

AP/ECON 4380 & GS/ECON 5950 : Midterm Exam

Thursday May 19
11:30 am – 12:30 pm

Do all 3 questions. All questions count equally.

1. Show that a Condorcet winner must exist under pairwise majority rule if all voters' preferences are single-peaked.
2. Suppose that there are 5 voters of type #1, 6 voters of type #2, 7 voters of type #3, 8 voters of type #4 and 9 voters of type #5, with the following preference orderings over candidates

	[5 people]	[6 people]	[7 people]	[8 people]	[9 people]
first choice	v	x	x	y	z
second choice	w	w	y	z	v
third choice	x	y	w	w	w
fourth choice	y	z	v	v	x
fifth choice	z	v	z	x	y

Which candidate would be elected if the election procedure were “plurality with a single run-off” (i.e. if no candidate gets a majority of the first-place votes, then a run-off election occurs between the two candidates with the most first-place votes)?

3. Which of the axioms of Arrow's Impossibility Theorem does the following choice rule violate?
 “Number all the n alternatives from 1 to n . For any pair of alternatives i and j , rank the alternative with the lower number above the one with the higher number, **unless** $2/3$ or more of the voters prefer the alternative with the higher number, in which case rank the alternative with the higher number above the alternative with the lower number.”
 (That is, the rule says “for any pair of alternatives i and j , with $i < j$ rank i higher unless at least $2/3$ of the voters prefer j to i .”)