PS 274—Political Choice and Strategy
Problem Set 4

Due Friday, December 10, 5:00 pm.

Short essay: Common-pool resources are everywhere. Pick one from your daily life and explain why it is or is not well managed through self governance. Please express your answer in terms of the eight design principles of successful CPR institutions discussed in Elinor Ostrom's *Governing the Commons*.

Problems:

1. Dixit and Skeath, problem U5, p. 492.
2. Consider the following two simultaneous-move games:

	Cooperate	*Defect*
Cooperate	$4, 4$	$0, 7$
Defect	$7, 0$	$1, 1$

	Cooperate	*Defect*
Cooperate	$2, 2$	$-1, 3$
Defect	$1, -1$	$0, 0$

For each game, answer the following two questions:

(a) What is the Nash equilibrium of this game if it is played only once?

(b) Now imagine this game is repeated an infinite number of times, where payoffs are discounted according to the discount factor δ, where δ is some number between zero and one. Suppose the players play "grim trigger" strategies, where each player a) plays *Cooperate* so long as both players have played *Cooperate* in all previous periods, and b) plays *Defect* if either player has ever played *Defect* in any previous period. How large does δ have to be for the players to want to play *Cooperate* in every period?