

# Hidden Talent

**Indianola Scott & Jocelyn Miao**

# Literature Review

## **Key Questions in the Literature:**

- How can high potential students be identified early?
- Do gifted/selective programs lead to long run outcomes?
- How do family background, school environment, income, gender, and geography shape development?

## **Common Methods:**

- Administrative data and records
- Regression using test score cutoffs
- Observational studies linking assessments to later educational and career outcomes

## **Consistent Findings:**

- Environment matters: schools, mentors, peers, exposure influence outcomes
- Many high potential students are overlooked, especially those who are female, low income, or underrepresented
- Educational interventions can improve long term outcomes, especially for underserved populations

# Brazil ENEM 2019 - Dataset Summary

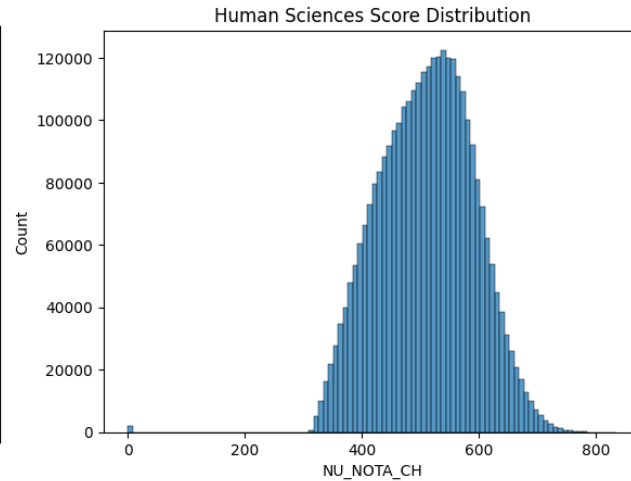
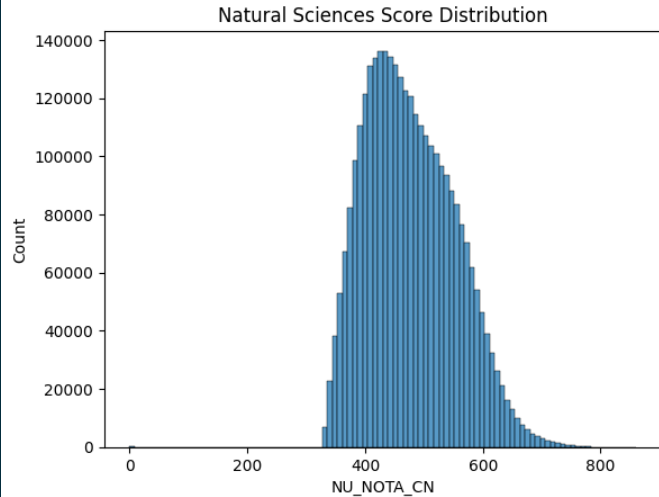
## **What is the ENEM?**

- The ENEM in Brazil is similar to the SAT in the US
- A standardized national exam that is used as the gateway to higher education in Brazil

## **What did we look into?**

- The distribution of students in the top 1% of scores, across all subjects
- Max Scores in varying subjects
- Analyzed differences in high scorers, depending on gender
- The distribution of high scorers in different regions

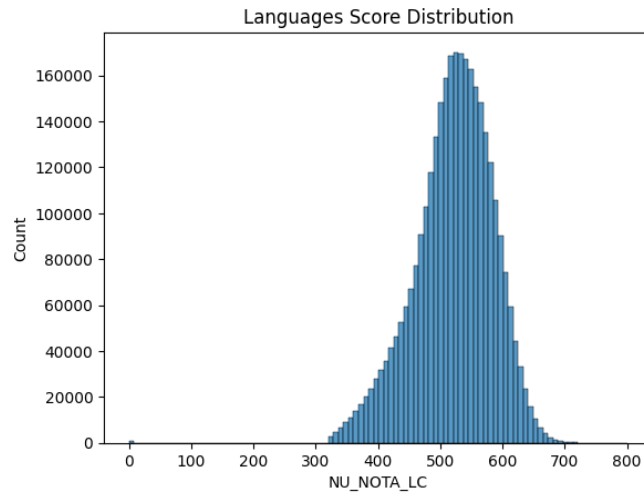
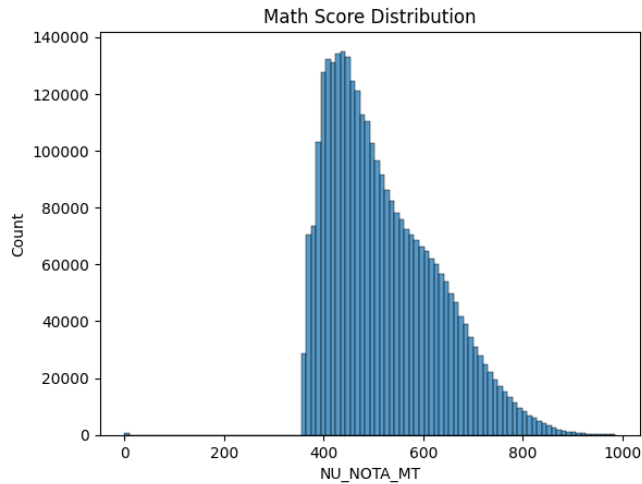
# Score Distributions Across Subjects



## Natural Sciences And Human Sciences

- Both score distributions are relatively normal and approximately centered around 500
- The Natural Sciences Score distribution has a slight right tail

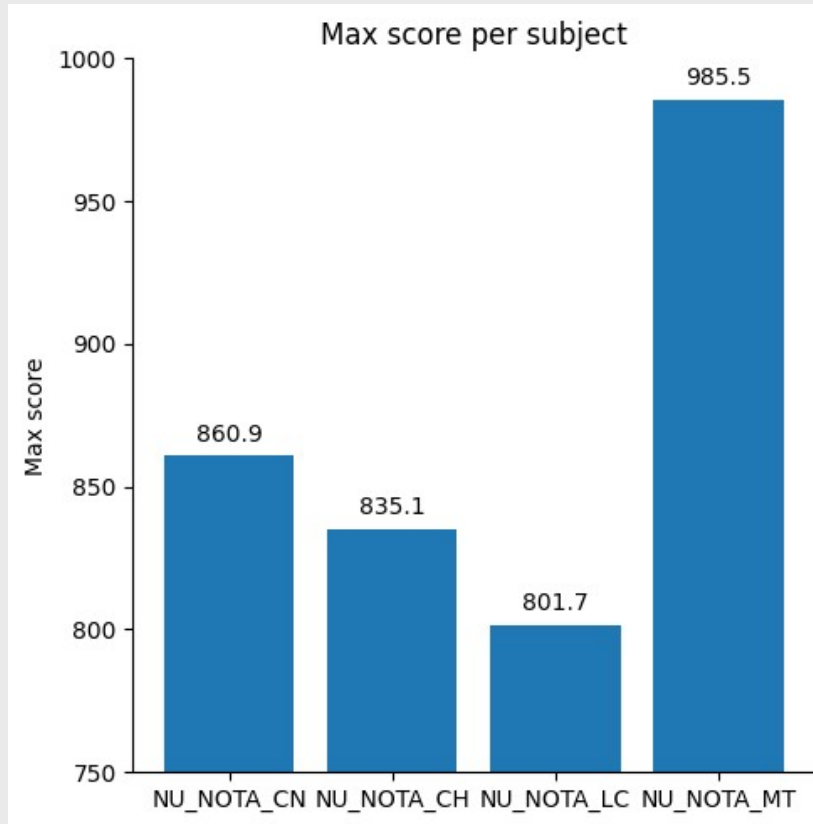
# Score Distributions Across Subjects



## Math And Languages

- Both distributions relatively normal and approximately centered around 500
- Math score distribution shows more students scoring above 800 than any other subject

# Max Scores per Subject



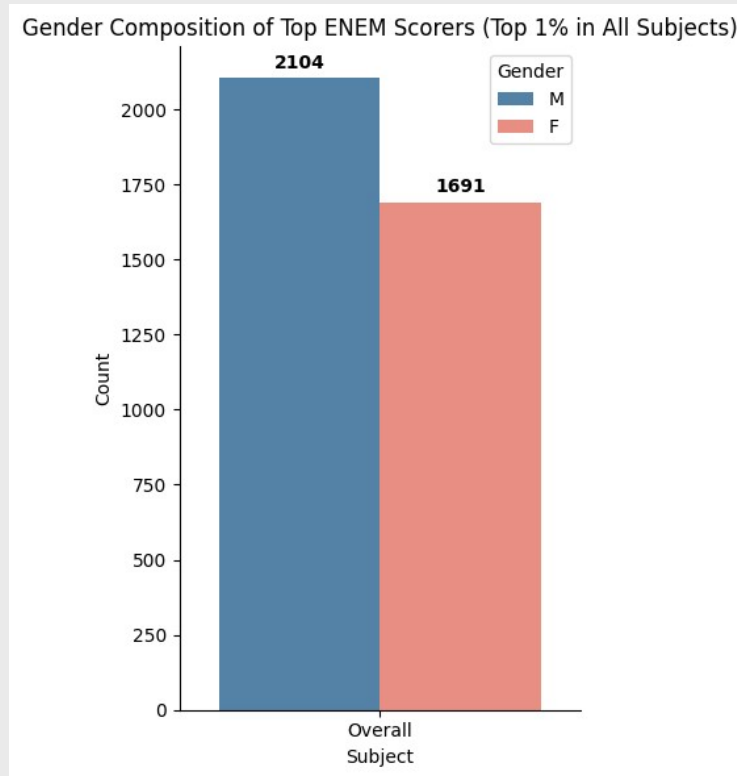
Natural Sciences  
Max Score:  
**860.9**

Human Sciences  
Max Score:  
**835.1**

Languages Max  
Score: **801.7**

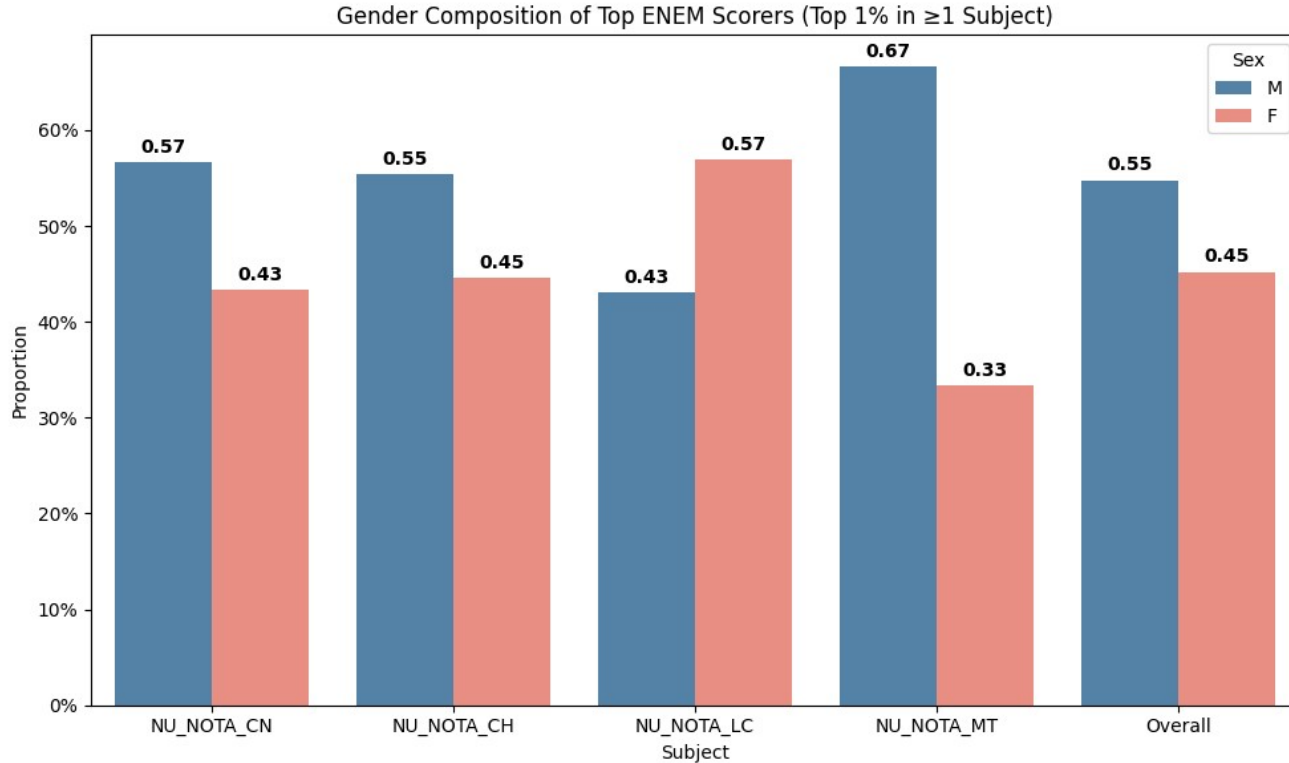
Math Max Score:  
**985.5**

# Gender Composition of Top Scorers



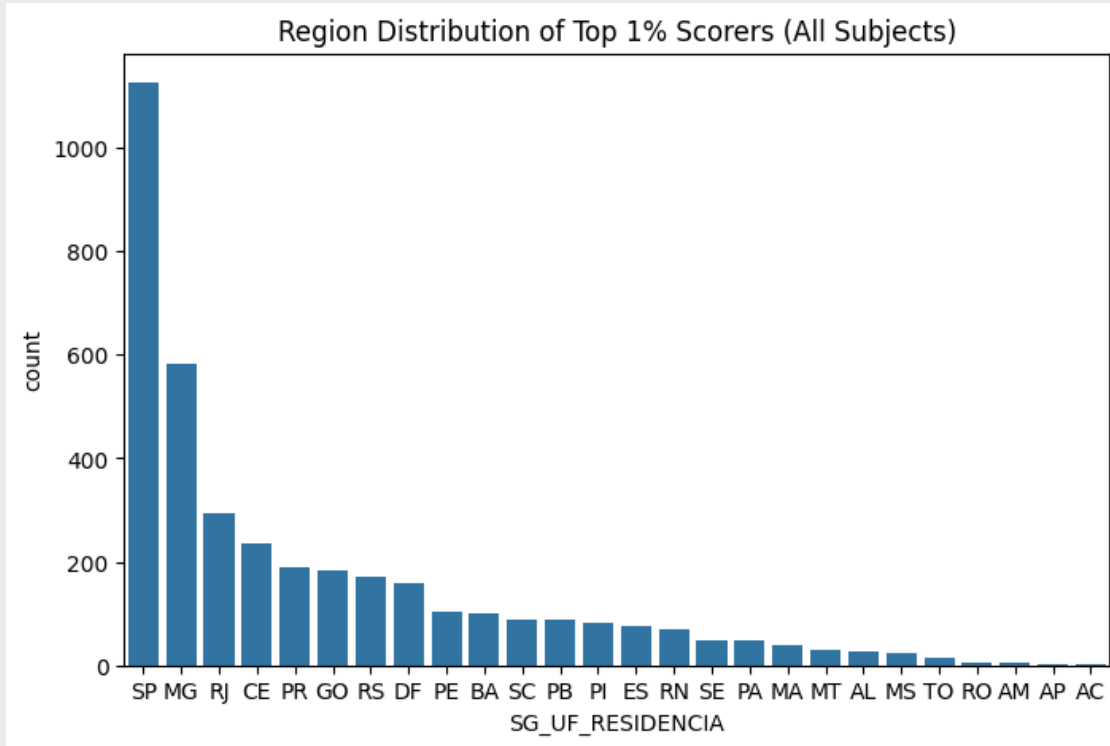
Over all top ENEM scorers, men typically scored higher than women with a count of 2104, while the women in the top 1% of all subjects had a count of 1691.

# Gender Composition of Top Scorers Across Subjects



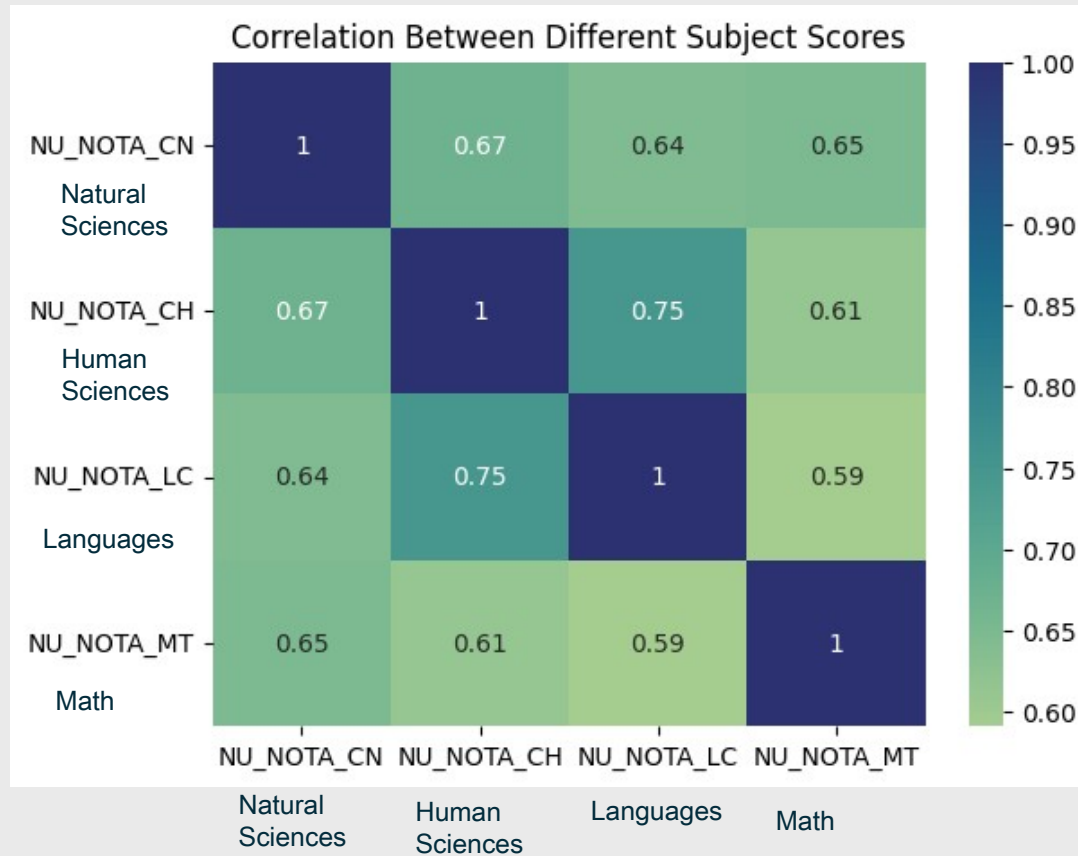
- Similar distribution between Natural Sciences and Human Sciences
- The language category is the only one where women in the top 1% of scorers outperformed the men
- Huge discrepancy between the scores for men and women in the math category, with men scoring higher than women

# Region Distribution of Top Scorers



- São Paulo(SP) has the biggest portion of scorers in the top percent; more than 1,000
- Minas Gerais has the second biggest portion, with 600 top scorers
- The rest of the regions have 300 or less top scorers

# Correlation Between Scores in Subjects



- Human Sciences and Language are the subjects with the highest correlation (0.75)
- Human Sciences and Math have the lowest correlation (0.61)

# Main Takeaways

- The highest scores were in math, reaching 985.5 whereas the high scores for Natural Sciences, Human Sciences, and Languages didn't even hit 900
- Men in the top 1% of scorers scored higher than women, on average, overall and in every subject except for languages
- São Paulo, the region in Brazil, had the most high scorers than any other region by approximately 500 students
- Further research can go into how other types of demographics are related to the top 1%, like age group or school type



Thank you