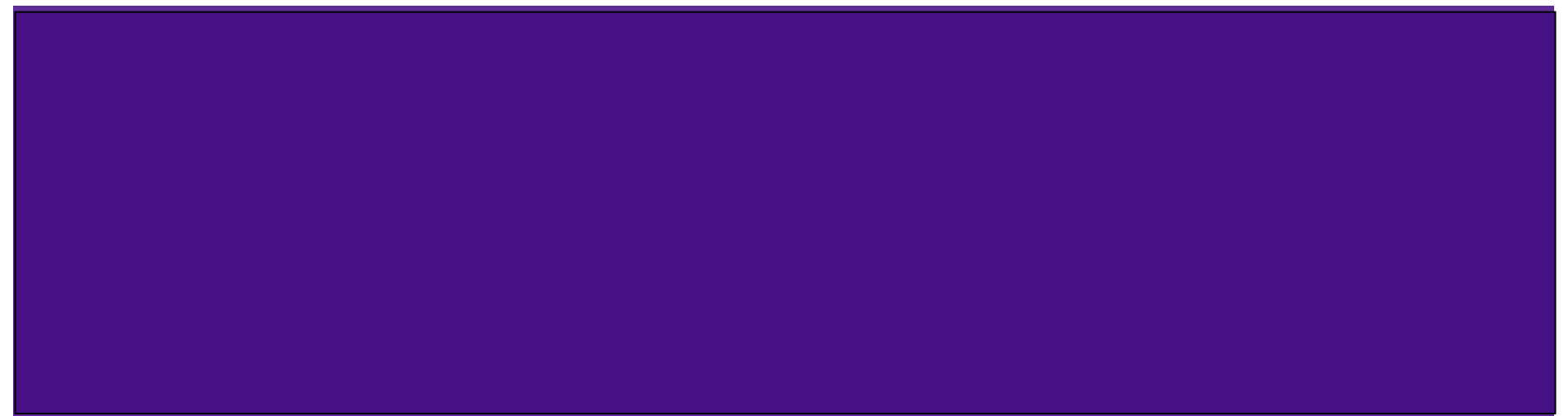




CSDE 502

Algorithms & Prediction

May 12, 2023



Research, Prediction, & Racism (Roberts & Rollins, 2020)

Measurements of Racial Difference

- **Genetics and Biological Determinism**
 - Eugenics
 - Post-genomic era & the “molecularization of race”
- **Social Construction**
 - Racism and racial inequity
 - Racial identity & belonging
- **Where they clash**
 - Ancestry, “marketization of identity”
 - DNA testing, citizenship, & family separation
- **Biosocial**
 - DuBois & structural racism
 - Epigenetics, allostatic load
 - Environmental racism, segregation, state violence
- **Biosocial (Neuroscience)**
 - “Fixing racism” for White people
 - Criminology
 - Education



Algorithmic Fairness (Mitchell et al, 2021)



Assumptions

- What are we trying to predict and why?
- Population and population mismatches
- Possible decisions

Bias

- Societal bias
- Sampling bias
- Measurement Error

Evaluation

- Accuracy
- Fairness

Fairness

- Single-threshold, i.e. all individuals with same covariates get equal decision
- Same accuracy across subgroups
- Same decisions across subgroups, conditional on outcome
 - same rate of true +/false - & true -/false +
- Same outcomes across subgroups, conditional on decision
- Same predictions across subgroups, conditional on outcome
- Same fairness metric value based on joint distribution of covariates, subgroup, decision, outcome