Alex Marsh (UNC) **Teaching Statement** **alex.marsh@unc.edu**

As someone who attended a small liberal arts college and grew up in rural West Virginia with only 17 students in my graduating class, I understand the transformative power of personalized and engaging learning environments. During my time at Belmont University, the professors who made lasting impacts related the material to their own experiences and challenged students to think beyond problem sets and exams. As the designer and instructor of record for three sections of Economic Applications of Data Science (ECON 370), this background shaped my teaching philosophy and approach in the classroom, which centers on three core principles: fostering intellectual curiosity through real-world applications, creating an inclusive and supportive learning environment, and using research to make students invested in the learning process.

Fostering Intellectual Curiosity Through Real-World Applications

The most impactful courses I took as an undergraduate were those that gave me tools to apply the economics learned in the classroom to better understand the economics all around me. However, curiosity is not developed from grades alone; there must be a moment where students see that what they are learning has value beyond receiving a good grade. This insight guides my approach to teaching: I strive to help students discover how economic concepts manifest in their daily lives and current events. When teaching recitation sections for ECON 101, I regularly incorporated examples from students' experiences on campus to make the material relatable and encourage reflection beyond the practice problems.

When designing ECON 370, I did not want to just teach R programming, but also how to use R to investigate compelling economic questions. Through a combination of simulations and data analysis, I create opportunities for students to see the value of the material and its applications in future coursework. For instance, I developed a simulation exercise that illustrates why the causal effect of attending college on wages cannot be determined by simply comparing average wages across education levels. While this exercise precedes formal instruction on endogeneity, it provides students with an intuitive understanding of key econometric concepts. My goal for ECON 370 is to give students tools that empower them to pursue their own questions.

Creating an Inclusive and Supportive Learning Environment

Coming from a small high school in Appalachia, I know firsthand how intimidating certain academic environments can be. I strive to create an inclusive classroom where all students feel welcome and supported, regardless of their background. I use the following strategies to create this environment.

1. *Differentiated Learning Approaches*: Because students have different learning styles, I provide a spectrum of resources for students to engage with the material. In ECON 370, this means offering readings accessible to different programming backgrounds, providing interactive coding tutorials such as **swirl**, and leading hands-on practice sessions during lecture. I promote active learning by encouraging students to follow along with lecture by programming on their computer. During office hours, I often work with students to identify learning strategies and problem-solving approaches best suited to their individual learning styles and background. If given the opportunity to teach a similar course, I plan to develop a set of "recitation" videos that give students concrete examples to practice the material.
2. *Building Confidence Through Scaffolded Learning*: During lecture, I break down complex concepts into digestible pieces, helping students build confidence as they master each piece. In ECON 370, I implement this by dissecting complex programming problems into simple,

sequential steps. Students learn a methodical way to approach challenging problems through guided practice that connects each step back to the original problem. This approach demystifies complicated problems while building students' problem-solving skills. For example, I use the Monty Hall problem to illustrate how to program a simple simulation.

3. *Creating Safe Spaces for Questions*: I make a point to acknowledge good questions from students and to model intellectual humility by admitting that I do not know the answer. I then proceed to show them how I would go about finding an answer. Doing this creates an environment where students feel comfortable expressing uncertainty while also illustrating how to find answers on their own.

Using Research To Make Students Invested

I am convinced students learn most effectively when they are personally invested in the material. One way I engage students is by connecting the course content to research, whether that be my own work or questions that interest them. This has the added benefit of fostering an early interest in research for students to pursue in the future.

The final project in ECON 370 involves analyzing real dialysis clinic data from the NBER to replicate findings from Eliason et. al. [2020], research on which I was an assistant. This project requires integrating various skills learned throughout the course and gives students hands-on experience wrangling, cleaning, and analyzing real data. Former students have told me that while challenging, the final project prepared them for future academic studies or careers.

I look forward to designing courses that leverage my research expertise in industrial organization and applied econometrics. I envision creating courses that examine competition and pricing strategies in the airline industry, using the various publicly available datasets to help students understand the complex dynamics of the industry. I am particularly interested in developing an upper-level seminar where students can conduct original research using airline data, providing them with valuable experience in empirical analysis in a relatable industry.

Assessment and Continuous Improvement

Throughout the semester, I regularly solicit feedback from students and adjust the course accordingly when needed. For example, after noticing that students were struggling with the pace of ECON 370 my first semester, I slowed down the material and began implementing more practice problems into lecture. I also started recording short video tutorials and solution scripts with detailed comments for the in-class examples that students could review at their own pace.

Conclusion

My approach to teaching is shaped by my belief in the transformative power of undergraduate education, particularly in a liberal arts setting. I am committed to helping students develop not just technical skills, but also curiosity, critical thinking, and analytical capabilities that will serve them throughout their careers. Whether they pursue graduate studies or enter the workforce, I want students to leave my courses with the confidence to tackle complex problems and the curiosity to continue learning.

The liberal arts college environment, with its emphasis on close faculty-student interaction and interdisciplinary thinking, provides the ideal setting for this teaching philosophy. I look forward to contributing to a community where I can work closely with students, develop innovative courses, and help shape the next generation of thoughtful and analytical thinkers.