ELECTRICAL & COMPUTER ENGINEERING **BIO-SEMINAR** **Spring 2020** TEXAS A&M UNIVERSITY Engineering

When: **Friday 12:40 – 13:20, February 21, 2020**
Where: **ETB 1035**

Speaker: **Isaac Morris Adjei, Ph.D.**

Assistant Professor
Department of Biomedical Engineering
Texas A&M University

Title: **The application of nanomedicine to treat advance-staged cancer**

Abstract: Lymph nodes and bones are frequent sites of metastasis in advance-staged solid tumors and is associated with poor prognosis and low 5-year survival rates. In prostate cancer, for example, the 5-year survival rate drops to 20% after bone metastasis compared to ~100% for patients with localized disease. While current treatments for advance-staged diseases such as surgery, radiotherapy, and chemotherapy improve the quality of life of patients, they do not significantly enhance patient survival. In this seminar, I will discuss the design of nanoparticles (NPs) that localize into multiple lymph nodes associated with a primary tumor, and its use to treat established lymph node metastasis. I will also present on NPs that localize into bones and their application to treat bone metastasis. Both of these studies utilize the physicochemical characteristics of NPs to target lymph nodes and bones and demonstrates the effectiveness of using the physical and chemical properties of NPs as tissue targeting tools.

Bio: Dr. Adjei is an Assistant Professor in the Department of Biomedical Engineering at Texas A&M University. Isaac received his Ph.D. in Molecular Medicine (BME focus), a translation-focused graduate program run by the Cleveland Clinic in collaboration with Case Western Reserve University. His goals are to advance translatable engineering strategies to understand, treat, and diagnose diseases, and in the process, educate the next generation of scientists. His current research focuses on developing drug delivery systems that improve outcomes for advanced-stage cancer. He also develops three-dimensional tumor models to unravel the mechanisms of tumor immune evasion and serve as testbeds for novel strategies to reactivate the immune system against tumors. He has published several papers, given talks at national and international conferences, and has several provisional patents to his name. Isaac's work has been recognized with local and national awards including the Biomedical Engineering Society's Career Development Award, Postdoctoral Excellence award from the University of Florida, and F31 Predoctoral Fellowship from the National Institute of Health.