
Topics in Applied Mathematics: *Mathematical Modeling*

Math 396 Spring 2021

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<https://zoom.us/j/83746366935> T 10:15am - 11:40am

<http://sites.oxy.edu/ron/math/396/21/>

Week 6: Tuesday February 23

TITLE Probability Models of Discrimination: Applications of Bayes' Theorem

CURRENT READING Will Affirmative Action Policies Eliminate Negative Stereotypes? (Coates & Loury, 1993). Mathematical Models of Racial Discrimination (Harris, 2021). Bayes' Theorem (15-minute YouTube video).

NEXT READING By next week you should respond to this poll giving your preferences of who you want to work with on your team and a ranked preference of the model types you want your team to work on. <https://tinyurl.com/Math396Teams>

SUMMARY Today we will have a guest lecture from Prof. Jorgen Harris of the Economics department. He will discuss how one can use probabilistic models to describe when and how discrimination based on race might make "economic sense."

Think about the following questions:

1. What role does uncertainty play in maintaining discrimination in this model? Will making a test of skill that is more accurate result in more or less long-run discrimination?

2. Given the setting of the problem, does the magnitude of employers initial prejudice matter? In other words, will small levels of prejudice be maintained, or only large levels of prejudice?

3. What role does coordination play in this model? Would the optimal strategies of workers and firms be the same if they made decisions as a group, rather than as individuals?

RECALL: The 5 Step Modeling Approach

1. Ask the question
2. Select the modeling approach
3. Formulate the model
4. Solve the model
5. Answer the question

GROUPWORK

Question How can we apply the 5-step method to the Probability Model of Discrimination?

Question (How) Can you connect ideas of sensitivity analysis and robustness to the Probability model of Discrimination?

Question What other situation or question would you like to apply the Probability model to?