

EC504

Course Scheduler

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Project Description

- **Who is this for?**
 - Students trying to decide what schedule options they have for courses they want
- **What do they want?**
 - All possible schedule combinations that don't overlap for the courses they wish to take
- **What does the program do?**
 - The backend program uses an algorithm to calculate all possible combinations of the courses you want to take.
 - The frontend generates a graph styled schedule with your course lectures, discussion sections and labs (like the schedule graph in student link)

Algorithm Description

- Our algorithm starts by inputting the courses you want to take along with all the possible Lectures, Discussion sections, and Labs for each course
- It then stores the Course sections into nested integer vectors that contain assigned section ID numbers, acting like a tree that we retrace to find the necessary combinations of Course sections
- Then our program calculates all possible combinations of each Courses' viable section combinations with one another and stores it in a further nested vector

Algorithm Filters

- The First filter then checks the times and dates of the course sections to make sure they do not overlap, do not repeat an alternate order of an already stored possible combination, and do not have have any repeated subsections (ie lectures, discussions, labs).
- These viable combinations are then stored inside a nested vector
- The Second filter then calculates all possible combinations of all the Courses and their previously calculated viable section combinations together
- Then it compares their times and dates to make sure none overlap or repeat
- The viable results are saved into a triple nested vector containing identifier number to their corresponding class objects

So What?

- Our program aims to allow students to have an easier time picking courses
- The algorithm we use filters out the overlapping courses and makes sure that all Lectures, Discussions, and Labs are included
- The Graphical GUI shows the students their schedule on a clean graph styled schedule
- Students will also have more schedule options to pick from
- Overall students will get to see all the possible ways they can create their own course schedule, possibly leading to improved mental health across a semester in which they were able to discover a schedule that best suits their sleeping habits