PHYS667:

Machine Learning for Time Series Analysis

in the physical and natural sciences

This class covers applications of **machine learning to time series analysis** in a **project-based** framework**.** Using real world data and examples in the natural sciences (astrophysics, bioinformatics, seismology, neuroscience, particle physics, and condensed matter) and real-world problems including finance and policy, we will explore a variety of modern time series analysis techniques including **Bayesian approaches to template fitting, Gaussian Processes, Time Warping, and Artificial Intelligence including Recurrent Neural Networks and Transformers**.

Dr. Federica Bianco

SPRING 2022

This class is project based: the midterm and final will be a collaborative project proposal and final report and homework will be guided collaborative projects. I strongly recommend some background in coding and statistics (e.g. CISC 106 or CISC 108, and MATH 349). Domain knowledge in any specific field is not required.

Tuesdays and Thursdays

3:30 – 4:45 PM

This class at the junction of domain and data science covers topics of **scientific visualization and communication and data story-telling**. We will use **Python**, the most desired computational language in the US job market, and **other industry-ready tools** that are highly sought out (GitHub, Jupyter, Google Colab) to help build **a job-ready portfolio in Data Science.**
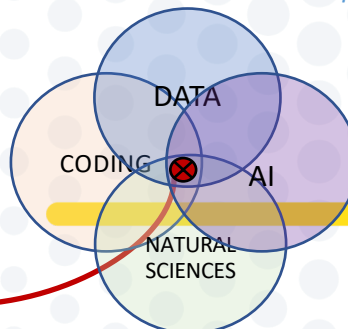
This class is in-person but a zoom link will be provided for each lecture

Full Syllabus
bit.ly/MLTSA21syl

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