BSC 6883 Integrated Mathematical Oncology 2

Course Prerequisites: BSC 6882 Integrated Mathematical Oncology 1

CRN, Section 001, Credit Hours 4

College of Arts and Sciences, CMMB

COURSE SYLLABUS

Instructor Name:	Heiko Enderling, PhD		

Semester/Term & Year:	Spring 2019
Class Meeting Days:	Tue, Thurs
Class Meeting Time:	2:00 – 3:30 pm
Class Meeting Location:	SRB-4 Collaboratorium
Lab Meeting Location:	N/A
Delivery Method:	

I. Welcome!

II. University Course Description
This is a deep focus course on data-driven development of mathematical models of tissue homeostasis, cancer development, and treatment response to answer specific open questions in cancer biological and clinical oncology.

III. Course Purpose
The IMO2 Integrated Mathematical Oncology course is an intense course focus on data-driven development of mathematical models. Topics to be covered include modeling for tissue homeostasis, oncogenesis, metastatization, radiation therapy, chemotherapy, immunotherapy. Students are expected to have successfully completed the IMO1 course (BSC 6882) prior to enrolling. Individual lectures will provide recent primary research articles, and students are expected to participate in the analysis of these papers as part of their studies.

IV. Course Objectives
The primary objective of this course is to provide an understanding of how to develop and test data-driven mathematical models of biological questions relevant to cancer. Students will gain an understanding of how to select the appropriate modeling approach, how to fit mathematical models to data, how to analyze dynamics and make testable predictions. Students will supplement the lecture information and primary research paper reading by implementing appropriate model systems from the primary assigned text book.

V. Student Learning Outcomes
Students will demonstrate the ability to build mathematical and computational models purposely for specific research questions utilizing specific biological/clinical data.