Welcome to BSTA 512/612!

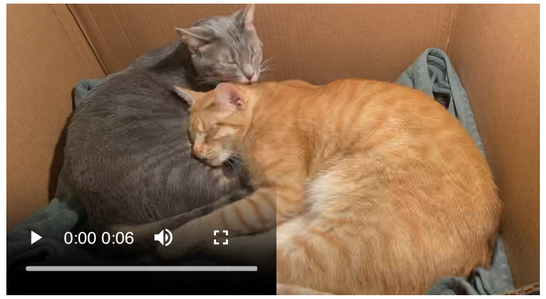
Nicky Wakim

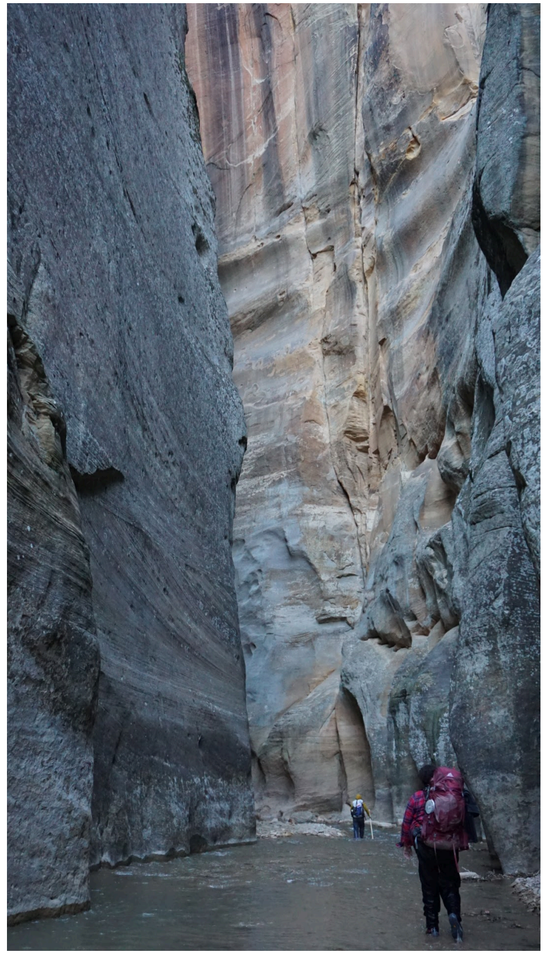
2025-01-06

Nicky Wakim (she/her)

- **Call me “Nicky,” “Dr. W,” “Professor Wakim,” or any combo!**
  - If you are comfortable with it, I prefer Nicky
- Assistant Professor of Biostatistics

- Originally from DC area (Virginia side!)
- Two kitties
- *Volleyball*, biking, pickleball
- But also sleeping, TV, and reading
- Taking ceramics at PCC
- I am currently moving!



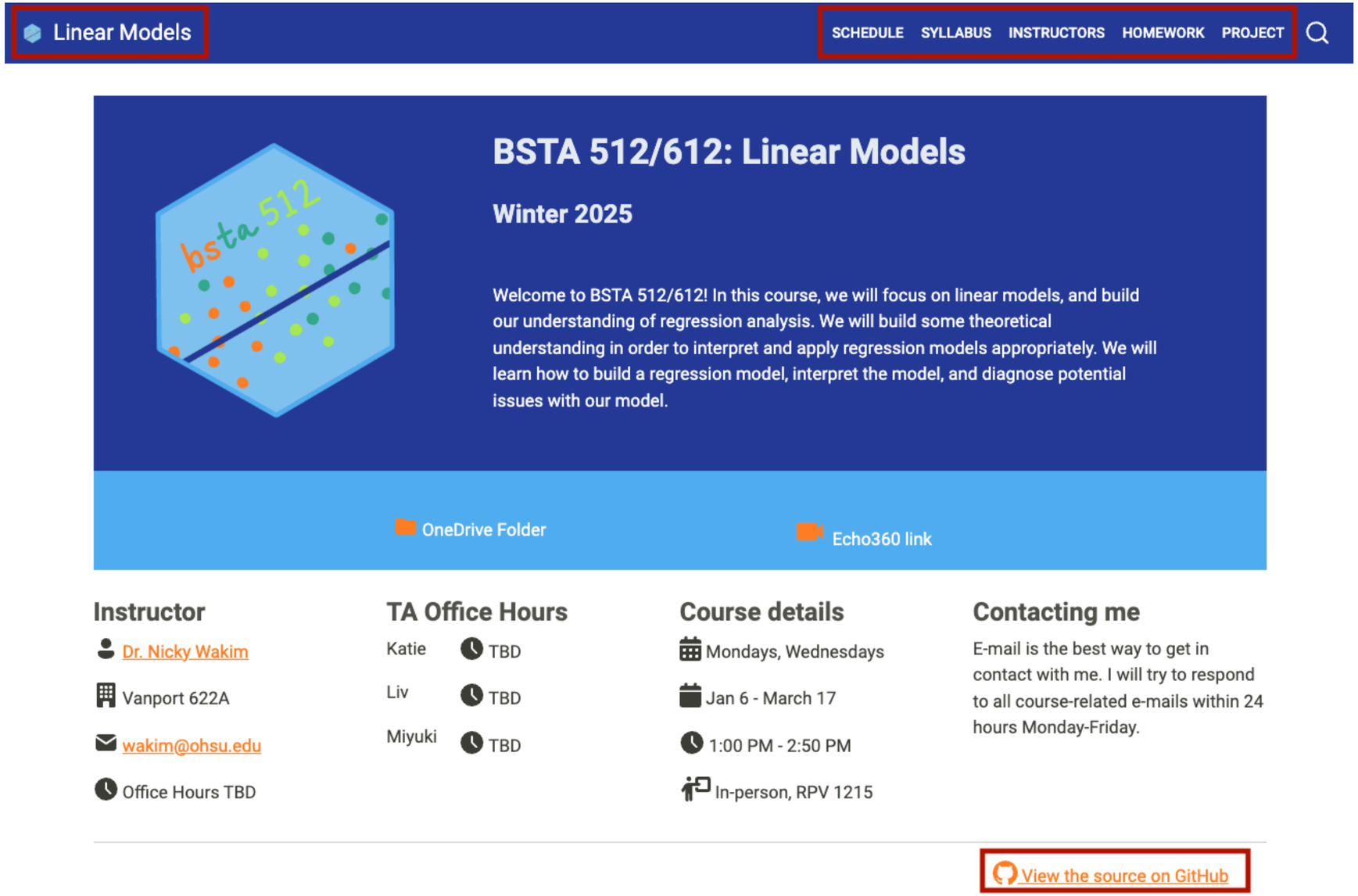


Pride yourself in learning things, not knowing things

Some important tasks

- Star the class website: https://nwakim.github.io/BSTA_512_W25/
- Complete the WhenIsGood for office hours
- Complete Homework 0 by this Thursday at 11pm!
- Highly suggest that you make an appointment with a learning specialist through Student Academic Support Services!

Let’s visit the website: Homepage



Homepage

Let’s visit the website: Syllabus

- Course learning objectives
- Textbook: two online textbooks
- R: we will continue to use and learn this programming language
- Assessments and grade breakdowns
- Weekly assignments: homeworks and labs
- Feedback: in the form of exit tickets, ongoing feedback forms, midterm feedback, and final course
- How to succeed in this course: resources and assignments explained
- Late work policy / Attendance policy
- ChatGPT and other AI technology
- Course expectations: a few ways that I will show you respect and commitment to you as students
  - And a few ways I expect from you!
- Communicating with me: give me 24 hours to reply M-F
  - Online communication is not my strength!

Let’s visit the website: Schedule (1/2)

- Weeks, class info, homeworks, labs

Linear Models

SCHEDULE SYLLABUS INSTRUCTORS HOMEWORK PROJECT

Schedule

MODIFIED
January 6, 2025

Week	Date	Les-son	Topic	Key Info	Slides QMD	Slides PDF	Slides Notes	Exit tix	Record-ing	Muddy Points
1	1/6	0	Welcome							
		1	Review							
	1/8	2	Data Management							
	1/9		**HW 0 due @ 11 pm**							
2	1/13	3	Simple Linear Regression							
	1/15	4	SLR: Inference and Prediction							
	1/16		**Lab 1 due @ 11 pm**							

Let’s visit the website: Schedule (2/2)

Key Info	I will post announcements and other important class related info here. For example, if I change a due date or discuss a common mistake in homework, I will put it here.
Slides QMD	These are the basic slides that will open in your browser.
Slides PDF	These are the slides in pdf form for easy note taking. I’m not always the best at posting these before class, so make sure you know how to save your own copy of pdf slides!
Slides Notes	These are the annotated slides in pdf form. In class, I add my own notes to slides. After class, I will post them here.
Exit tix	These are links to that day’s exit ticket.
Recording	I record our classes. This will be a link to the OneDrive folder containing this recording.
Muddy Points	You will have a chance to ask questions about class in your exit tickets. If I notice a trend in confusion, I will add explanations to these “Muddy Points”

Let’s visit the website: Search

Let’s visit the website: Homework

Let’s visit the website: Project and labs

Structure for this course

- We will use the foundation built in BSTA 511/611 or EPID 525

- We will be building towards models that can handle many variables!
  - **Regression** is the building block for modeling multivariable relationships

- In Linear Models we will *build*, *interpret*, *and evaluate* **linear regression models**

What we will cover: process for regression data analysis

Model Selection

- Building a model
- Selecting variables
- Prediction vs interpretation
- Comparing potential models

Model Fitting

- Find best fit line
- Using OLS in this class
- Parameter estimation
- Categorical covariates
- Interactions

Model Evaluation

- Evaluation of model fit
- Testing model assumptions
- Residuals
- Transformations
- Influential points
- Multicollinearity

Model Use (Inference)

- Inference for coefficients
- Hypothesis testing for coefficients
- Inference for expected Y given X
- Prediction of new Y given X

Let me know if you have questions

Or if there's any contradicting information in the course site… I'm sure I made a mistake somewhere!!

- For example: we do NOT have quizzes. If you see a mention of quizzes anywhere in the course, then I simply overlooked it and need to fix it!