

Teaching Statement

Ebuka Philip Oguchi

My teaching approach focuses on creating a vibrant, diverse classroom that gives students the tools to become critical thinkers, practical problem solvers, and conceptually competent cybersecurity students. I have developed a multimodal strategy to keep students engaged and to encourage efficient learning, drawing on my background as a teaching assistant and lab assistant for the University of Nebraska-Lincoln's Cryptography & Security course (CSCE 477/877) and during my National Youth Service Corps (NYSC) at D.S. Adegbenro ICT Polytechnic in Nigeria.

Teaching Approach: Learning STEM subjects—especially cybersecurity—requires active participation and practical application. To accommodate different learning styles and encourage in-depth comprehension, I combine a variety of instructional and evaluation methods.

Course Structure: I intend to organize courses into modules with specific learning objectives. This modular design allows for greater flexibility in pacing while maintaining student focus. Each module will begin with detailed topic explanations, followed by activities to reinforce learning, check comprehension, and encourage critical thinking.

Active Learning: I plan to use a flipped classroom model, where students engage with assigned materials and take pre-class assessments. This approach frees up classroom time for in-depth discussions and collaborative activities. Although I have not yet experienced a flipped classroom as a student, teaching assistant, or lecturer, I am eager to implement this model due to its proven benefits in fostering active learning, collaboration, and critical thinking. My understanding of the flipped classroom approach comes from pedagogy workshops, discussions with colleagues, and educational resources.

Technology Integration: To increase student participation and streamline assessment, I intend to use online platforms like TopHat to provide real-time feedback during class. This tool allows me to assess student comprehension and quickly address misconceptions. I will also use Piazza as an online platform to stimulate student inquiries and discussions outside class hours, fostering a continuous learning environment.

Practical Application: Having organized experiments and laboratories for the Cryptography & Security course, I understand the value of hands-on learning in cybersecurity education. I will create projects and lab activities that require students to apply theoretical concepts to real-world scenarios, thereby improving their problem-solving skills and practical understanding of cybersecurity principles.

Assessment Strategy: My assessment strategy will be varied, encompassing in-class activities, homework assignments, projects, and exams. I will create two types of tasks: shorter ones that must be completed after each module, and larger, integrative assignments that span multiple topics. The projects will be designed to challenge

students with real-world applications of cybersecurity principles. Exams will incorporate knowledge, application, and synthesis tasks to measure student comprehension holistically.

During office hours, I will meet with my students to discuss their concerns and use their feedback to improve my teaching methods and content delivery. Additionally, I will design assessments based on student evaluations of in-class activities, assignments, and projects. When possible, I will use concept inventories to conduct more formal evaluations. End-of-course feedback will refine course material and activities for future offerings.

Mentoring Approach: Mentoring graduate and undergraduate students is a crucial part of my role as an educator. I aim to develop my students' autonomous research abilities by introducing them to key topics in cryptography and cybersecurity and guiding them through relevant literature. I challenge them to understand the real-world significance of research problems and solve them using theoretical and experimental methodologies.

I will organize regular research group meetings to enhance communication skills where my students can share their work and discuss current research topics. I will provide constructive feedback on their presentations and encourage peer feedback to broaden their perspectives. Additionally, I will help my students conceptualize and present their research by offering iterative writing feedback, beginning with high-level guidance and progressing to detailed refinements.

To further support their growth, I will arrange weekly one-on-one sessions with my research students to track their development and address any challenges they may face. These sessions will provide personalized guidance to help them achieve their academic and professional goals.

My mentoring experience spans several contexts. I have mentored students through research group meetings and individual sessions at the University of Nebraska-Lincoln. During my National Youth Service Corps (NYSC) at D.S. Adegbenro ICT Polytechnic in Nigeria, I served as a Teaching Assistant for "Introduction to Computer Architecture" and "Introduction to Computer Software" from January 2018 to May 2018. I taught the syllabus, organized experiments, graded assignments, and supervised exams for my undergraduates and sandwich program students. During my master's at Changchun University of Science and Technology in China, I mentored a student in the Machine Vision Laboratory, assigning tasks, monitoring progress, and involving the student in data collection for my research. This experience helped the student develop research skills, and I supplemented their learning with relevant literature.

Teaching Interests at the University of XXXXXX: I am well-prepared to teach courses in various areas, including undergraduate courses in cybersecurity (e.g., XXXXX), networking (e.g., XXXXX), algorithms (e.g., X), data structures (e.g., XXXXXX), and programming (e.g., X). At the graduate level, I am interested in teaching courses in cybersecurity (e.g., XXXXX), networking (e.g., XXXXX), algorithms (e.g., X), data structures (e.g., XXXXXX), and programming (e.g., X). Additionally, I would like to develop a new course to introduce state-of-the-art research in wireless security. I believe both undergraduate and graduate students can benefit from this course by expanding

their knowledge and skills in cybersecurity, networking, and wireless technologies.

My teaching methodology focuses on active learning, practical application, and critical thinking. By leveraging technology, encouraging hands-on experiences, and cultivating an inclusive learning environment, I aim to prepare students for the challenges and opportunities that await them in the rapidly evolving fields of cybersecurity and physical layer security.