

Extra Credit: NCAA Men's Basketball

D. Jason Koskinen
koskinen@nbi.ku.dk

Advanced Methods in Applied Statistics
Feb - Apr 2018

NCAA Basketball Men's Tournament

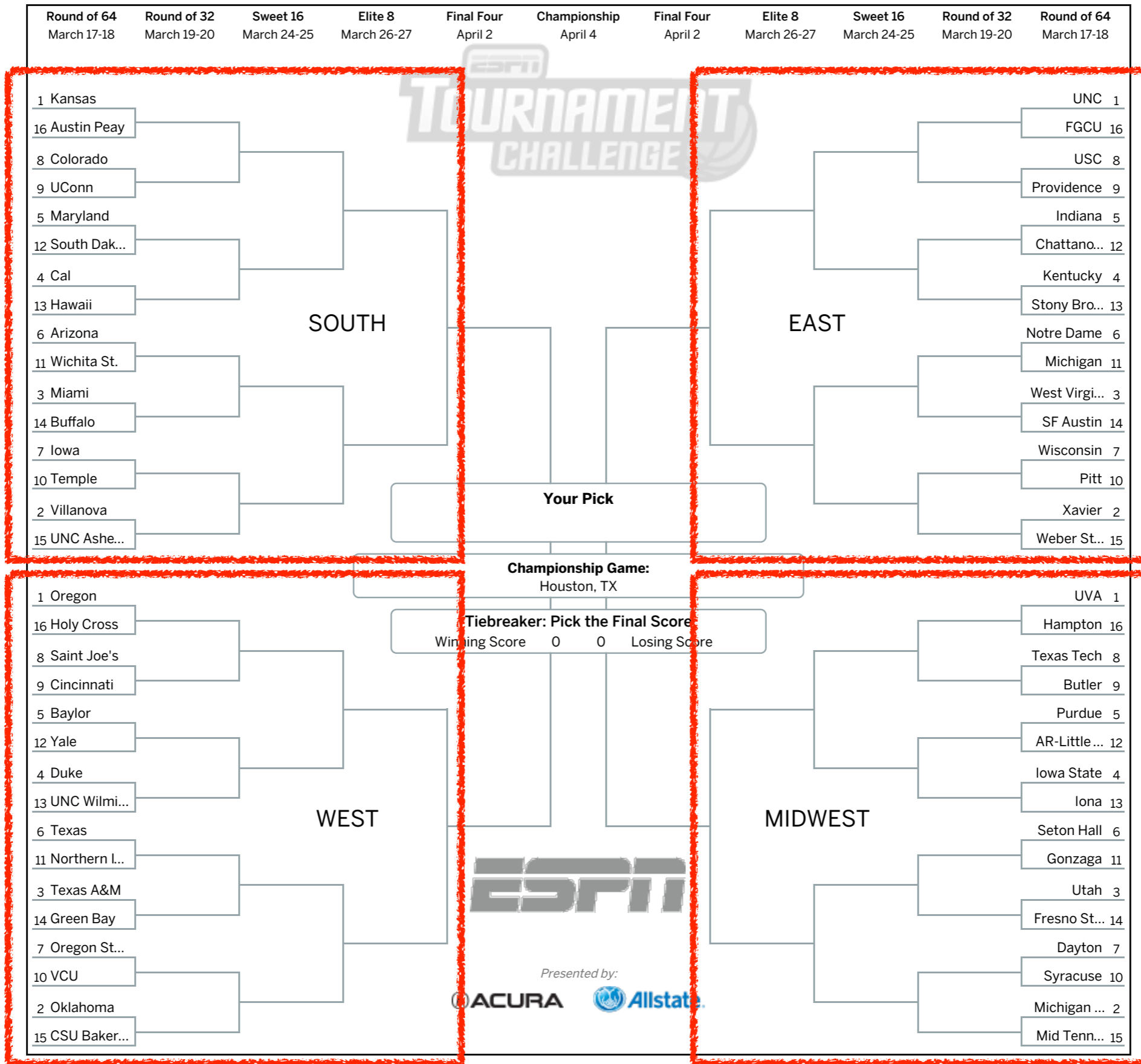
- At the end of the United States NCAA Mens basketball season there is a single elimination tournament to declare the National Champion
- Some teams are included because they are the champions of their conference, i.e. automatics bids
- Non-conference winning teams are included by a selection committee which attempts to fill out the open tournament spots by picking the remaining best teams in the United States to participate
- The teams are ranked, essentially, from 1-64 by the committee and placed in 4 regions (East, West, South, and Midwest) where each region has 16-teams

The Regions

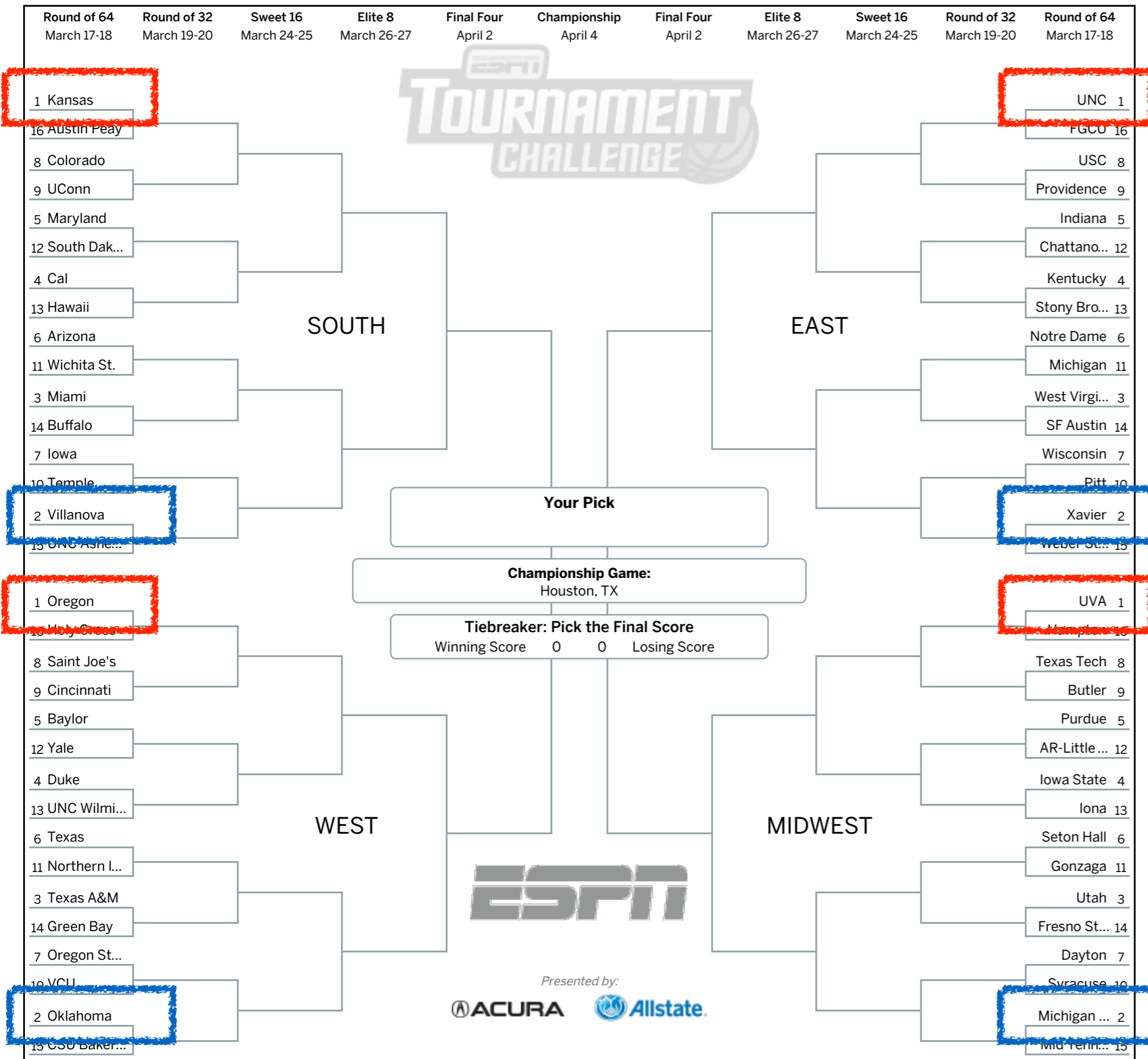
*counterintuitively, lower ranked 'seeds' have higher numbers. So the highest ranked teams have the lowest seed.

- Because there are 4 regions, there are 4 teams with a top, i.e. number 1 seed, and those teams play the 4 worst ranked teams, i.e. the number 16 seeds. This separation is intended so that the 4 top teams by ranking cannot play each other until the semi-final of the tournament (provided they win all their games against worst ranked teams)
 - The #2 seed plays the #15, the #3 seed plays the #14, etc.
 - The teams are ranked 1-64 and so the overall best 4 teams in the tournament get a #1 region seed and are placed in separate regions, the 5-8 best teams in the 64-team field get a #2 region seed and are placed in separate regions, etc.
 - In each region the #1 and #2 seeds are placed at opposite sides of the bracket, so that they play the maximum amount of lower ranked teams before potentially a game between them

2016 Full Bracket - 4 Regions



2016 Full Bracket (Example)



Top 4 teams in the nation (according to the selection committee) are given a #1 regional seed (red) and placed in separate regions. The 5-8 best teams (according to the selection committee) are given a #2 regional seed (blue) and placed in separate regions.

2016 - A Single Region



- In each region the #1 seed plays the #16 seed (FYI a #16 has never beaten a #1 seed in the history of the tournament). The game between the #8 and #9 seeds are generally rather balanced.
- After the "Round of 64" the winning teams play each other according to the bracket format, suggested by the cascading lines in the bracket on the left.

2016 - Match-ups



- The selection committee does not take possible match-ups into account, e.g. it does not try avoid or enforce that Colorado plays UConn. It ranks the teams from 1-64 and places them in the separate regions.
- Because the selection committee does not take into account team match-ups there are exploitable margins where the lower seeded team may actually be better/worse matched against the higher seed
 - E.g. a better seeded team that solely relies on 3-point shooting to win may encounter a worse seeded team that has the best 3-point defense in the nation

The "Task"

- Before the beginning of the first game of the 1st round on March 15, 2018 submit one and only one prediction of:
 - How many teams will win by ≤ 4 points, **AND**
 - How many teams will win by ≥ 34 points
 - This is only for the 32 games in the first round
 - Don't have to pick which teams won, only the total number ≤ 4 and ≥ 34
- +1% extra credit will be applied to a full course grade (on a scale from 1-100%) if you are within ± 2 of the actual number of teams which win by ≤ 4 points **AND** ± 1 for teams ≥ 34 points
- Additionally, +1% extra credit will be applied for successfully picking one and only one upset.
 - The winning team **must** have a seed ≥ 11
 - This is only for the 32 games in the first round
 - Submit the name of the team you nominate for the upset win

Some Comments

- No justification for your selections are necessary, but you may dramatically improve your chances if you can find some statistical metric for estimating the difference of the final scores, and which higher seeded team has a chance for an upset win
- This is **EXTRA CREDIT** and can only help your grade
- The 2018 bracket will be available late on Sunday evening