Discrete Optimization

Exploring the Material

Goals of the Lecture

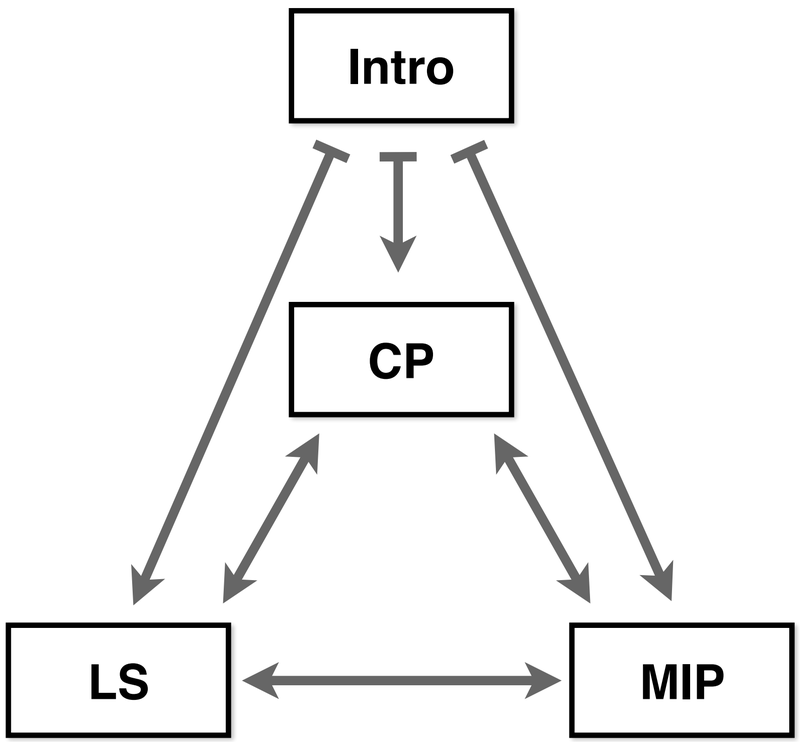
- Exploring the rest of the course material
- Designing your own study plan

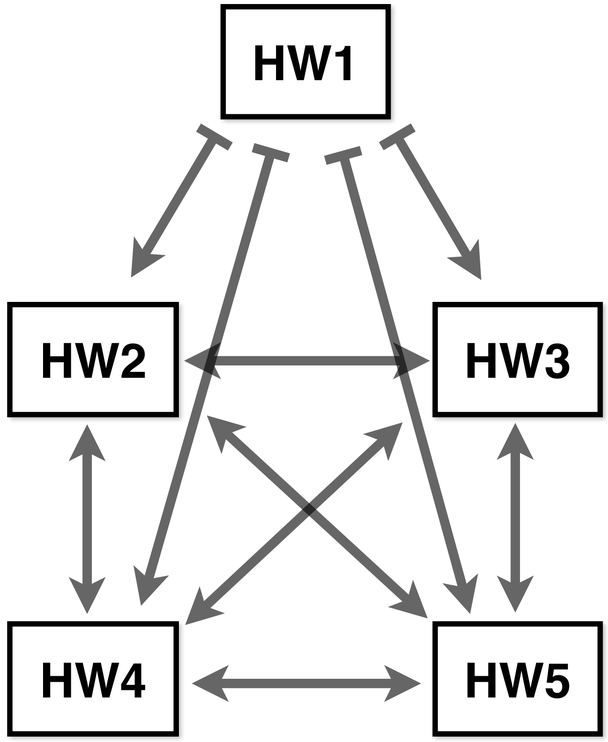
Congratulations!

- You have made it this far!

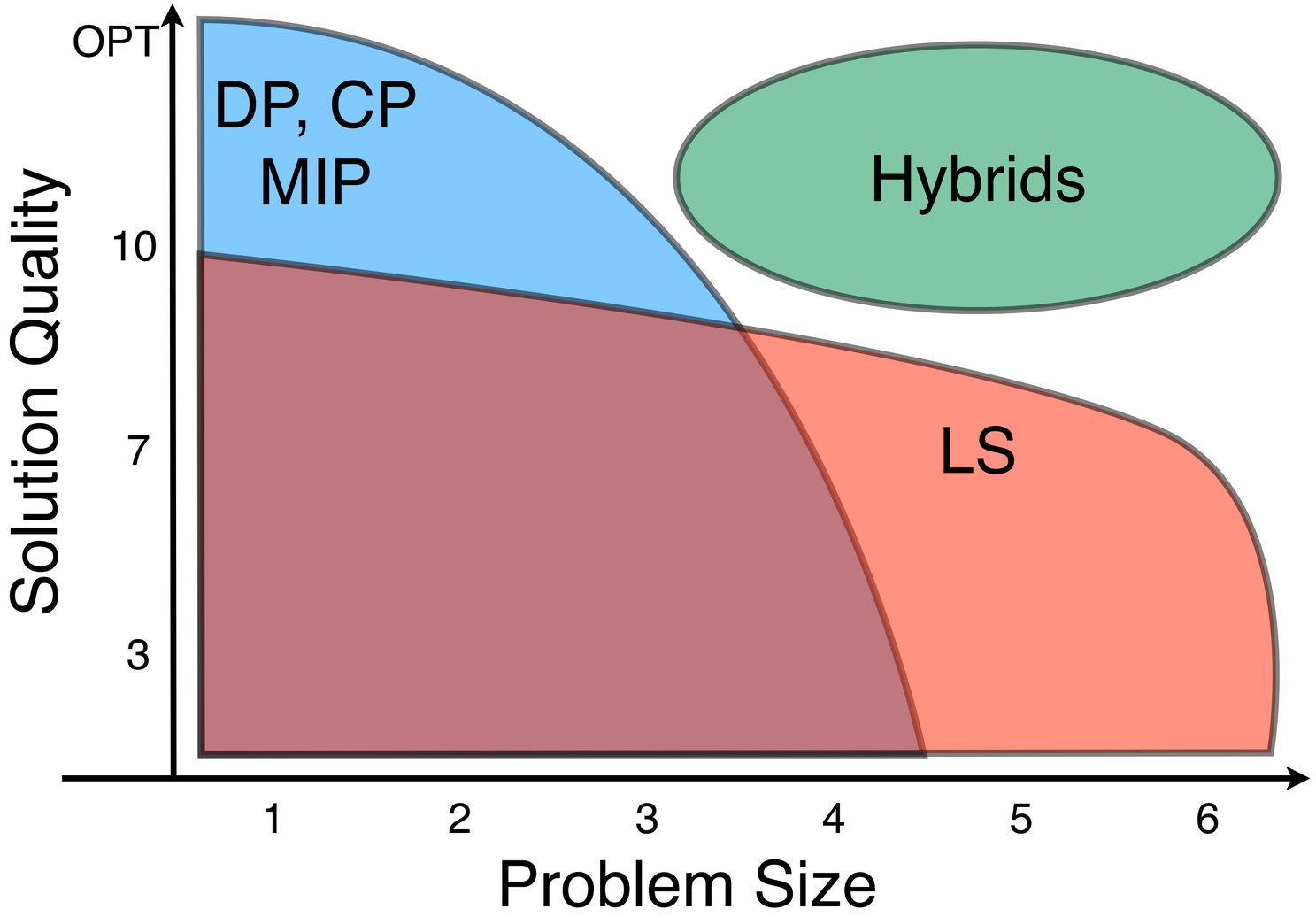
- Passed the Knapsack assignment and getting ready to explore the other course topics
  - Constraint Programming (CP)
  - Local Search (LS)
  - Mixed Integer Programming (MIP)

Open Course Design





Optimization Landscape



Pick Your Own Optimization Adventure

- There are many viable paths through the course
- Most problem sets have 6 parts graded on a 10 point scale
  - Quality based solution approach (CP,DP,MIP)
    - 10*4 + 3*2 = 46 points
  - Scalability based solution approach (LS)
    - 7*6 = 42 points
  - Either is sufficient to get a certificate
- It may take both to get a distinction certificate

Matching Your Interest to the Topic

- Constraint Programming
  - like solving puzzles
  - lots of logic / discrete mathematics
- Mixed Integer Programming
  - grounded in linear algebra
  - lots of continuous mathematics
- Local Search
  - intuition based, most significant coding
  - writing efficient code really helps
  - lots of staring at the terminal

Until Next Time

- We hope you enjoy your adventure in to Discrete Optimization