

1 Overview

Using ideas from the course, design a method to assign oral comprehensive exams as equitably as possible. Your design must account for constraints such as the major(s) and minor(s) of the students, which exams faculty members may administer, and time constraints such as days that faculty members may be unavailable because of conferences or other unavoidable absences.

2 Assignment Rules

The college has the following rules in assigning oral comps:

1. 1st faculty chair needs to be from department of 1st major.
2. 2nd faculty chair needs to be from department of 2nd major, else 1st minor.
3. 3rd faculty chair needs to be from department of 3rd major, else assign an at-large
4. 3rd faculty chair needs to be from different division than 1st or 2nd chair.
5. If a student has 3 majors, he will need to have a 4th chair which would be an at-large, and his comps time has been manually scheduled in the past.
6. Try and avoid scheduling back to backs for faculty if at all possible.
7. Don't use new or part-time faculty for 1st faculty chair
8. If the 1st faculty chair is a 2nd year faculty member, then the 2nd and 3rd faculty shouldn't be a new faculty member.
9. Each faculty member should have no more than 12 comp times, but past years have averaged around 8 per faculty member
10. Each faculty member should have no more than 4 comps in one day.

3 Final Product

Ideally, you will produce something that the college can use to assign oral comps, which means it should include a program that staff can run to create the assignments. Such a program would take as input a list of students with their majors and minors and a list of faculty with the exams they can administer and any unavoidable time conflicts, and it would output a list of assignments. We could even talk to the IT department to make the interface as

I expect that may be a very lofty goal. At a minimum, I expect you to submit a typed report that formulates a constrained optimization problem and solves it for some test data. It would be better to find a solution for the entire senior class and faculty. You will give a short presentation during the final exam period.