 5000-level course (Foundations of Artificial Intelligence for Non-majors; CAI 5006)

Best Regards:

Tamara Dinev, Ph.D.

Department Chair and Professor

Dean's Distinguished Research Fellow

Department of Information Technology and Operations Management, FL 219

College of Business,

Florida Atlantic University

Boca Raton, Florida 33431

Web: <https://business.fau.edu/faculty-research/faculty-profiles/profile/tdinev.php>

Google Scholar: <https://scholar.google.com/citations?user=YH8QZ-YAAAAJ&hl=en>

On 2/6/25 16:00, Mehrdad Nojournian wrote:

Dear Tamara,

I hope all is well with you. I'm reaching out to inquire if you would support our attached course proposals for non-majors. Please see the email below for details.

If you have any questions, please don't hesitate to contact me.

Thanks in advance,
Mehrdad

Mehrdad Nojournian, Associate Professor

Director of the Privacy, Security & Trust in Autonomy Lab

Department of Electrical Engineering & Computer Science

Florida Atlantic University

777 Glades Rd, EE 429, Boca Raton, FL 33431

Cell: (618) 305-4348

<https://faculty.eng.fau.edu/nojournian/>

From: Michael DeGiorgio <mdegior@fau.edu>

Sent: Wednesday, February 5, 2025 2:17 PM

Yuan Wang

  Reply  Reply all  Forward    

To:  Hari Kalva;  Mehrdad Nojournian

Wed 3/12/2025 5:25 PM

Cc:  Michael DeGiorgio;  Dukhong Kim

 You forwarded this message on Wed 3/12/2025 5:40 PM

Hello Hari and Mehrdad,

Sorry for taking this long to get back to you. The course proposals will be fine with us if you can add registration controls not to allow Math majors (both undergraduate and graduate) to enroll in these classes, for both pairs CIS5775/CIS4771 and CAP5796/CAP4790.

Thank you very much.

Best regards,
Yuan