The Mathematics Behind Biological Invasions
The University of Utah
Department of Mathematics
June 2-13, 2003

SCHEDULE		
	MORNING	AFTERNOON
June 2	Mark Lewis: Growth and dispersal models	Problems and intro to matlab
June 3	Mark Lewis: Early spread	Problems and matlab
June 4	Mark Lewis: Reed's paradox	Work on projects, read papers
June 5	Mark Lewis and Fred Adler: Special topics	Work on projects, read papers
June 6	Mark Lewis and Fred Adler: Special topics	Preliminary project presentations
June 7	Field trip to foothills to meet invasive plants	Course barbecue
June 9	Mike Neubert: Structured models	Problems, matlab
June 10	Mike Neubert: More on structured models	Lecture by Nancy Sundell, problems, matlab
June 11	Mike Neubert: Applications to conservation	Lecture by Jim Keener, projects, papers
June 12	Mike Neubert and Fred Adler: Special topics	Lecture by Don Feener, projects, papers
June 13	Project presentations, grand wrap-up	

References

Background on invasion models

[1] Hastings, A. Models of spatial spread: is the theory complete? *Ecology* **77**, 1675–1680 (1996).

[2] Kot, M., Lewis, M. A., and van den Driessche, P. Dispersal data and the spread of invading organisms. *Ecology* **77**, 2027–2042 (1996).

[3] Shigesada, N. and Kawasaki, K. *Biological Invasions: Theory and Practice.* Oxford University Press, New York, (1997).

[4] Veit, R. and Lewis, M. Disperal, population growth, and the allee effect: dynamics of the house finch invasion of eastern north america. *American Naturalist* **148**, 255–274 (1996).

Background on invasions

[5] Elton, C. S. *The Ecology of Invasions by Animals and Plants.* University of Chicago Press, Chicago, (1958).

[6] Sakai, A. K. and Others, M. The population biology invasive species. *Ann. Rev. Ecol. and Syst.* **32**, 305–332 (2001).

[7] Williamson, M. *Biological Invasions.* Chapman & Hall, New York, (1996).

Mathematical background

[8] Kaplan, D. and Glass, L. *Understanding nonlinear dynamics.* Springer-Verlag, New York, (1995).

[9] Braun, M. *Differential equations and their applications.* Springer-Verlag, New York, (1993).

[10] Edelstein-Keshet, L. *Mathematical models in biology.* Random House, New York, (1988).