Longitudinal Professional Enrichment Course

University of Pittsburgh School of Medicine Office of Medical Education

Applied Machine Learning in Medicine

Enrollment Period:	Summer 2026
Course Dates:	Fridays 6:00-7:30PM EST Beginning 6/5/26 through 7/30/26
Student Max:	40
Class Year:	MS1, MS2
Course Director:	Dr. Shyam Visweswaran, Dr. Richard Steinman, Dr. Vanathi Gopalakrishnan, Dr. Ansuman Chattopadhyay, Alexis Cenname, MS
Course Administrator:	Ethan Wu, Medical Student – Main Instructor – Email: etw46@pitt.edu
Location:	Scaife Hall
Registration:	Via Slate – Email will be sent to the class with enrollment instructions in Spring of 2026
Course Description:	• This course is designed to give you hands-on experience with one of the largest and most important patient datasets in the world: the NIH All of Us Dataset. • **Through a combination of practical coding, foundational ML theory, and project-based learning, you'll work eithers solo in teams to explore real clinical questions and develop models that matter (**past students have published their work in peer-reviewed journals/conferences). • **Learn key machine learning techniques**, including regression, decision trees, neural networks, PCA/T-SNE, interpretability tools, and model evaluation. • **Use the All of Us Dataset** responsibly and effectively using the Researcher Workbench. • **Apply your skills in a collaborative final project**, gaining experience with the full data science workflow from cohort building to presentation. • **Course Website:** **HTTP://PITTAIMS.COM/COURSE**
Attendance:	**Full attendance is "expected", but partial attendance is "required".** People do miss class. Please just notify ahead of time or after class if you are going to miss class (it is okay, things happen).
Goals/Objectives:	Machine Learning is incredibly difficult to learn. As a medical student, if you are interested in learning how to use this in your research, it will be in your best interest to come to class to actually learn it. You are all adults; we trust that you will do what is best for yourself. Class truly is just here to help you out. Depending on availability, some classes will be recorded/asynchronous.

	This course centers around a research project that you will lead (either with a partner or solo). You will be paired with a mentor. The expectation is that you have a fruitful experience and the past history of this course has shown that most students will go on to publish their work/projects. The mentors that are assigned are real professors (ranging from assistant professors to heads of departments). **More than showing up to class, we fully expect students to properly meet with their mentors and maintain a good relationship with them (this is significantly more important than showing up to lecture).** At the end of the course, there will be final presentations. Students are expected to present their final presentations near the end of the summer. We understand research can take a while, so people will be at different spots in their projects. The key is to make sure you have a strong working relationship with your mentor and progress is being made in the project of your choice (there is 0 expectation to be done with your project, but in the past students have been able to complete their projects on a fast timeline).
Pre-Experience Preparative Briefing:	Students will be expected to complete a short tutorial on Python/Pandas prior to starting the course. This will be asynchronous and doesn't require any coding background to complete (4-6 hours). Any student who does take this course is expected to meet with the course instructor (Ethan Wu) at least 1-2 times before the course starts in the summer. This is just to make sure you have a mentor in place willing to sponsor your research project (if you do not know anyone, we are happy to pair you up with an approved research mentor). We want to ensure that you will be ready to go when this course starts. Students are expected to **maintain their research projects/experiences post-course.** Remember, the mentors you are assigned/work with are real professors who care deeply about your projects. The expectation is you hold your end of the bargain and continue to meet with your professor to create a meaningful contribution to the field you work in.
Sensitive Procedure and Support:	As you move through this experience, it is important to follow HIPPA compliance and regulatory measure with any data you use. If you need help or support, please discuss this with us. If you are aware in advance that a particular situation may be exceptionally challenging for you, let us know.
Important Notes:	**Required Background:** Technically none is required as this is open to all students. However, to be very upfront and honest about it, students with either some quantitative (e.g., engineering or stats) or coding background would pick up this material faster. With that said, this course is taught in a way such that you don't need any background, but it will be a uphill climb to learn this information. **Re-emphasizing mentor expectation:** Remember, this course is to teach students the fundamentals of machine learning and have them work with a professor to do an applied machine learning project.

Applied Machine Learning in Medicine

Course Overview

- Hands-on experience with the NIH All of Us dataset.
- Practical Coding, foundational ML/statistical learning
- Explore clinical questions and develop models that matter
- Learn regression, decision trees, networks, PCA/T-SNE

Course Website:

pittaims.com/course

Key Information

- **Capacity:** 40
- **Summer:** 6/5/2026 - 7/30/2026
- **Location:** Scaife Hall

Key Information

- **Ethan Wu, Main Instructor**
  - **Email: etw46@pitt.edu**
- Dr. Shyam Visweswaran
- Dr. Richard Steinman
- Dr. Vanathi Gopalakrishnan
- Dr. Ansuman Chattopadhyay
- Alexis Cenname, MS

Schedule

Full attendance is expected. We meet every Friday from 6 pm - 7:30 pm est.

MON, TUE, WED, THU: N/A
FRI: 6:00 - 7:30 pm EST. We will meet every Friday
06/05/2026 - 07/30/2026

Notes

Required Background: No technical background is required. However, it will help a lot to have some quantitative or coding experience

Pre-experience requirements:

- Short asynchronous Python/ Pandas tutorial (4-6 hrs)
- Meet with instructor 1-2 times

Expectations:

- Students are expected to follow All of Us compliance with data security and maintain strong relationships with their mentors.

Example Projects in the Past:

- **Example Project 1:**
  - **Title:** Novel Systemic Associations of Idiopathic Epiretinal Membrane Identified via Machine Learning
  - **Mentor:** Dr. Jay Chhablanni, MD, Director of Clinical Research at the UPMC vision Institute
  - **Student:** Jessica Jiang
- **Example Project 2:**
  - **Title:** Predicting post-diagnosis cognitive impairment in patients with Schizophrenia using Interpretable Machine Learning algorithms
  - **Mentor:** Dr. Melanie Grubisha, MD, PhD, Professor of Psychiatry
  - **Student:** Devante Kerr
- **Example Project 3:**
  - **Title:** Machine Learning-Based Prediction of Idiopathic Pulmonary Fibrosis Using the All of Us Dataset
  - **Mentor:** Dr. Corrine Klement, MD, PhD, Associate Director of Pulmonary Critical Care Medicine Fellowship Program
  - **Student:** Brian Wooley