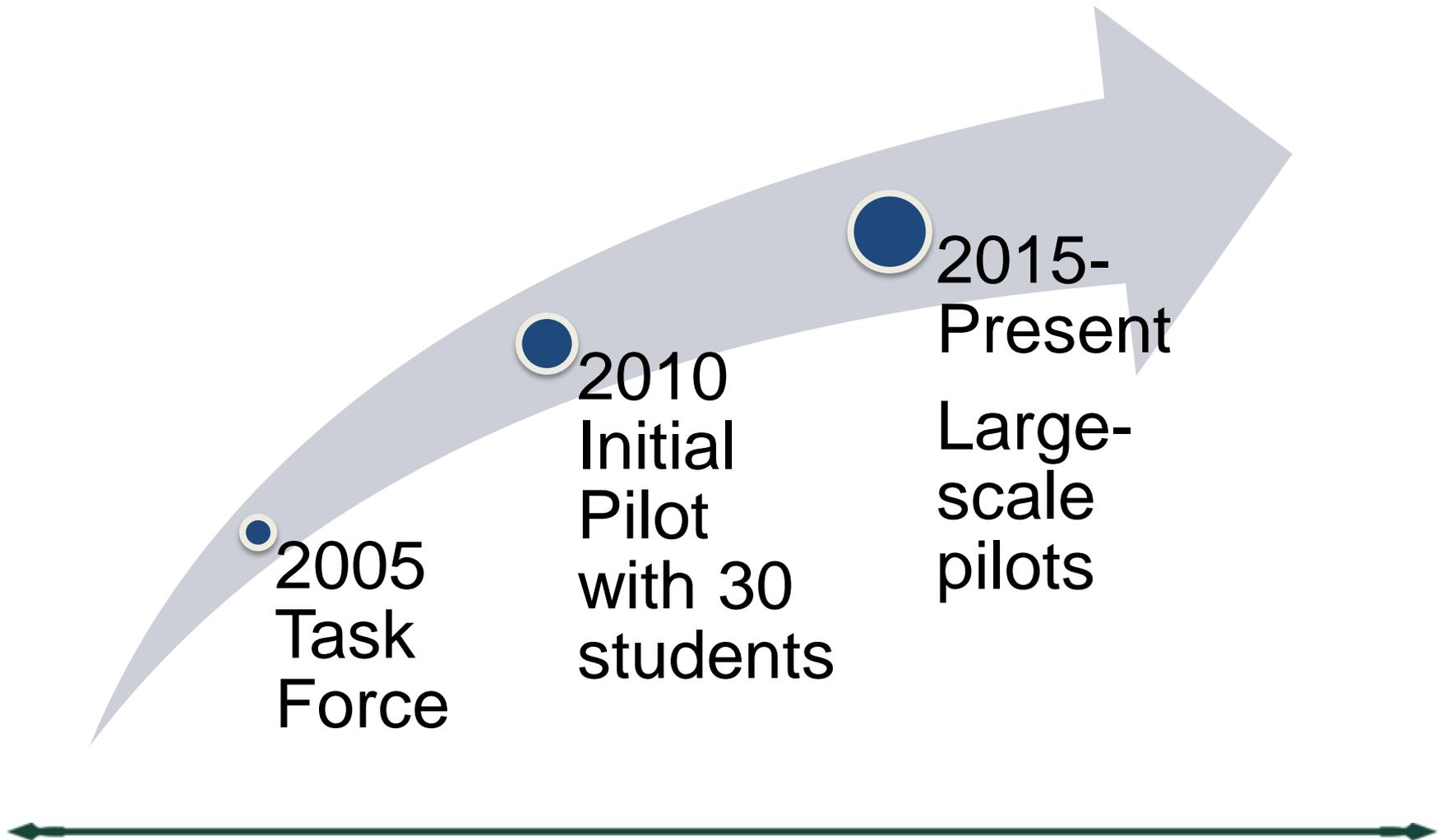# Quantitative Literacy at Michigan State University: Present Successes and Challenges

Luke Tunstall, Vince Melfi, Jeff Craig, Andy Krause, Abe Edwards, and Bronlyn Wassink

MathFest 2016—Columbus, Ohio

A Brief Timeline

2005
Task
Force

2010
Initial
Pilot
with 30
students

2015-
Present

Large-
scale
pilots

Current Courses

Math 101

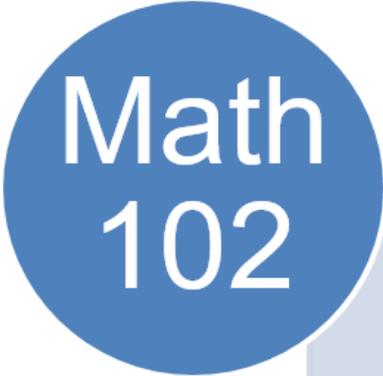Health and Risk, Science, Media

Math 102

Politics and Voting, Economics and Finance, Social Justice

- Large lectures (Tuesday) with a recitation (Thursday)
- Content arises from context, designed by team of individuals working on the project
- Focus on active learning in small groups
- No exams; some quizzes; one course-long project
- Table/graph reading and creation, basic arithmetic skills woven throughout

Course Project

- Part 1: Picking a topic of societal significance
- Part 2: Research politics, polling others, making a "decision" and displaying results
- Part 3: Cost-benefit analysis, game theory lens
- Part 4: A social justice lens

Math 102

Politics and Voting, Economics and Finance, Social Justice

Ranking Happiness

China

Capital: Beijing
Location: Eastern Asia

Bangladesh

Capital: Dhaka
Location: Southern Asia

South Africa

Capital: Pretoria
Location: Southern Africa

United States

Capital: Washington DC
Location: North America

South Korea

Capital: Seoul
Location: Eastern Asia

Mexico

Capital: Mexico City
Location: Latin America

Brazil

Capital: Brasilia
Location: Latin America

Ukraine

Capital: Kiev
Location: Eastern Europe

India

Capital: New Delhi
Location: Southern Asia

Dem. Rep. of the **Congo**

Capital: Kinshasa
Location: Central Africa

Singapore

Capital: Singapore
Location: South East Asia

Botswana

Capital: Gaborone
Location: Southern Africa

Ethiopia

Capital: Addis Ababa
Location: Eastern Africa

Nigeria
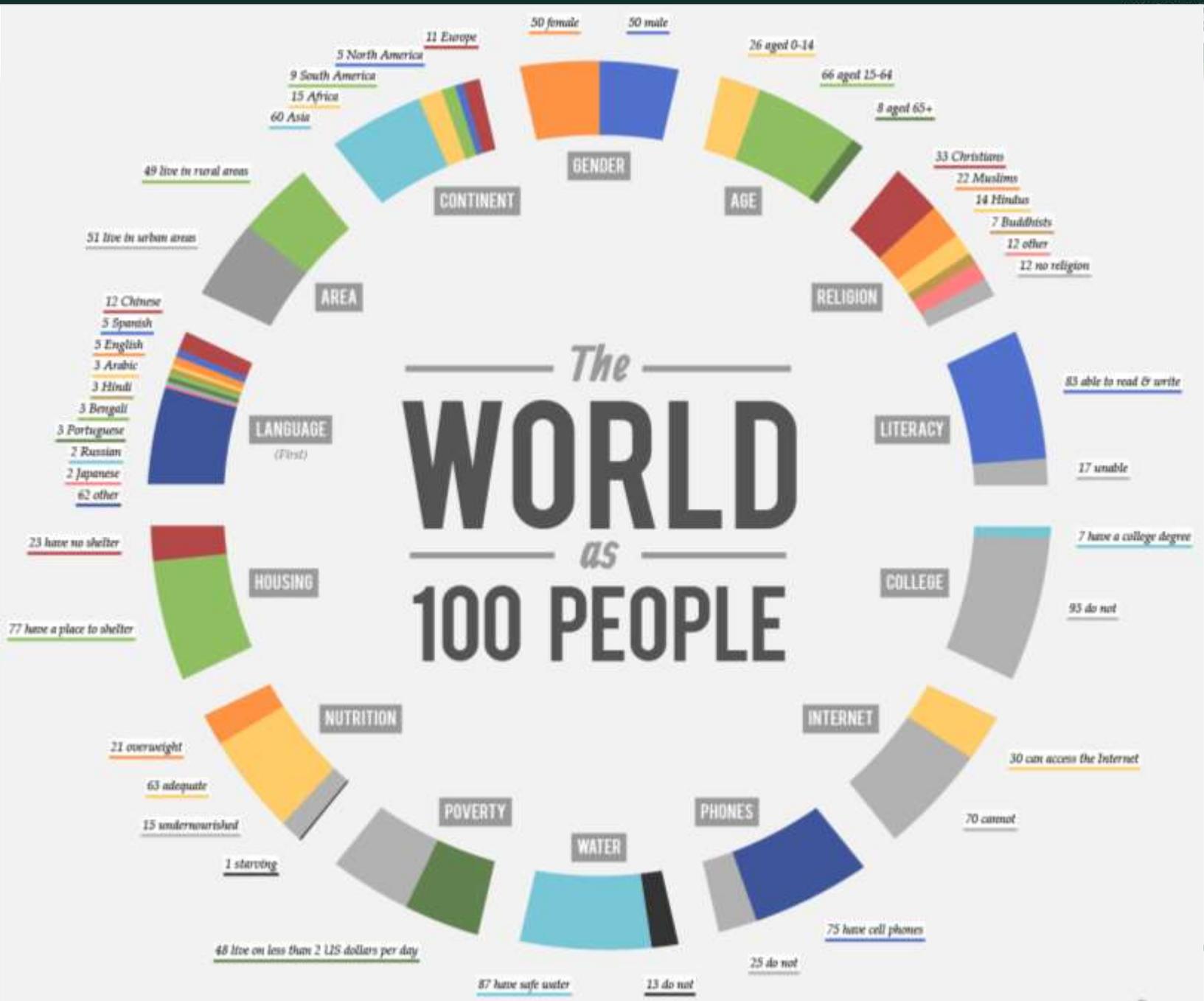
Capital: Abuja
Location: Western Africa
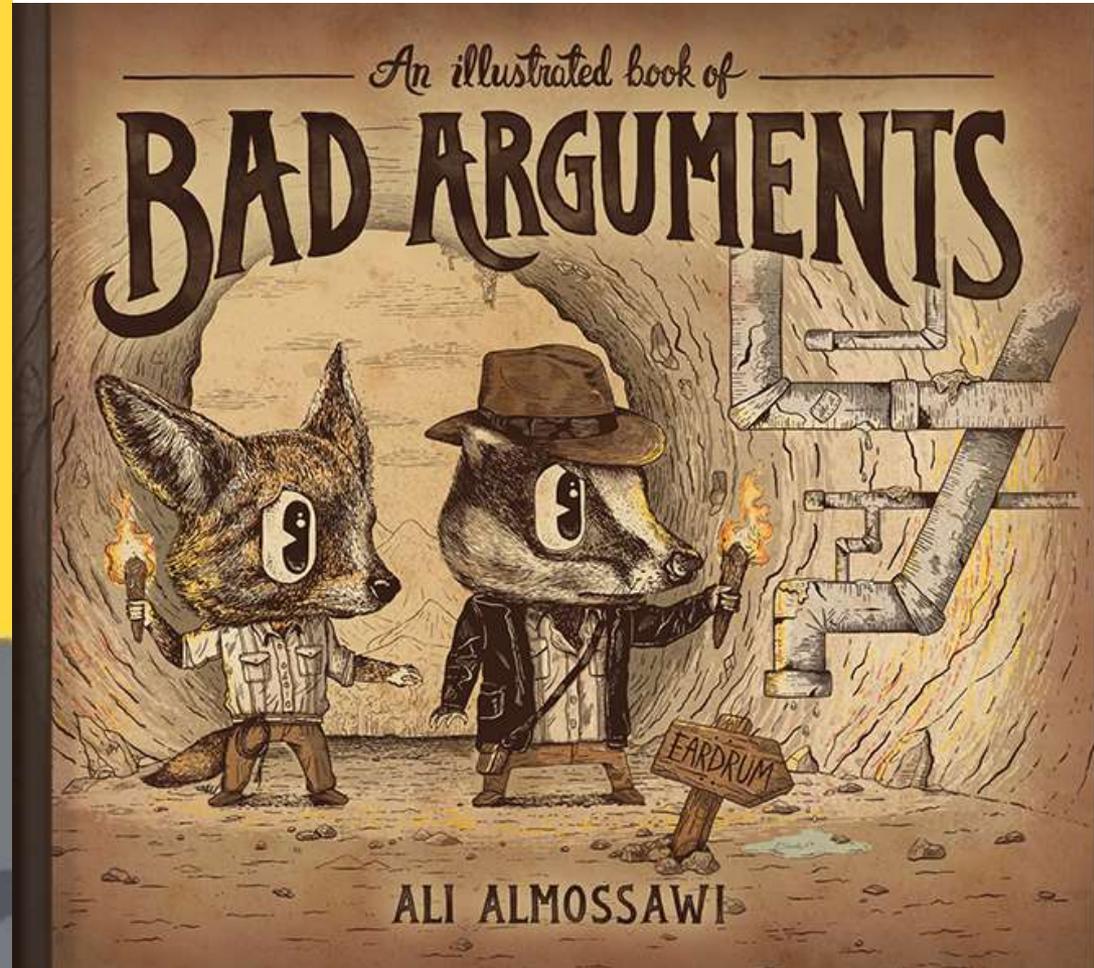
Japan
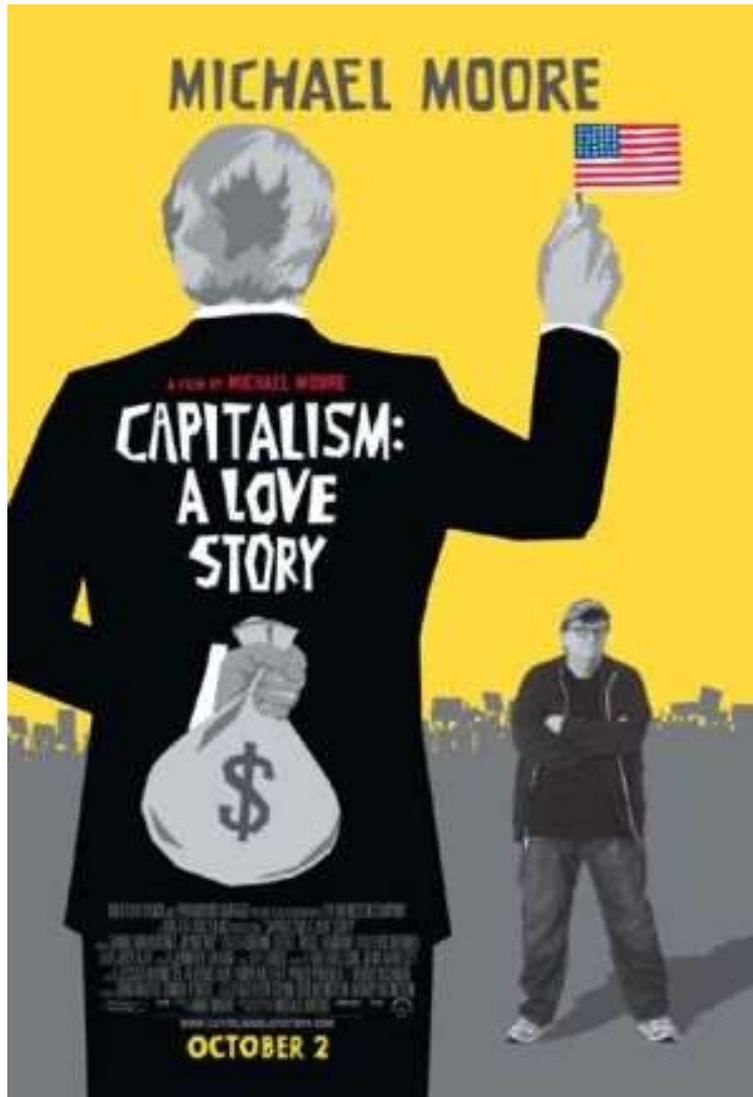
Capital: Tokyo
Location: Eastern Asia

Russia

Capital: Moscow
Location: Eastern Europe /
Northern Asia

The World as 100 People

Assignment Examples

Assignment Examples

Bankrate

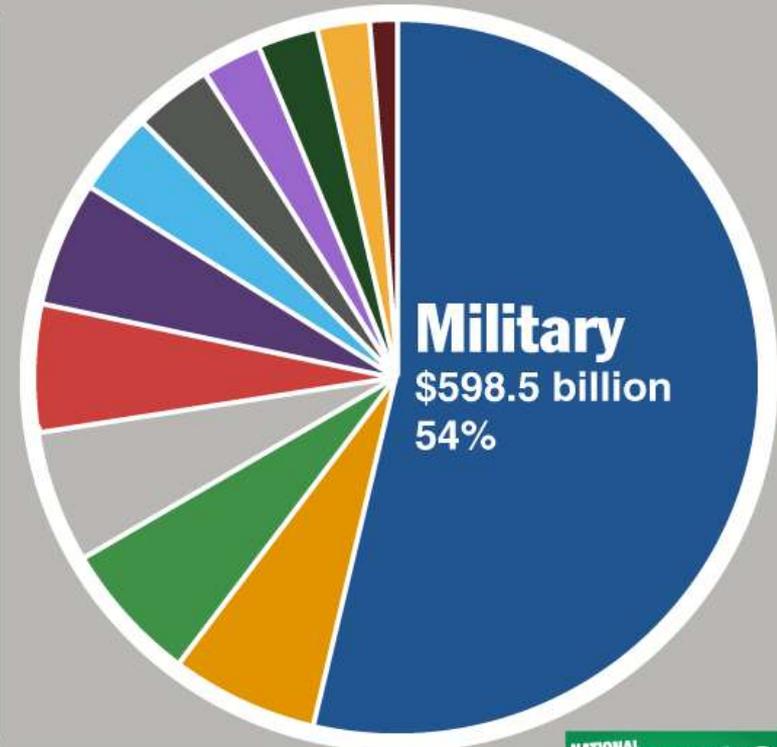- **Realistic approach over formulas**
- **Scenario analysis**

Assignment Examples

- **Strategic thinking and game theory activities**
- **Historical trend analysis**

Discretionary Spending 2015: $1.11 trillion

- Government $72.9 billion / 7%
- Education $70 billion / 6%
- Medicare & Health $66 billion / 6%
- Veterans Benefits $65.3 billion / 6%
- Housing & Community $63.2 billion / 6%
- International Affairs $40.9 billion / 4%
- Energy & Environment $39.1 billion / 4%
- Science $29.7 billion / 3%
- Social Security, Unemployment, & Labor $29.1 billion / 3%
- Transportation $26.3 billion / 2%
- Food & Agriculture $13.1 billion / 1%

Military $598.5 billion 54%

nationalpriorities.org

NATIONAL PRIORITIES PROJECT

Assignment Examples

Rise of the rich

Top 1% share of income, %

Britain

United States
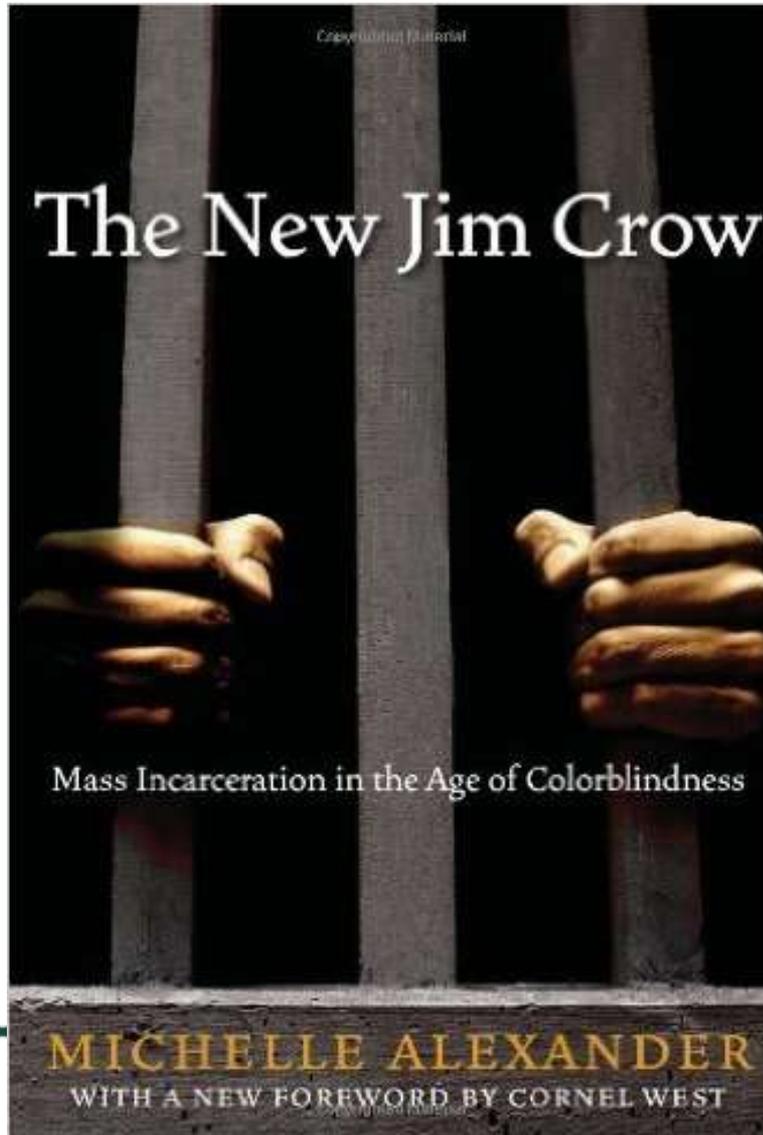
25

20

15

10

5

0

1900   20   40   60   80   2000 10

Source: "Inequality" by Anthony Atkinson

Economist.com

- **Fact-checking**
- **Media interrogation**
- **Infographic creation**

Assignment Examples

Assessment and Future Directions

Assessment

- QLRA (among others)
- Effectiveness and passing rates

Challenges

- "Where's the math" rhetoric
- Providing a balanced political perspective
- Scaling up
- Training GTA's and undergrad tutors
- Funding

Lansing State Journal

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2 Entries

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Hate algebra? MSU has good news

RJ Wolcott, **Lansing State Journal**   *10:14 a.m. EDT June 29, 2016*

EAST LANSING - Cameron Newhouse, like many
college students, struggles with math. The 26-year-
old senior tried and failed three times to pass college
math classes at Michigan State University.