

BIOL 426/526 - SYSTEMS BIOLOGY - Fall 2017**TR 2:00-3:15 PM ED 441****Syllabus**Instructor: Christopher Marx, 134 Gibb Hall; cmarx@uidaho.edu

Office Hours: W 12-1

Textbook: Alon, 2007. An Introduction to Systems Biology. 1st Ed.*Tentative Topic & Exam Schedule*

Date	Topic
Aug 22 Tue	Pick up Syllabus; discuss the structure and concept of the course
Aug 24 Thu	Basics of differential equations and using R
Aug 29 Tue	Overview of dynamical systems
Aug 31 Thu	Transcription (Ch.2)
Sep 05 Tue	Modeling transcription (Ch.2)
Sep 07 Thu	Classic work on <i>lac</i> operon
Sep 12 Tue	Autoregulation (Ch.3)
Sep 14 Thu	Modeling TRX in R
Sep 19 Tue	Feed-forward loop (Ch.4)
Sep 21 Thu	Feed-forward loop II (Ch.4)
Sep 26 Tue	<i>Exam #1: Basics of transcriptional circuits</i>
Sep 28 Thu	Temporal programs and global structure (Ch.5)
Oct 03 Tue	Single cells: activity and variation
Oct 05 Thu	Robustness: chemotaxis (Ch.7)
Oct 10 Tue	Robustness: development (Ch.8)
Oct 12 Thu	Optimal gene circuit design (Ch.10)
Oct 17 Tue	Demand Rules for regulation (Ch.11)
Oct 19 Thu	<i>Exam #2: Complex transcriptional logic</i>
Oct 24 Tue	Regulation and control of enzymes
Oct 26 Thu	Modeling enzymes
Oct 31 Tue	Connections between growth and translation
Nov 02 Thu	Metabolic Control Analysis I
Nov 07 Tue	Metabolic Control Analysis II
Nov 09 Thu	Control structures in metabolism
Nov 14 Tue	Flux Balance Analysis I
Nov 16 Thu	Flux Balance Analysis II
Nov 20-24	<i>Fall Recess</i>
Nov 28 Tue	Kinetic proofreading (Ch.9)
Nov 30 Thu	<i>Exam #3: Modeling metabolism</i>
Dec 05 Tue	Student Presentations
Dec 07 Thu	Student Presentations