Timeline

Date	Topic	Readings for today
08/28 (R)	Introductions and overview of course	None
09/02 (T)	Statistics, probability, and sampling	Motulsky: Ch. 1–3
09/04 (R)	Introduction to confidence intervals	Motulsky: Ch. 4, 6
09/09 (T)	Types of random variables	Motulsky: Ch. 7–9
09/11 (R)	Gaussian distribution and averages	Motulsky: Ch. 10, 12
09/16 (T)	Theory of confidence intervals	Motulsky: Ch. 13, 14
09/18 (R)	P-values and hypothesis testing	Motulsky: Ch. 15–17
09/23 (T)	Interpretation of significance and power	Motulsky: Ch. 18–20
09/25 (R)	Key concepts and traps in statistics	Motulsky: Ch. 44–45
09/30 (T)	Take Home Exam #1	None
10/02 (R)	Predator Prey Module Code: Wolf Sheep Predation Refuge.nlogo	"Thinking Like a Wolf, a Sheep, or a Firefly," Wilensky & Reisman (pp. 171–192)
10/07 (T)	Population genetics: Selection Math: Introduced discrete maps, fixed points, and their stability Code: selection.R	Graur: Ch. 2: pp. 39–53
10/09 (R)	Population genetics: Selection (cont'd) Math: Cobwebbing and linearization for discrete systems	None
10/14 (T)	Fall Break	None
10/16 (R)	Population genetics: Selection & Drift Math: Linearization and stability of fixed points (discrete maps) Code: drift.R, selectionanddrift.R	None
10/21 (T)	Introduction to theoretical ecology	Turchin: Ch. 1
10/23 (R)	In-class exercise: Population genetics HW	None
10/28 (T)	Exponential growth and self-limitation Math: Linearization and stability of fixed points (ODEs)	Turchin: Ch. 2.1–2.3
10/30 (R)	Predator-prey cycles and process order	Turchin: Ch. 2.4, 2.5 (to end of p. 39), 2.6
11/04 (T)	Single-species: Model types In-class exercise: ODE models and dynamics (HW #6)	Turchin: Ch. 3.1
11/06 (R)	Age- and stage-structured models Math: Matrices, Linear Algebra, and Eigenvalues/Eigenvectors	Gotelli: Ch. 3
11/11 (T)	Trophic Interaction: Functional responses Math: Phase planes, Linearization, and	Turchin: Ch. 4.1, 4.2–4.2.1

	Stability for 2D Systems	
11/13 (R)	Trophic Interactions (cont'd) In-class exercise: Homework #7	None
11/16 (Su)	Take Home Exam #2 Begins (11:59 pm)	N/A
11/18 (T)	Introduction to Systems Biology	Alon: Ch. 1
11/20 (R)	Basics of transcription networks	Alon: Ch. 2
11/23 (Su)	Take Home Exam #2 Ends (11:59 pm)	N/A
11/25 (T)	Autoregulation	Alon: Ch. 3
11/27 (R)	Thanksgiving	N/A
12/02 (T)	Feed-forward loops	Alon: Ch. 4
12/04 (R)	Global structure of transcription networks	Alon: Ch. 5
12/09 (T)	Final Exam (9 am – 12 noon)	
12/12 (F)	Projects Due	