

Soft Constraints

	Constraint	Formal Expression	Penalty/ Violation
0	Each TA should be funded (that is, they should teach at least one course)	$\forall ta:TA \bullet \text{instructs}(ta,?,?)$	50
1	TAs should get their first choice course	$\forall ta:TA, c:Course \bullet \text{prefers1}(ta,c) \rightarrow \text{instructs}(ta,c,?)$	5
2	TAs should get their first or second choice course		10
3	TAs should get their first or second or third choice course		10
4	TAs should have all their labs in the same course	$\forall ta:TA, c:Course \mid \text{instructs}(ta,c,?) \bullet \sim \exists c2:Course \mid c2 \neq c \bullet \text{instructs}(ta,c2,?)$	20
5	TAs should have all their labs in no more than 2 courses	$\forall ta:TA, c,c2:Course \mid c2 \neq c \wedge \text{instructs}(ta,c,?) \wedge \text{instructs}(ta,c2,?) \bullet \sim \exists c3:Course \mid c3 \neq c \wedge c3 \neq c2 \bullet \text{instructs}(ta,c3,?)$	35
6	TAs should not teach a lab for a course for which they don't know the subject matter	$\forall ta:TA, c:Course \bullet \text{instructs}(ta,c,?) \rightarrow \text{knows}(ta,c)$	30
7	TAs should not teach two labs of distinct courses at the senior level		10
8	TAs should not teach more than one more lab than the TA that teaches the least number of labs.		25
9	TAs should all teach the same number of courses		5
10	If the instructor requested particular TAs for his/her course, each of the lecture the instructor is teaching for that course should be taught by one of the requested TAs	$\forall i:Instructor, c:Course \bullet (\exists ta:TA \bullet \text{prefers}(i,c,ta)) \rightarrow \forall lec:Lecture, lab:Lab \mid \text{instructs}(i,c,lec) \wedge \text{has-lab}(c,lec,lab) \bullet \text{instructs}(ta,c,lab)$	10