Ecological Dynamics: Fall 2019

Week		Topic	Description	Readings	Assessments
1					
	8/28	Course perspectives	Discuss outline of the course, intro to population dynamics		
2	**9/2**	LABOR DAY	**No class**		
	9/04	Discrete population growth	Birth, death, interactions		
3	**9/09**	Continuous time population dynamics	Graphical analysis of exponential, logistic, competition; Fixed Points		
	9/11	Linear Stability Analysis	Perturbations, Taylor expansion		
4	**9/16**	Bifurcations I	Saddle node, transcritical, supercritical		
	9/18	Bifurcations II	Continued		
5	**9/23**	Generalized Modeling	Learning even more from a little: revisiting recruitment & predation		
	9/25	Analysis of 2-D systems I	Graphical analysis of competition system, predator prey		
6	**9/30**	Analysis of 2-D systems II	Linear stability analysis 2-D		
	10/02	Classification of fixed points	Fixed point analysis		
7	**10/07**	Introduction to food webs	Coding webs		
	10/09	Ecological networks	Introduction to large systems of interacting units		
8	**10/14**	Adaptive foraging in webs	Population + foraging dynamics		
	10/16	Mutualistic interactions	Beyond antagonistic interactions		
9	**10/21**	Foraging in space	**Uttam Bhat guest lecture**		
	10/23	Plant-herbivore interactions	**Taran Rallings guest lecture**		
10	**10/28**	Eco-evolutionary dynamics	Evolving traits		
	10/30	Ecological engineers and niche construction	Interactions with the environment		
11	**11/04**	Optimal foraging theory	Optimal foraging theory and definitions of fitness		
	11/06	Stochastic dynamic programming I	Revisiting probability and introduction to approach		

12	**11/11**	VETERAN'S DAY	**No class**		
	11/13	Stochastic dynamic programming II	Fitness equation and backwards equations		
13	**11/18**	Stochastic dynamic programming III	Stochastic processes and tricks of the trade		
	11/20	Stochastic dynamic programming IV	Forward equations		
14	**11/25**	Stochastic processes I	Introduction		
	11/27	Thanksgiving break	**No class**		
15	**12/02**	Stochastic processes II	The Gambler's ruin		
	12/04	Ecological Dynamics Mtg I			
16	**12/09**	Ecological Dynamics Mtg II	Presentations		
	12/11	Ecological Dynamics Mtg III	Presentations		