

1. be familiar with the **webnotes** I have prepared for the various topics, and the **assignment** questions
2. **Hex**
 - math properties (no draw, $n \times n$ 1pw, Pspace-c, $n \times (n - 1)$ pairing)
 - *A Puzzling Hex Primer*, esp. basic ideas and definitions: virtual connection, mustplay region, how hex solvers use mustplay, dead cell analysis (dead, captured, dominated, vulnerable).
 - solving 10×10 : this boardsize is larger than that of Othello, but these openings are solved, whereas Othellos are not: explain briefly why
 - know about the variants on the webnotes page, especially Dark Hex
 - know about the main ideas that make MoHex a strong player
 - be able to reason about Hex, or DarkHex, problems on small boards.
 - in a game of imperfect information, explain why you might not follow the minimax strategy even if you knew it
 - explain briefly why the minimax 1st player win probability for DarkHex is less than 1.
3. **MCTS** understand the basic version of MCTS. explain how the AMAF heuristic can help players for games like go and Hex.
4. **PNS** understand PNS, proof and disproof numbers, and how DFPNS differs from PNS, why thresholds are used
5. **Elo** understand the Elo scoring system
6. **imperfect information** explain what is meant by the minimax solution to a 2-person imperfect information game (e.g. does this strategy always win?). define nash equilibrium
7. **go**
 - rules (e.g. Tromp-Taylor). basic definitions (group, liberty, capture, TT scoring). kyu/dan ranking system.
 - how to play well on small boards (2x2, 3x3).
 - alphago. lee sedol. fan hui. nature.
 - solving go. 5x5 is done, but not 6x6: why?