

## Rostern Tembo

Western Kentucky University, Kentucky 42101 USA  
Department of Biological Sciences, 1906 College Heights BLVD # 11080,  
Bowling Green, KY 42101  
[rostern.tembo@wku.edu](mailto:rostern.tembo@wku.edu)

### **Education & Professional Preparation**

2009 Ph.D., Biology, Bowling Green State University, Bowling Green, OH. USA  
2002 M.S., Biology, Bowling Green State University, Bowling Green, OH. USA  
1994 Diploma, Principles of Modern Management, the British College of Professional Management, Jersey, Britain  
1993 Diploma, Personnel Management, the British College of Professional Management, Jersey, Britain  
1990 B.S., Chemistry & Biology, University of Zambia (Copper Belt College, Kitwe), Zambia

### **Relevant Skills**

- Strong understanding of the informational needs of fellow researchers and ability to present my scientific data/ ideas to lay people
- Relates well to students and readers in the scientific community
- Details oriented
- Ability to work both independently and as a team player
- Self- directed with strong and excellent interpersonal skills

### **Professional experience**

**2015 – Current Instructor for Anatomy and Physiology**  
Western Kentucky University, Department of Biological Sciences

**2015 June - Associate Professor and Chair of Math and Sciences Department: University College of the Cayman Islands**, Math and Sciences Department, Olympic Way, Box 702 George Town, Cayman Islands.

**2009-2015 June Assistant Professor and Chair of Math and Sciences Department University College of Cayman Islands**

**2009-2010-Assistant Professor of Biology (Anatomy and Physiology) University College of Cayman Islands**

#### **Responsibilities as Chair of Math and Sciences Department**

- Provides strategic direction to the Department, consistent with faculty and University plans and policies.
- Leads program reviews
- Provides effective collegial processes for planning, development and monitoring of the Department's academic activities, including students and faculty orientation.
- Provides consultative planning and quality assurance in implementation of a Department's objectives and strategies.
- Encourages collaboration within the Department, and with other academic departments of the university.

- Promotes excellence in the department's teaching, research, scholarly and professional activities, and supports the development of staff to achieve such excellence
- Participates in the recruitment and selection of faculty for the Department
- Assists with the development and management of departmental resources and infrastructure
- Writes and manages the departmental budgets
- Participates in the curriculum committee of the university
- Develops new departmental programs and courses
- Set goals with faculty members in the form of faculty portfolio
- Conduct annual performance review of faculty and staff, making merit recommendations to the Dean
- Represent the Department to both internal and external academic communities, alumni, business and industry, government, foundations and community.
- Schedule classes, including developing a two year schedule with the Dean of Academic Affairs
- Recruit, train and develop faculty, professional staff and adjunct

### **Degree programs I developed at the University College of the Cayman Islands**

- a. Bachelor's degree program in Biomedical Sciences
- b. Bachelor's degree program in Environmental Science
- c. Associate degree program in Environmental Science
- d. Associate degree program in Science

#### Courses developed.

- a. Anatomy and Physiology (part I) 331 and 332 (part II)
- b. Microbiology 240
- c. Biology 204 and Biology 205 (concepts in Biology)
- d. Environmental management and Sustainable Development (ECSC 210)
- e. International Public health (Bio 308)
- f. Epidemiology of Infectious diseases (Bio 415)

### **Teaching Experiences**

- **General Biology (BIO 101)** - Covers: Basic cell structure, Movement of materials in and out of the cells, Tissues, organs and organ systems, Chemicals of life and mitosis, Classification of organisms and ecological relationships, Energy and enzymes, Tissue respiration and Photosynthesis.
- **Concepts in Biology I (BIO 204)** – Covers: A tour of a cell, Membrane structure and functions, Cell communication, The Cell cycle, Meiosis and sexual life cycles, The molecular basis of a cell, Introduction to the origins and diversity of life forms such as viruses, archaea, bacteria, Protista diversity and fungi. General principles of biology are covered as well as introduction to genetics, chromosomes, genes and practical applications of DNA technology, Biotechnology
- **Concepts in Biology II (BIO 205)** - Covers: The big bang theory, Decent with modification, The evolution of populations, The origins of species, Diversity of plants, Animal diversity, Basic principles of animal form and function, Basic Principles of animal form and function, Animal nutrition, Circulation and gaseous exchange, Osmoregulation and excretion, Hormones and endocrine system and Animal reproduction. The course provides an introduction to the origins of species as noted by Sir Charles Darwin and general plants diversity.

- **Anatomy and Physiology (BIO 331)** - Covers: Animal cell structure and function, cell chemistry, cell division, Cellular level, Histology, Integumentary system, Muscular system and its physiology, skeletal system, The Axial and Appendicular skeleton, Joints, nervous system, Spinal cord and the Brain.
- **Anatomy and Physiology (BIO 332)** - Covers: Animal endocrinology, cardiovascular systems, Metabolism, Lymphatic system, Urinary system, Nutrition and digestive system, Reproductive system, development and inheritance. Detailed anatomical and physiological structures of various systems in the body and their functions, aging and disease are considered. Laboratory exercises, lectures, invited medical doctor, research and presentations. Dissections of rats, cats and use of sheep hearts are part of the course.
- **Epidemiology of infectious diseases (BIO 415) – Covers:** Introduction to Epidemiology, The Epidemiology Triangle, Assessing Trends in populations, Global health threats, Historical perspective of epidemiology, The development of epidemiology, Validity of analytical tests, Mortality and calculations of mortality rates, Cohort study examples, Surveillance and reportable diseases, Understanding health diseases, Disease progression and transmission, Disease causation and risk factors, Introduction to descriptive epidemiology, Incidence and prevalence rates and calculations, Descriptive studies, Analytical studies, Bias and validity in Epidemiology, Introduction to epidemics and transmission, Investigating outbreaks, Social determinants and health, Socioeconomic position, Epidemiology and screening. Assessing screening tests, Community public health, Public health agencies etc.
- **Environmental Management and Sustainable Development (ECSC 210)**  
This course examines global environmental problems (with focal concentration on pollution caused by economic development, and the use of fossil fuel as a source of energy). The central topic of the course is sustainable development without degrading the environment and environmental management, which is explored through a number of lectures and discussions. The course teaches knowledge besides substantive knowledge about issues related to innovation and governance pertaining to sustainable development. This course invites students to understand and confront the environmental issues that are likely to affect the future and survival of most businesses and non-business sectors.

**Teaching at Bowling Green State University, Dept. of Biology, Bowling Green, OH 43403**  
2005 – 2009

- **Teaching Assistant**
- **Concepts in Biology II (BIO 205):** Introduction to molecular and cellular biology, physiology and organ systems)
- **Animal Physiology (BIO 411):** General and comparative animal physiology with emphasis on vertebrate systems). Different physiological processes in animals.

#### **As Teaching Assistant**

- Taught various biology courses at Bowling green state University in the 2000-2002 period including Concepts in Biology I (BIO 204): Introduction to ecological and evolutionary biology, Mendelian and population genetics, and major groups and varieties of plants, animals and microbes.
- Conducted labs, proctored lab and lecture exams.
  - Prepared students for lab and graded lab reports and exams.

- Assisted students in research work.
- Preparation labs before the class, made solutions, prepared microscope slides, models and specimens
- Wrote letters of recommendation for students who applied for grants and scholarships.

### **Industrial experience**

2003 Worked as quality control in Chemron (now Lubrizol) company in Bowling green Ohio.

The job involved analyzing raw material samples (chlorides, sulphates, sulfides, nitrates) that came to the company to ensure they met the company's specifications.

### **Research:**

#### a. Research interests and experiences

My interests are in:

- i. Chemoreception in aquatic organisms especially fish
- ii. Agro entomology, integrated pest management

#### b. Publications are:

- i. Tembo, R. The Sublethal Effects of Low pH Exposure on the Chemoreception of *Poecilia sphenops* (gold mollies) Arch Environ Contam. Toxicol . Volume 57, Issue 1 (2009), Page 157.
- ii. Tembo, R and Pavuk, D. The Impact of *Beauveria bassiana*, Bt spray, *Trichogramma pretiosum* and Spinosad on the Lepidopteran (Crambidae), Cereal stalk borer – the European corn borer (*Ostrinia nubilalis*); Journal of Agricultural Science and Technology A 1 (2011) 678-692. Published: September 20, 2011.

#### c. Research Grants

2007 Katzner and Bowling Green State University Bookstore Funds for Graduate Student Research and Professional Development Fund - \$1000

2007 North Central Region – Sustaining Agriculture Research and Education - \$10,000

2008 Scholarship recipient at International Congress of Entomology (one thousand South African Rand – (R1000))

### **Paper Reviews:**

1. The early detection of phenol toxicity using melanophores of the fish, *Oreochromis mossambicus*, as cytosensors. Archives of Environmental contamination and Toxicology. Manuscript number: AECT- D-09-1119

### **Conference Presentations**

- Member of the Caribbean STEM conference organizing committee March 2015
- Caribbean conference, surveying the past and mapping the future, held at The University College of the Cayman Islands on March 21-23 2011.
- International annual Entomological Society of America conference, December 12<sup>th</sup> - 15<sup>th</sup>, 2010 at Town and Country Convention Center in San Diego, California.

- International annual Entomological Society of America conference, November 15<sup>th</sup> – 19<sup>th</sup> 2008, Spark Conventional Center, Reno, NV
- International Congress of Entomology (ICE 2008), June 6<sup>th</sup> – June 12<sup>th</sup> 2008, South Africa, Durban International Conventional Center (*the largest conference with over 2,200 professors and Ph.D. students worldwide*)
- Entomological Society of America conference, March 24<sup>th</sup> 2008 – March 27<sup>th</sup> 2008, Hyatt Regency Hotel, Columbus, OH
- International Annual Entomological Society of America's National Conference, December 10<sup>th</sup> 2006 – December 10<sup>th</sup> 2006, Indiana Convention Center and RCA Dome, Indianapolis, Indiana.
- Annual research retreat, Bowling Green State University, November 2<sup>nd</sup> 2006, November 3<sup>rd</sup> 2007, and November 8<sup>th</sup> 2008, Bowling Green, OH
- Ohio Natural History Conference, February 17<sup>th</sup> 2007, Ohio History Society, Columbus, OH
- Entomological Society of America's Annual Meeting, March 26<sup>th</sup> 2006 – March 29<sup>th</sup> 2006, Doubletree Hotel, Bloomington, Illinois.

#### **Invited guest speaker:**

- Invited guest speaker at Urumqi Clinical Medicine Symposium 2011 (August 25<sup>th</sup>-26<sup>th</sup> 2011) in Urumqi) and Kashi Clinical Medicine Workshop 2011 (August 27<sup>th</sup> - 29<sup>th</sup> in Kashi) in Xinjiang of China.

#### **Research Experience**

The sub lethal effects of low pH exposure on the chemoreception of *Poecilia sphenops* (gold mollies).

I looked at global pollution especially in industrialized nations and developing nations too and how these pollutants (and what is in these pollutants) from industries affect the chemosensory reception of gold mollies (a type of fish).

Biological methods of controlling crop pests as part of the Integrated Pest Management. In recent years, elevated awareness of the impacts of pesticide use on the environment and human health has resulted in efforts to reduce reliance on chemical control.

My research interests were: To compare the efficacy of Transgenic Bt spray, Dipel *Beauveria bassiana*, *Trichogramma*, and Spinosad for the economic control of *Ostrinia nubilalis*.

To assess the integration of natural enemies in developing an economically effective and environmentally sound management program for *Ostrinia nubilalis*, and the impact of these treatments on the abundance and composition of non target arthropods.

#### **Community Service**

March 2009 with the First United Methodist church of Bowling Green, Ohio participated in a missionary trip to New Orleans in Louisiana to help rebuild houses that were devastated by hurricane Katrina. We were in New Orleans for one week housed at the Methodist church in New Orleans. We finished rebuilding two houses and left unfinished two houses

March 2008 with the First United Methodist church of Bowling Green Ohio participated in a missionary trip to New Orleans in Louisiana to help rebuild houses that were devastated by hurricane Katrina. We were in New Orleans for one week housed at the Methodist church in New Orleans. Finished rebuilding 2 houses.

March 2007 with the First United Methodist church of Bowling Green Ohio participated in a missionary trip to New Orleans in Louisiana to help rebuild houses that were devastated by hurricane Katrina. We were in New Orleans for one week housed at the Methodist church in New Orleans. Finished 1 house and left two unfinished.

January 2014: Participated in the formation of STEM club at the University College of the Cayman Islands.  
January 2014 – 2015 Committee member of Caribbean STEM conference

March 5<sup>th</sup> – 12<sup>th</sup>, 2016 with the First United Methodist Church of Bowling Green Ohio participated in a missionary trip to New Orleans/Slidell in Louisiana to help rebuild houses that were devastated by Hurricane Katrina. Helped to rebuild three houses by the end of the week.