

Project 2 – 2024 NCAA D1 Women's Cross Country Championship Winning Team

MTH 161 – Fall 2024

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PUBLISHED
November 10, 2024

Research Question

How do team performance and individual performance correlate with NCAA D1 Women's Cross Country Championship rankings and results?

This research question investigates how performance metrics and variables such as, team score, individual times, and overall team ranking, can influence the success of the teams in the NCAA D1 Women's Cross Country Championship. By analyzing the data from previous championship races, we can predict the possible outcome for this years race based on the correlation with team ranking and their likelihood of racing.

Dataset:

NCAA D1 Women's Cross Country Championship Results from 2020-2023*

Link:

<https://www.ncaa.com/live-updates/cross-country-women/d1/live-updates-2023-ncaa-di-dii-and-diii-cross-country-championships>

Sample Dataset

```
data <- data.frame(  
  Year = c(2023, 2022, 2021, 2020),  
  Team_Name = c("NC State", "NC State", "BYU", "Colorado"),  
  Team_Score = c(94, 63, 91, 88),  
  Team_Placement = c(1, 1, 1, 1),  
  Top_Runner_Time_minutes = c(19.55, 19.59, 20.05, 19.40),  
  Team_Average_Time_minutes = c(20.21, 20.08, 20.23, 20.30),  
  Number_of_Runners = c(7, 7, 7, 7)  
)  
print(data)
```

	Year	Team_Name	Team_Score	Team_Placement	Top_Runner_Time_minutes
1	2023	NC State	94	1	19.55
2	2022	NC State	63	1	19.59
3	2021	BYU	91	1	20.05
4	2020	Colorado	88	1	19.40
	Team_Average_Time_minutes		Number_of_Runners		
1	20.21		7		
2	20.08		7		
3	20.23		7		
4	20.30		7		

Key Observations/Variables in the results of the championship race.

Year: The year the championship took place.

Team Name: The name of the team (university) competing.

Team Score: The total team score, which is calculated by adding the placements of the team's top five runners. Lower scores are better (the team with the lowest score wins).

Top Runner Time (minutes): The time of the top-performing individual runner from the team (measured in minutes).

Team Average Time (minutes): The average time (in minutes) of all runners on the team.

Number of Runners: The number of athletes participating from each team.

Team Placement: The team's overall placement in the championship.

Summary

The research question, "How do team performance and individual performance correlate with NCAA D1 Women's Cross Country Championship rankings and results?" aims to explore the trends in the observations and variables of past results and how they will influence the prediction of the future championship races. By analyzing this data, we will be able to understand how certain factors can play an important role in determining who the winning team will be.