

Ph.D.\* or MS in Biomedical  
Sciences  
DrPH or MPH in Public Health



Visit us for an informal information session, including chats with faculty and current students, along with tours of departments and facilities in the Brody School of Medicine.

Faculty and students from the following departments will be on hand:

Anatomy and Cell Biology

Biochemistry and Molecular Biology

Microbiology and Immunology

Pharmacology and Toxicology

Physiology

Public Health

**Please RSVP to [franklinr@ecu.edu](mailto:franklinr@ecu.edu) by 1/20/2022**

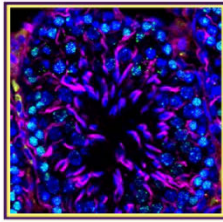
The event will take place on January 26 (3:30pm-5pm)  
at Brody School of Medicine (2S-04). RSVP is  
encouraged but not required.

\* Ph.D. students in Biomedical Sciences are supported by  
\$25,000 Graduate School stipends and tuition wavers.

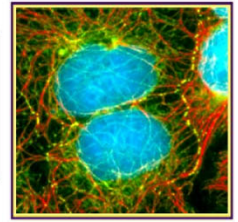
Please contact Dr. Rich Franklin with any questions:  
[franklinr@ecu.edu](mailto:franklinr@ecu.edu)



Brody School of Medicine  
East Carolina University  
Greenville, NC 27834



## Ph.D. in Biomedical Science Anatomy and Cell Biology



### Cell Biology Training Program



Dr. Chen's student giving a talk at a national meeting

#### Chen Lab

Studies intestinal stem cell regulation and how disruption of cell contacts leads to intestinal inflammation and other disorders.

#### Didonna Lab

Seeks to understand the mechanistic connection between aberrant immune responses and neurodegenerative processes in chronic human diseases.

#### Eells Lab

Investigates how environmental experiences can increase the risk of developing neurologic and neuropsychiatric disorders with a major focus on the function of dopamine neurons.

#### Geyer Lab

Defines the mechanisms regulating the differentiation program that male germ cells must complete prior to their transition into meiosis and metabolite control over sperm motility using both mouse and human spermatogenesis as model systems.



Student Working in the Geyer lab

#### Koch and Koster Labs

Investigates a group of inherited diseases called ectodermal dysplasias using genetically engineered animal models and human stem cell-based disease models utilizing advanced developmental, cell, and molecular biology techniques.

#### Litwa Lab

Researches the foundations of synapse formation and how synaptic alterations contribute to neurodevelopmental disorders.

#### Lu Lab

Examines the role of small GTPase signaling in human diseases such as Alzheimer's disease, amyotrophic lateral sclerosis and cancer employing a combination of computational, molecular, and genetic approaches.



Koch/Koster labs at 5K fun run



Student & Dr. Litwa working in the lab

### Courses

Foundations in Biomedical Sciences; Histology; Molecular Cell Biology; Cancer Biology; Grant writing; Statistics; Ethics and Research; Human Anatomy and Neuroscience (Optional); Many more elective courses across the concentrations.

Apply on-line at: [www.ecu.edu/gradschool](http://www.ecu.edu/gradschool)  
For more information, visit: [www.ecu.edu/anatomy](http://www.ecu.edu/anatomy)

**Contact:**  
Dr. Yan-Hua Chen, Professor, Director of Graduate Studies, [cheny@ecu.edu](mailto:cheny@ecu.edu)  
Dr. Peter Koch, Professor and Chair, [kochp19@ecu.edu](mailto:kochp19@ecu.edu)





#### Faculty Research Interests

- Cabot Lab:** The biochemistry underlying cancer chemotherapy resistance, focusing on sphingolipids and development of novel ceramide-centric nanosized-therapeutics.
- Cavanagh Lab:** Connecting protein structure, dynamics and interactions with physiological function in antimicrobial resistance, neurodegenerative disease, and cancer.
- Chalovich Lab:** Mechanism of regulation of striated muscle contraction with emphasis on the use of natural disease-causing mutations of the troponin regulatory complex.
- Ellis Lab:** Investigates how the structural and functional properties of enzymes correlate with different disease states and bacterial virulence.
- Johnson Lab:** Mechanism for the fidelity of transcription as catalyzed by RNA polymerase.
- Keiper Lab:** Recognizing that new proteins can lead to new cell fates, we study mechanisms that select mRNAs for translation in *C. elegans* germ cells, gametes and embryos.
- Mansfield Lab:** Post-transcriptional regulation by the RNA modification N6-methyladenosine and impact on breast cancer progression and the cellular response to low oxygen.
- Schwalbe Lab:** Cell culture, and vertebrate models to relate N-glycosylation processing of proteins to neuron development and function to understand human neurodegenerative disease and neuroblastoma.
- Shewchuk Lab:** Studies gene regulation and epigenetics in the control of muscle and brown adipose tissue lipid metabolism using cell culture and animal models.
- Zeczycki Lab:** Determines how intrinsic protein disorder, protein dynamics, allostery, and protein-protein interactions govern the pathology of neurodegenerative disorders.

Visit our  
Department



Graduate students admitted to our program are supported by assistantships and fellowships.

For more information regarding our program or to schedule a visit contact our Graduate Director Dr. Brett Keiper ([keiperb@ecu.edu](mailto:keiperb@ecu.edu)) and/or Department Chair Dr. John Cavanagh ([cavanaghj19@ecu.edu](mailto:cavanaghj19@ecu.edu))

## Program Areas & Admissions

### Master of Public Health



The Master of Public Health (MPH) degree requires the completion of 45 credit hours, which are comprised of the following course categories: program core, concentration-specific core, electives, capstone, and internship. The three MPH concentration options are (1) Health Policy, Administration, and Leadership, (2) Community Health and Health Behavior, and (3) Epidemiology. The required application materials for admission consideration include a personal statement, official transcript(s), and three letters of recommendation. Applications are accepted for both Fall and Spring academic terms.

### DrPH in Environmental and Occupational Health



The Doctor of Public Health (DrPH) in Environmental and Occupational Health degree requires the completion of a minimum of 50 credit hours. The hours are comprised of the following categories: didactic coursework, an applied field experience, and dissertation research. Admission requirements include an MPH or equivalent degree, a minimum of 2 years of relevant public health experience, completion of prerequisite fundamental courses, and graduate record examination (GRE) scores within the past 5 years or a Professional Track Admission GRE waiver. Applications are accepted for the Fall academic term.

### DrPH in Health Policy, Administration, and Leadership



The DrPH in Health Policy, Administration, and Leadership degree requires the completion of a minimum of 50 credit hours. The hours are comprised of the following categories: didactic coursework, an applied field experience, and dissertation research. Admission requirements include an MPH or equivalent degree, a minimum of 2 years of relevant public health experience, completion of prerequisite fundamental courses, and GRE scores within the past 5 years or a Professional Track Admission GRE waiver. Applications are accepted for the Fall academic term.

### Public Health Foundations & Practice Certificate



The Public Health Foundations & Practice (PHFP) Certificate program provides training in the fundamental core principles of public health. The program is designed for working professionals or individuals with or without public health experience, and can be used as a stepping stone towards the MPH degree. The PHFP certificate requires the completion of 15 credit hours and is open to applicants who hold a baccalaureate degree with a minimum 2.5 GPA. Applicants must submit two letters of recommendation, a curriculum vitae/resume, and a statement of purpose. The GRE or other standardized test score is not required.

### Ethnic & Rural Health Disparities Graduate Certificate



The Ethnic & Rural Health Disparities (ERHD) Graduate Certificate Online Program is designed to improve public health professionals' skills in the area of cultural competency and to better prepare public health graduates in the five major rural health disparity issues (i.e., cancer, heart disease, substance abuse, smoking, and HIV/AIDS). The ERHD graduate certificate requires the completion of 12 credit hours and is open to applicants who hold a baccalaureate degree with a minimum 3.0 GPA. Completion of the certificate can also be a pathway for students to earn an MPH degree.

#### For additional information about our degree programs, contact:

**Dr. Marla B. Hall**, Associate Professor, MPH Program  
Director, hallmarl14@ecu.edu

**Dr. Greg Kearney**, Associate Professor, DrPH Program  
Director in Environmental and Occupational Health,  
kearneyg@ecu.edu

**Dr. N. Ruth Little**, Associate Professor, DrPH Program  
Director in Health Policy, Administration, and Leadership,  
littlena@ecu.edu

#### For additional information on our certificate programs, contact:

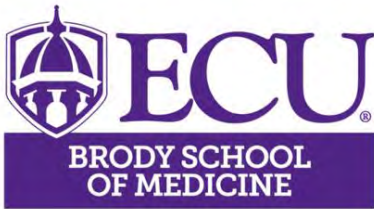
**Dr. Lok Pokhrel**, Assistant Professor, Director of the  
Public Health Foundations & Practice Certificate,  
pokhrell18@ecu.edu

**Dr. Eric Bailey**, Professor, Director of the Ethnic &  
Rural Health Disparities Graduate Certificate Online  
Program, bailey@ecu.edu

Please visit our department website at <https://public-health.ecu.edu>.

To apply online, visit <https://gradschool.ecu.edu>.

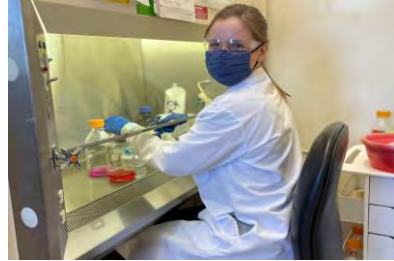




# Ph.D. in Biomedical Sciences Microbiology and Immunology

## Research Areas

- Bacteriology
- Immunology
- Virology



## What We Offer

- full tuition waiver
- stipend (\$25k)
- medical insurance
- a great education!



Check us out at:

<https://microbiology-immunology.ecu.edu>

Apply at:

[www.ecu.edu/gradschool](http://www.ecu.edu/gradschool)

For more info contact:

Dr. Rich Franklin

Graduate Program Director

Department of Microbiology and Immunology

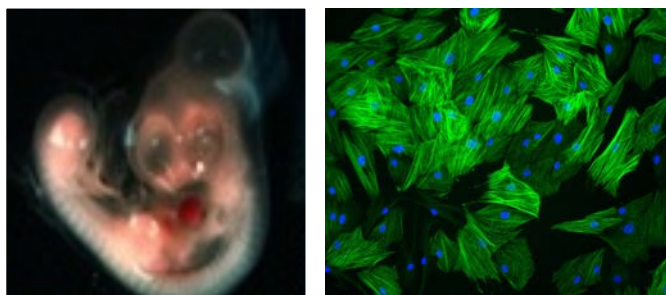
[franklinr@ecu.edu](mailto:franklinr@ecu.edu)



# Pharmacology & Toxicology

## Training Program

- Pharmacology and Toxicology are unique disciplines that bridge the basic and clinical sciences.
- Students conduct high-quality, independent research using multi-disciplinary techniques.
- Research is conducted from the cellular and molecular level to the behaving animal.



## Career Opportunities

- Academia – Faculty positions at major universities, medical schools and liberal arts colleges
- Industry – Multi-national pharmaceutical companies and biotech start-ups
- Policy and regulation – Food and Drug Administration (FDA), Environmental Protection Agency (EPA), state and local agencies.

## Contact Us

<http://www.ecu.edu/cs-dhs/pharmacology/gradProgram.cfm>

Dr. Rukiyah Van Dross-Anderson, Director of Graduate Programs, [vandrossr@ecu.edu](mailto:vandrossr@ecu.edu)



PharmToxEU



[ECU Pharmacology & Toxicology](#)

## Laboratories

**Dr. Abdel Abdel-Rahman:** Sex differences in cardiovascular function.

**Dr. Jamie DeWitt:** Environmental contaminant effects on the immune and nervous systems.

**Dr. Raymond Mattingly:** Pathomimetic 3D culture models for drug discovery.

**Dr. Jacques Robidoux:** Adipose tissue dysfunction and metabolic diseases.

**Dr. Mustafa Selim:** Technologies to treat and mitigate toxicant exposures.

**Dr. Ken Soderstrom:** Persistent behavioral effects of CNS active drugs.

**Dr. Srinivas Sriramula:** Central neural mechanisms in blood pressure regulation.

**Dr. Rukiyah Van Dross-Anderson:** Novel chemotherapeutic agents.

**Dr. Tracey Woodlief:** Bioenergetic perturbations from environmental contaminant exposure.

Are you fascinated by how the body works?

Are you interested in medicine, but not interested in being a doctor?

Interested in both science and business?

Are you driven by a need to know more?

**Research training in our program could be the right next step for you!!**

Graduates from our training program are exceptionally well-prepared for many careers, including Biotech start-up, science policy, intellectual property and regulatory affairs, R&D and product education with "Big Pharma", science writers, and faculty with medical schools, universities, colleges, and community colleges.

Our program uses a hands-on, collaborative, inclusive, and highly personalized research-based approach to help you develop the skills you'll need to be successful. You'll be working directly with energetic faculty pursuing research to better understand the physiology of a heart attack and recovery, heart failure, bladder dysfunction, epigenetics, spinal cord signaling, peripheral vascular disease, cancer, or skeletal muscle function in aging and disease. Metabolism, mitochondrial energetics, and tissue remodeling after injury are common themes across the labs. Labs/PIs currently hosting Ph.D. students include:

**Clemens Lab:** Conducts studies investigating the role of dopamine function in the spinal cord, and its role in Restless Leg Syndrome and chronic pain. [Clemenss@ecu.edu](mailto:Clemenss@ecu.edu)

**De Castro Brás Lab:** Conducts studies to define the mechanism of tissue remodeling in scar formation and cardiac function after injury. [Decastrobras14@ecu.edu](mailto:Decastrobras14@ecu.edu)

**Ellis Lab:** conducts studies to determine the regulatory nodes in fatty acid metabolism and their role in health and disease in muscle and brain. [Ellisje18@ecu.edu](mailto:Ellisje18@ecu.edu)

**Fisher-Wellman Lab:** Conducts studies investigating how intrinsic alterations across the mitochondrial network drive/enable the cancer phenotype. [Fisherwellmank17@ecu.edu](mailto:Fisherwellmank17@ecu.edu)

**Hannan Lab:** Conducts studies investigating the pathophysiology of bladder and sexual dysfunction. [Hannanj14@ecu.edu](mailto:Hannanj14@ecu.edu)

**McClung Lab:** Conducts studies investigating the genetic and molecular mechanisms of clinical vascular disease. [McClungj@ecu.edu](mailto:McClungj@ecu.edu)

**Murashov Lab:** Conducts studies investigating epigenetic mechanisms of susceptibility to neurological and metabolic disorders. [Murashoval@ecu.edu](mailto:Murashoval@ecu.edu)

**Neufer Lab:** Conducts studies to decipher the molecular mechanisms governing mitochondrial bioenergetics and its function in metabolic disease, its treatment and prevention. [NeuferP@ecu.edu](mailto:NeuferP@ecu.edu)

**Tulis Lab:** Conducts studies determining cellular, molecular, and genetic signals and mechanisms that serve as foundations for cardiac and vascular diseases. [TulisD@ecu.edu](mailto:TulisD@ecu.edu)

**Spangenburg Lab:** Conducts studies investigating mechanisms that regulate physiological and metabolic properties of skeletal muscle. [SpangenburgE14@ecu.edu](mailto:SpangenburgE14@ecu.edu)

**Virag Lab:** Conducts studies exploring the involvement of ephrinA1/EphA signaling in regulating normal cardiac tissue physiology and improving outcomes in acute and chronic pathophysiologic heart conditions. [ViragJ@ecu.edu](mailto:ViragJ@ecu.edu)



**Want to know more?** Scan or visit: <https://www.physiology.ecu.edu>

**Inquiries:** Stefan Clemens [Clemenss@ecu.edu](mailto:Clemenss@ecu.edu) (program director) or Bob Lust, Department chair ([lustr@ecu.edu](mailto:lustr@ecu.edu))

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