

# PRECIOUS EMEKA CHUKWUBEM

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## PERSONAL STATEMENT

Disciplined and results-driven graduate research student in Plant Pathology with extensive hands-on laboratory experience in microbiology, molecular biology, and genomics. Passionate about advancing sustainable agriculture through innovative research and scientific problem-solving. Demonstrated ability to collaborate effectively, build strong professional relationships, and adapt quickly to new environments, techniques, and concepts. Committed to continuous learning and contributing to impactful research in plant-microbe interactions and crop protection.

## ACADEMIC BACKGROUND

### **Masters in Biology**

August 2024

Georgia Institute of Technology, Atlanta, USA.

### **B.Sc (Hons) in Anatomy**

November 2019

University of Medical Sciences, Ondo, Nigeria

CGPA: 4.19/5.0

**Thesis:** *“Comparative Anatomical Study of the Caudate Nucleus in Seven Mammalian Animals”*

**Advisor:** Professor Polycarp Nwoha

## RESEARCH EXPERIENCE

### **PhD. Student and Graduate Research Assistant,**

August 2024-present

Department Of Entomology & Plant Pathology, College Of Agriculture, Auburn University, USA

**Research Project:** *Deciphering and Mitigating Epichloë Endophyte-Mediated Tall Fescue Toxicity Using Integrated Genomic, Metabolomic, and Microbial Approaches*

Advisor: Dr. Jeffery J. Coleman & Dr. Anthony Adesemoye

Performing the following: Grass Sample Collections, Endophyte isolation, Microscopy, Microbes Inoculations, Genomics, Metabolomics (UHPLC, HPLC, LC-IM-MS/MS, GC-MS), Field Experiments, Amplicon Sequencing, Metagenomics, RT-PCR, and Next-generation sequencing.

### **Graduate Research Assistant**

April - June 2024

Georgia Institute of Technology, Atlanta, USA

**Project Title:** *The Role of Inverted Repeats (Palindromic repeats) on Genomic Instability*

Advisor: Dr. Kirill Lobachev

Performed the following: Molecular cloning, Overlap extension PCR cloning, PCR site-directed mutagenesis, Yeast genetics, Yeast assays for genetic studies, 2D electrophoresis, Western and Northern blotting, Genomics, Designing Primers for Cloning, Cell culture, Designing plasmid, DNA, RNA, and plasmid extractions, and Next-generation sequencing.

### **Graduate Research Assistant**

Georgia Institute of Technology, Atlanta, USA

May 2023 - April 2024

**Project Title:** *Molecular Mechanism of Hypoplastic Left Syndrome and Heart Development*

Project Advisor: Dr. Shuyi Nie

Performed the following: Microinjections of embryos, Gene knockout using CRISPR, In Situ Hybridization, Immunofluorescence, In situ hybridization chain reaction (HCR), Confocal Microscopy, Histology Tissue Processing, Microdissection, Tissue culture, Molecular cloning, and Genomics.

### **Graduate Research Assistant**

August 2022 - May 2023

Georgia Institute of Technology, Atlanta, USA

**Project Title:** *Misincorporation of Ribonucleotide Monophosphate in Genomic DNA*

Project Supervisor: Dr. Francesca Storici

Performed the following: Generating Yeast mutant cells, Molecular cloning, DNA extractions, Ribonucleotide Genomic Libraries, Next-generation sequencing, Nanopore sequencing, and Genomics.

### **Research Assistant (Volunteer)**

September - December 2021

Neuroscience and Ageing Research Unit (NARU Lab),

Institute of Advanced Medical Research and Training, University of Ibadan, Nigeria

**Project Title:** *Genomic, Biological, and Molecular Mechanisms of Ageing and Degenerative Disorders*

Project Supervisors: Professor A. Ogunniyi and Dr. Rufus O. Akinyemi

- Performed Genomic analysis: genotyping, genome-wide association studies, and next-generation sequencing.
- Performed Immunohistochemistry techniques, immunoblotting methods, and qualitative research methods
- Performed DNA extractions from whole blood.

### **Undergraduate Research Assistant**

May 2017 - November 2019

University of Medical Sciences, Nigeria

**Project Title:** *Comparative Anatomical Studies of the Mammalian Caudate Nucleus*

Advisor: Professor Polycarp Nwoha

Performed the following: Tissue culture, Histology and Tissue Processing, Immunostaining, and Tissue dissections.

## **TEACHING EXPERIENCE**

### **Graduate Teaching Assistant**

January-April, 2025

Auburn University, Auburn, USA

*Teaching Instructor for General Plant Pathology Lab*

Taught General laboratory techniques in the following: Identifying plant diseases, plant pathogens (fungi, bacteria, viruses, and nematodes) isolation and identification, aseptic culture techniques, Koch's Postulates, and Microscopy.

### **Graduate Teaching Assistant**

Georgia Institute of Technology, Atlanta, USA

June - August 2024

- *Discussion Instructor for APPH 1020*
- *Teaching Instructor for Biology Lab II*
- *Discussion Instructor for APPH 1040*

### **Graduate Teaching Assistant**

August 2022 - July 2023

Georgia Institute of Technology, Atlanta, USA

*Teaching Instructor for Genetic Lab 1*

## Teaching Assistant (NYSC)

March 2020- February 2021

Institute of Health Technology,

University of Benin Teaching Hospital, Benin City, Nigeria

Course: Introduction to Anatomy (ANA 110)

- Taught classes in Introductory Anatomy to Nursing, Biomedical Engineering, and Paramedical students
- Graded term papers, assignments, and set exam questions
- Mentored students and consistently encouraged them in academic excellence
- Assisted in preparing the academic term curriculum and lectures

## High School Teacher

December 2019- March 2020

Future Leaders Academy, Edo State, Nigeria

Subjects: Biology and Basic Science

- Taught biology to senior secondary school students from 1 to 3
- Taught Basic science to junior secondary students from 1-3
- Responsible for grading exam sheets, test sheets, and assignments
- Prepared lesson notes, lecture notes, and assignment structure
- Consistently encouraged students on academic excellence

## PROFESSIONAL DEVELOPMENT

### Abstract Accepted and Selected Presentations

- ***“The Problem with Forage Agriculture: Fescue Toxicosis and Livestock Health”***

**Precious Chukwubem**, Jeffery Coleman, Anthony Adesemoye

3-Minute Thesis Competition, Graduate Programs, Auburn University

November 2025

- ***“Deciphering and Mitigating Epichloë Endophyte-Mediated Tall Fescue Toxicity Using Integrated Genomic, Metabolomic, and Microbial Approaches”***

**Precious Chukwubem<sup>1</sup>**, Jeffery Coleman<sup>1</sup>, Anthony Adesemoye,<sup>2</sup> Dexter Watts<sup>2</sup>

Plants, Insects, and Microbes Symposium, Auburn University

May 2025

- ***“Unraveling the Genetic Diversity of Epichloë Endophytes in Tall Fescue from Alabama: A New Fast-Growing Potentially Novel Strain”***

**Precious Chukwubem<sup>1</sup>**, Anthony Adesemoye,<sup>2</sup> Dexter Watts<sup>2</sup> and Leanne Dillard<sup>3</sup>

<sup>1</sup> Department of Entomology & Plant Pathology, Auburn University

<sup>2</sup> USDA-ARS National Soil Dynamics Lab, Auburn, AL

<sup>3</sup> Department of Animal Sciences, Auburn University

The American Phytopathological Society, Southern and Caribbean Divisions,

March 9-15, 2025

Gainesville, Florida

### Workshops/Conference Attended

- Virtual Conference: 31<sup>st</sup> Fungal Genetics Conference
- Virtual Conference: ***“Africa’s Vaccine Manufacturing for Health Security”***
- 16<sup>th</sup> Annual Scientific Conference/Annual General Meeting of Anatomical Society of Nigeria (ASN): ***“Anatomy Education: Implication for National Development”***, University of Calabar, River State, Nigeria
- Workshop on RNA Isolation and Neurobio-banking, University of Ibadan, Nigeria
- Annual Meeting of the Nigerian Federation of Neurorehabilitation, College of Medicine, University of Ibadan, Ibadan, Nigeria

March 15 -20, 2022

April 12 -13, 2021

11 October 2019

November 23 -26, 2018

December 3-6, 2018

## **Webinars/Seminars**

- 3<sup>rd</sup> Edition of the Future Investment Initiative (FII) Institute's series: *"The Neo-Renaissance: Mobilizing Environment, Social, and Governance for a Sustainable Future"* April 15, 2020 & 2021
- Society of Neuroscientists of Africa (SONA) Webinars series: May 22, 2020  
"Neuroscience Investigation in the Virgin Lands of African Biodiversity"

## **CERTIFICATION**

- Accelerated Jobberman Soft Skills Training July 2022
- Research Writing in the Sciences May 2022
- Coping with the Stress of Coronavirus, Harvard Medical School April, 2020
- Certificate of Internship, Stroke Investigative Research, and Education Network (SIREN Projects) December 2018

## **PROFESSIONAL MEMBERSHIP**

- The American Phytopathological Society (APS) July 2025 - present
- Society of Developmental Biologists April 2024 - present
- Genetic Society of America (GSA) November 2021- 2023
- Anatomical Society of Nigeria (ASN) October 2019- present

## **LEADERSHIP AND VOLUNTARY SERVICE**

- Instructor, Focus Jamb lectures free Tutorials for High School 2021-2022  
Students graduate writing the National Joint Admission and Matriculation Exams (JAMB)  
Edo State, Nigeria.
- Corps' Liaison Officer, University of Benin Teaching Hospital 2020-2021
- National Serving Corps Members (NYSC), Benin City, Nigeria
- The presiding officer of Poll 14, Independent National Electoral Commission (INEC) for Edo State Governorship Elections, Benin City, Nigeria. September 19, 2020
- Teach the deaf and dumb for free and promote their inclusiveness in society To Date.

## **AWARDS AND HONORS**

- 2025 Three Minute Thesis Competition Finalist November 2025
- Graduate Teaching Assistantship, Georgia Institute of Technology February 2022
- Best Corps' liaison officer, University of Benin Teaching Hospital February 2022
- Department of Anatomy, Undergraduate Research Fellowship Award May 2019

## **LANGUAGE SKILLS**

**English:** Native Language, Proficient in written and oral English; **American Sign Language (ASL):** Intermediate; **Nigeria Sign Language (NSL):** Intermediate; **Igbo:** Fluent

## **PROFESSIONAL SKILLS AND EXPERTISE**

- Techniques in Microbiology, Cell and Molecular Biology
- Techniques in Yeast Genetics and Excellent Dexterity for Laboratory Experimentations
- Python for genomic analysis, teaching, and conducting experimental labs
- Excellent Qualitative and Analytical skills, and Strong teamwork and interpersonal skills
- Ability to work effectively under pressure and able to work independently with little or no supervision
- Proficient in Microsoft Office tools (2016), Mendeley tools, and Statistical Package in Social Sciences (SPSS) tools, and Effective verbal and written communication skills
- Practical ability to prioritize, organize, coordinate, and communicate at all levels