Schedule, Fall 2016

NRES 746

August 23, 2016

Becuase this is the first time this course is being taught, this schedule is highly subject to change!!! Please check for updates frequently!

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| Week | Dates | Topic | Text.Readings |
| Week 1 | 1/24/2017 | LECTURE 1: Course overview; Intro to systems thinking | Gotelli Chapter 1 |
|  | 1/26/2017 | LECTURE 2: Exponential growth; a taxonomy of models | BCTD Chapter 1 |
|  | 1/27/2017 | LAB: Introduction to population modeling in Excel, InsightMaker, and R |  |
| Week 2 | 1/31/2017 | LECTURE 1: Density-dependent growth; | Gotelli Chapter 2 |
|  | 2/2/2017 | LECTURE 2: Age-structured populations | BCTD Chapter 2 (skim) |
|  | 2/3/2017 | LAB: More advanced population modeling with InsightMaker |  |
| Week 3 | 2/7/2017 | LECTURE 1: Parameter estimation | Amstrup et al. Chap. 1 |
|  | 2/9/2017 | LECTURE 2: Data needs for population ecology: capture-recapture | Cooch and White Chaps 1,2 |
|  | 2/10/2017 | LAB: Estimate survival with open-population capture-recapture (program MARK) |  |
| Week 4 | 2/14/2017 | LECTURE 1: Capture-recapture analysis (continued) | Cooch and White Chaps 3,4 |
|  | 2/16/2017 | LECTURE 2: Population Viability Analysis |  |
|  | 2/17/2017 | LAB: Estimate survival with open-population capture-recapture (program MARK) (continued) |  |
| Week 5 | 2/21/2017 | LECTURE 1: Population Viability Analysis (continued) | Brook et al. 2006 |
|  | 2/23/2017 | LECTURE 2: MIDTERM #1 | Beissinger and Westphal 1998 |
|  | 2/24/2017 | LAB: PVA: Construct density-regulated, stochastic population model in InsightMaker |  |
| Week 6 | 2/28/2017 | LECTURE 1: Detecting density dependence in natural populations | Regan et al 2002 |
|  | 3/2/2017 | LECTURE 2: Assessing model performance and handling model uncertainty (e.g., sensitivity analysis, cross-validation) | Akçakaya et al 2005 |
|  | 3/3/2017 | LAB: PVA lab (continued): scenario testing, sensitivity analysis |  |
| Week 7 | 3/7/2017 | LECTURE 1: Mitigating threats to populations: "declining population paradigm" | Gotelli Chapter 4 |
|  | 3/9/2017 | LECTURE 2: Metapopulations | Caughley 1988 |
|  | 3/10/2017 | LAB: Metapopulation modeling in InsightMaker |  |
| Week 8 | 3/14/2017 | LECTURE 1: Data needs for population ecology: Presence-absence data, presence-only data. | Mackenzie 2005 |
|  | 3/16/2017 | LECTURE 2: Site-occupancy models | Knapp et al. 2003 |
|  | 3/17/2017 | LAB: Metapopulation modeling in InsightMaker (continued) |  |
| Week 9 | 3/21/2017 | LECTURE 1: Modeling habitat suitability: species distribution models | Elith and Leathwick. 2009 |
|  | 3/23/2017 | LECTURE 2: Modeling habitat: defining patches and populations | Larson et al. 2004 |
|  | 3/24/2017 | LAB: Species Distribution Modeling in R. Defining habitat. |  |
| Week 10 | 3/28/2017 | LECTURE 1: Estimating and modeling dispersal processes | Frair et al 2008 |
|  | 3/30/2017 | LECTURE 2: MIDTERM #2 | Trakhtenbrot et al. 2005 |
|  | 3/31/2017 | LAB: Species Distribution Modeling in R. Defining habitat (continued). Cross-validation |  |
| Week 11 | 4/4/2017 | LECTURE 1: Estimating and modeling dispersal processes (continued) | Stearns 1992 Chapters 1,2 |
|  | 4/6/2017 | LECTURE 2: The evolutionary context: life-history theory. |  |
|  | 4/7/2017 | LAB: Group projects- getting started |  |
| Week 12 | 4/11/2017 | LECTURE 1: Species interactions: prey-predator models, competition models, | Gotelli Chapters 5,6 |
|  | 4/13/2017 | LECTURE 2: Commensalism, mutualism, Parasite-host and disease-host interactions | Nichols et al. (2010) |
|  | 4/14/2017 | LAB: Modeling disease spread impacts on spatially explicit populations:agent-based models |  |
| Week 13 | 4/18/2017 | LECTURE 1: Modeling disease spread in wildlife populations | Shoemaker et al. 2014 |
|  | 4/20/2017 | LECTURE 2: Invasive species, reintroductions, assisted colonization | Hoegh-Goldberg et al 2008 |
|  | 4/21/2017 | LAB: Group projects |  |
| Week 14 | 4/25/2017 | LECTURE 1: Case study: assessing the species-level impact of climate change | Pearson and Dawson (2003) |
|  | 4/27/2017 | LECTURE 2: Case study: assessing the species-level impact of climate change | Keith et al (2008) |
|  | 4/28/2017 | LAB: Group projects |  |
| Week 15 | 5/2/2017 | LECTURE 1: Student presentations |  |
|  | 5/4/2017 | LECTURE 2: Student presentations |  |
|  | 5/5/2017 | LAB: Student presentations / review for final |  |
| Week 16 | TBD | FINAL EXAM |  |