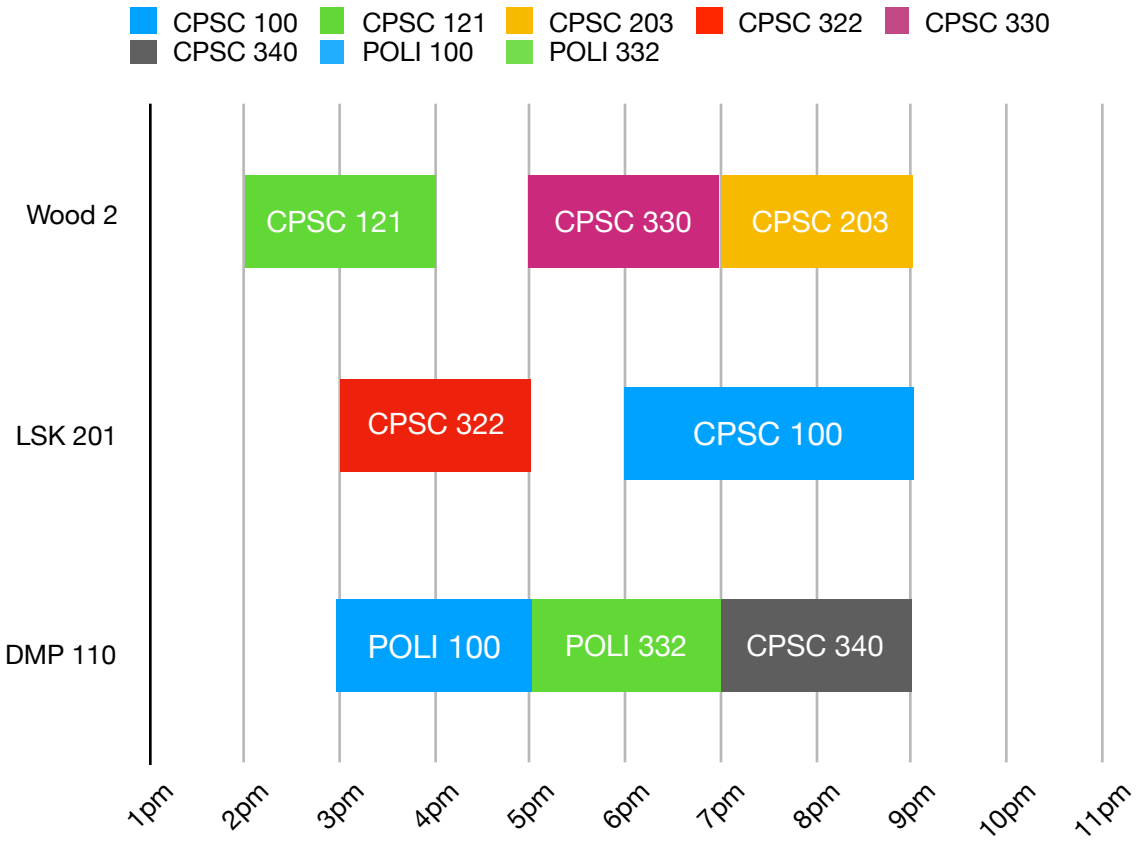
CPSC 322: Introduction to Artificial Intelligence (Section 2)
Constraint Satisfaction Problems: Variables, domains, and constraints: Solution
Do this exercise in pairs. If there's an odd number, do it in a group of 3.
Submit the sheet before leaving.

Name of Student (last, first)	Student Number

Scheduling is a popular and important constraint satisfaction problem. It is used in many industries and makes many multi-million dollar decisions.

In this activity we'll look at a simple example of scheduling. Given a list of 8 courses to be taught, 3 classrooms available, and 10 start times, how can you schedule these courses? An example schedule is given below.



Courses to be taught: CPSC 100, CPSC 121, CPSC 203, CPSC 322, CPSC 330, CPSC 340, POLI 100, POLI 332
Classrooms: Wood 2, LSK 201, DMP 110
Start times: 1pm, 2pm, 3pm, 4pm, 5pm, 6pm, 7pm, 8pm, 9pm, 10pm

Fill in the table below with the variables, domains, and possible worlds.

	Description	How many?	Example
Variables	Different courses that need to be scheduled	8	{CPSC 100, CPSC 121, CPSC 203, CPSC 221, CPSC 340, CPSC 330, POLI 100, POLI 332}
Domains	Different combinations of time and location for each course	3×10	10-11am, Wood 2
Possible worlds	Time and location assignments for each task	$(3 \times 10)^8$	CPSC 121 (2pm, Wood 2)
Possible constraints	1. Courses can't be scheduled in the same location at the same time; 2. Certain courses can't be scheduled in different locations at the same time; 3. Some courses must be scheduled later in the evening.	Multiple	

How many possible worlds?
$(\textbf{\# locations} \times \textbf{\# start times})^{\textbf{\# courses}} = (3 \times 10)^8$