

Syllabus
DSA 502 Spring 2026

Course: DSA 502 CRN 3542 **Data Science with AI**

Time and location: Th 4:30 PM – 5:45 PM SAMC 393

Instructor: Dr. Joaquin Carbonara, SAMC 379

Learning modality: Flipped Classroom, In-Person

Course Description: This Master's level class explores the evolving landscape of Data Science through the lens of Generative AI. Students will examine Gen AI properties for model selection, differentiate between cloud and local LLMs, and engage with guest speakers from industry. The course prepares students to integrate advanced AI tools effectively and responsibly into data analytics practice. Intended audience and overarching goals: This course provides beginning graduate students in Data Analytics programs with the necessary background on important mathematics concepts and their implementation on computers and networks.

Student Learning Outcomes:

By the end of the course, students will be able to:

1. Evaluate the core properties and capabilities of different Generative AI models.
2. Differentiate the architectural, operational, and ethical considerations of cloud-based versus local Large Language Models (LLMs).
3. Select appropriate Generative AI tools and models for specific data science problems and objectives.
4. Analyze current trends, applications, and challenges of Generative AI in various industries through expert perspectives.

Textbook and other requirements:

We will use Google Drive, Colab, Overleaf and other Open-Source learning materials provided by the instructor. In addition, the following books will be used as references:

1. Prompt Engineering for LLMS by Berryman and Ziegler
2. AI Engineering by Huyen
3. Misinformation and Society by Yotam Ophir

Schedule:

The schedule for the class will be updated regularly on the website for the class
<http://hiperc.buffalostate.edu> with password JCSpring2026

Graded activities:

1. In class presentations (20%): Each class several students will each make a 10-minute presentation in person.
2. Homework assignments (20%): There will be assignments due the following class meeting, including readings and problems.
3. Quizzes (20%): There will be quizzes during class frequently.
4. Midterm (20%): There will be a midterm based on the homework and reading.
5. Final (20%): There will be a final day activity.

Accommodations:

Students requiring accommodations due to a disability should contact the **Student Accessibility Services (SAS) Office** located in E. H. Butler Library 160. You can call them at (716) 878-4500, email at [\[sas@buffalostate.edu\]](mailto:[sas@buffalostate.edu]) (mailto:sas@buffalostate.edu), or complete their request by filling out the Initial Accommodation Request form.

Asynchronous Important Remark:

1. Weekly assignments due Sunday before midnight and graded on Monday. Look for feedback in the posted grades and comments.
2. Presentations will be recorded and shown in class.
3. Office hours are scheduled online each week after consulting with students about their availability. Attendance is strongly encouraged. The faculty is available by email at all times, with a response time of at most 24 hrs.
4. Classes will be recorded and posted before the end of the day.
5. The website for the class will have the agenda for each and announcements. Students must read that agenda on Tuesdays and Thursdays by the time the class start (4:30PM) or later.
6. The class uses the flipped-classroom interactivity style. Students work on the assignments by researching on their own the basics of the material, which will be discussed in class the following week (viewed in the recording).

Trust and Safety

My priority as your professor is to ensure a safe, respectful education environment where all students can learn and thrive. The University does not tolerate any form of discrimination or harassment (including sexual assault, dating and domestic violence, stalking) based on protected characteristics (e.g., sex, gender identity, sexual orientation, religion, pregnancy, etc.) or related retaliation. All faculty and teaching assistants are considered mandated reporters by the University, which means that if they observe or learn of sex-based harassment/ discrimination or related retaliation, they are obligated to immediately share that information with the University's Title IX Coordinator. This obligation, grounded in law and policy, is designed to protect the safety of students and the broader Buffalo State community, as well as ensure that students receive information about available supportive measures and resolution options to enable them to make informed choices. Supportive measures include reasonable academic accommodations available with or without the filing of a formal complaint.

If you need academic accommodations due to sex discrimination, harassment, or related retaliation, you may:

On Campus Resources:

- Contact the TIX Coordinator directly (titleix@buffalostate.edu or 716-878-5212), without sharing any personal information with me.
- If you would like to speak with a confidential counselor about sexual misconduct, [The Counseling Center](#) provides 24/7 confidential support for students via the Bengal Support Line (833-823-0260), or by scheduling an appointment at 716-878-4436.
- If you are a student with a disability and require reasonable accommodations to meaningfully participate in this course, please contact the University's [Student Accessibility Services](#) at your earliest convenience (sas@buffalostate.edu or 716-878-4500), as SAS is responsible for processing and approving such requests.
- If you are pregnant, have recently experienced childbirth, and/or have medical needs related to childbirth, please contact our Title IX Coordinator for assistance.
- You can file an [anonymous report](#) with our University Police Department: 716-878-6333, police@buffalostate.edu

Off Campus Resources

- Crisis Services: 24/7 hotline, 716-834-3131
- National Suicide Prevention Lifeline: 1-800-273-8255
- Family Justice Center: 716-558-7233, safe@fjcsafe.org