



cordially invites you to an

Interdisciplinary Seminar

with

Dr. Luis Melara

on

“Optimal control of treatments for retinitis pigmentosa”

Tuesday, November 27, 2018

3:30-5 p.m.

Reception & refreshments at 3 p.m.

Hallam Auditorium, Room 206
1122 Volunteer Boulevard



Dr. Luis Melara is an associate professor of Mathematics at Shippensburg University of Pennsylvania. He obtained his B.S. in Applied Mathematics from UCLA and a Ph.D. in Computational and Applied Mathematics from Rice University. He completed a National Research Council Postdoctoral Fellowship at the National Institute of Standards and Technology and is a past Fulbright-Nehru Scholar at the Indian Institute of Technology Bhubaneswar. He is the current Editor-In-Chief for SIAM Undergraduate Research Online (SIURO). His current research interests are in mathematical biology and optimal control.

Abstract: Retinitis pigmentosa (RP) is a degenerative eye disease affecting millions of people worldwide. This presentation will discuss two treatments for RP: Rod-derived Cone Viability Factor (RdCVF) and Mesencephalic-Astrocyte-derived-Neurotrophic Factor (MANF). Both treatments rescue photoreceptors in the eye. We model the RdCVF and MANF treatments by mathematically representing them as optimal control problems. We also present a preliminary optimal control model for mixed treatments of RP developed from previous work. Numerical results are presented and discussed.