INCREASING EQUITY USING CULTURALLY RELEVANT ASSESSMENT

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UNC CHARLOTTE

EXCELLENCE in Assessment

2018 Designee

Overview

- Learning Outcomes for the Workshop
- Approach to analyzing equitability of assessments
- Culturally Relevant Assessment
  - Theoretical model
  - Student feedback
- Data dive
- Engaging faculty in conversation

Workshop Learning outcomes

By the end of the workshop, participants will be prepared to:

1) Identify questions and practices about inclusive assessment and student learning that can be addressed using existing sources of campus data.

2) Identify strengths and weaknesses of assignment types.

3) Understand the importance of disaggregating data by student characteristics.

Equity in Assessment and Data Sources

- What questions could we ask about assessments and equity?
  - Do different assignments measure similar abilities?
  - Do assignment formats influence students' abilities to demonstrate learning?
  - Do student learning outcome reports capture important differences in student success?
- Utilize software systems' data
  - Learning Management Systems (LMS)
  - Assessment Management Systems (AMS)
  - Student Information Systems (SIS)

STUDENT LEARNING OUTCOME (SLO) REPORTS

Do student learning outcomes reports capture important differences?

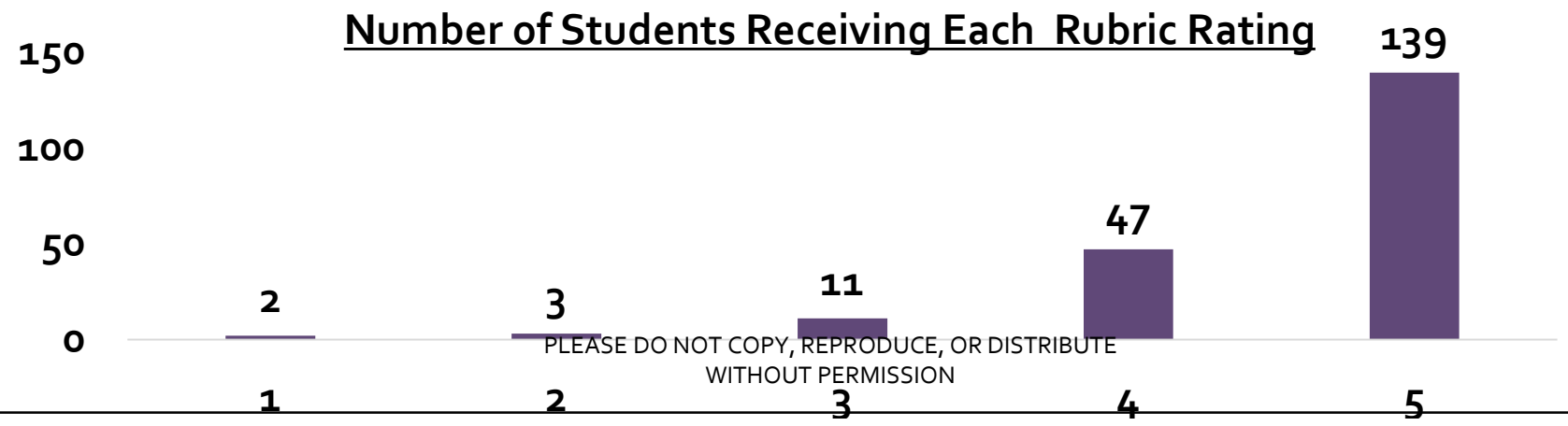
- Student Learning Outcomes Reporting can compress data
  - Full assignment grade
    - 5 point ratings on multiple rubric dimensions
      - Average across rubric grades
        - Above or below a criterion cut off

- Using Learning Management Systems it is possible to disaggregate data to see a more complete picture

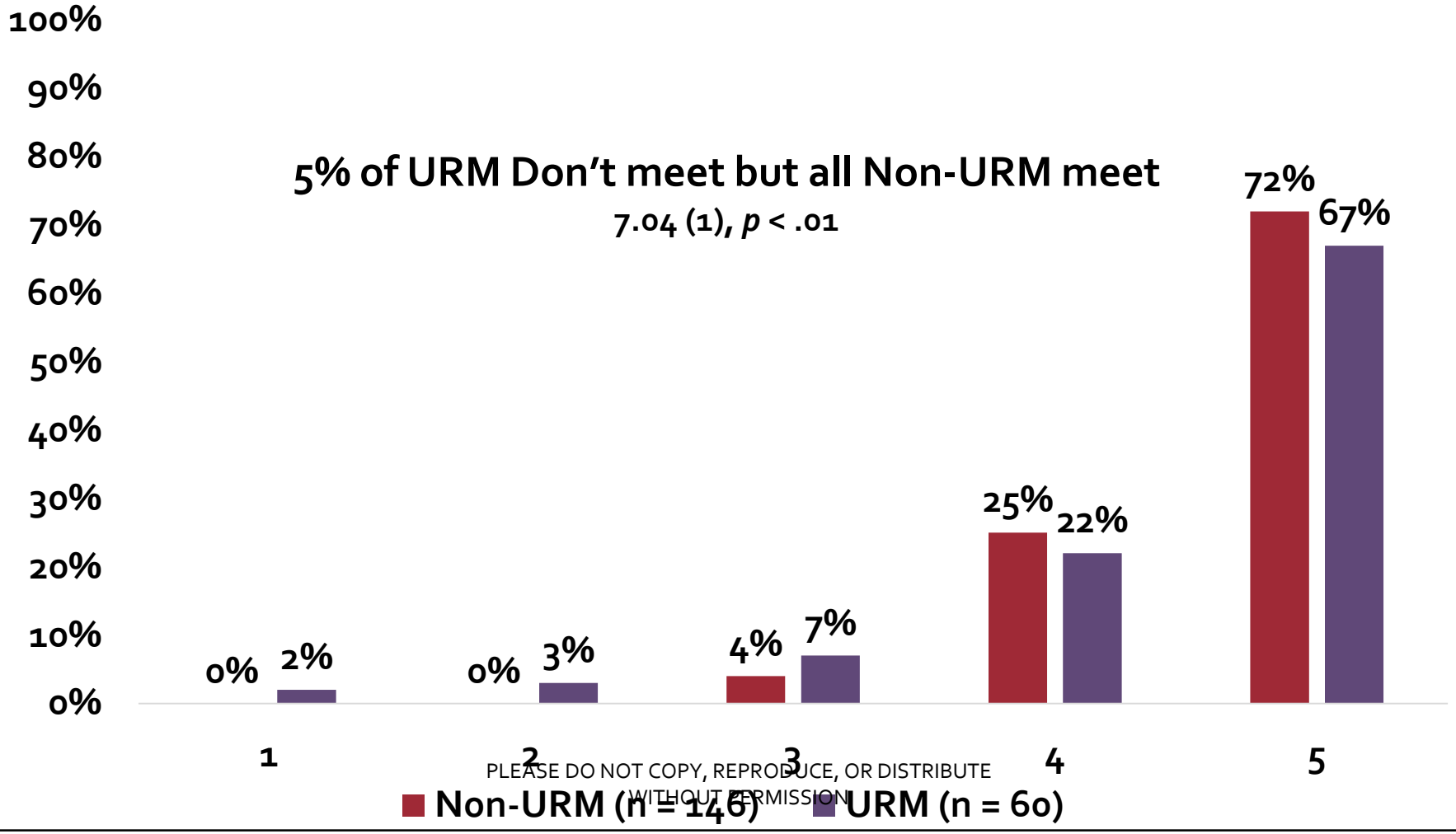
SLO Report Example

ITCS 2300 Web-Based Application Development- Computer Science

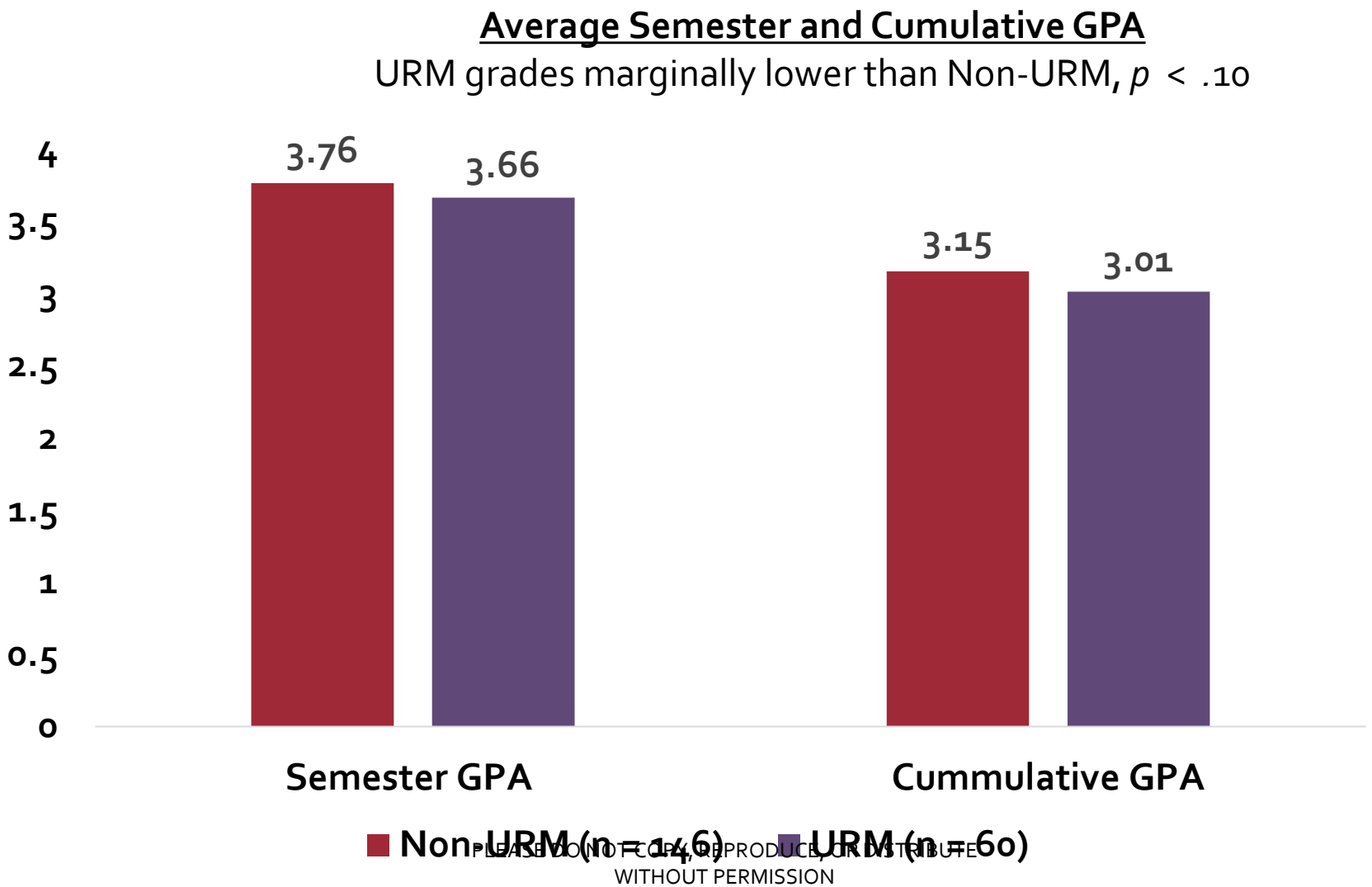
- SLO- Students demonstrate ability to create static web pages…
  - Assignments - 4-6 webpages using a common theme:
    - 4 Criteria: Understanding target demographic, Effective use of HTML and JavaScript, Browser compatibility, and Aesthetics.
    - Target: 80% will receive average rubric score of 3 (acceptable) or higher
    - Result: 97% received average rubric score of 3 (acceptable) or higher
- What other questions do we have?



Data Disaggregation: Is Achievement Equitable?



Does the difference in achievement matter?



STUDENT SUCCESS: ASSIGNMENT TYPES

Activity

1) Please pick up the paper on your seat and circle the items that would generally describe this sort of assignment.
2) Compare your assignment and responses with the person next to you
3) Total the number of odd items and the number of even items you selected
4) Discuss – What do you think these questions are trying to measure?

Culturally Relevant Assessment

(Singer-Freeman, Hobbs, & Robinson, 2019)

- Aligned with teaching and SLOs
- Clear instructions
  - Limits effects of prior knowledge and privilege
- Scaffolding
  - Limits effects of prior knowledge and creates opportunities for early success
- Inclusive content
- High utility value
  - Work has meaning beyond the academic context
- Avoids stereotype threat
- Results disaggregated

Predictions Based on Analysis of Assignment Types

Low Risk

- Reflective writing

Moderate Risk

- Open-ended tests
- Inclusive projects
- Writing in discipline

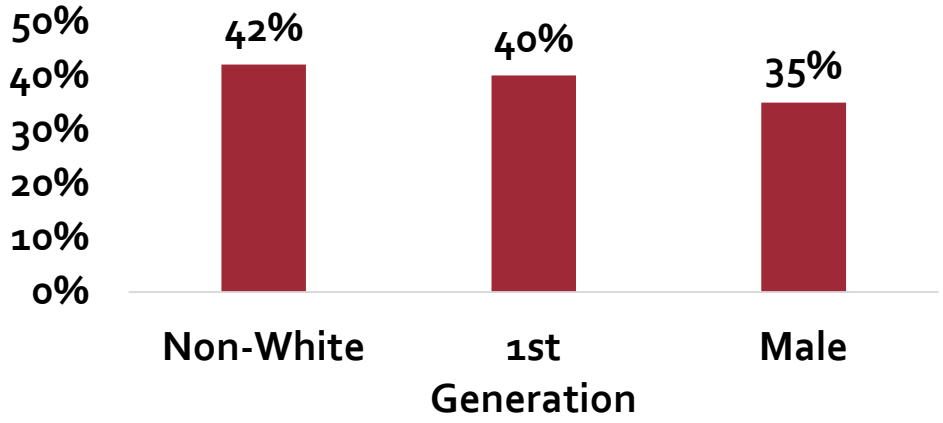
High Risk

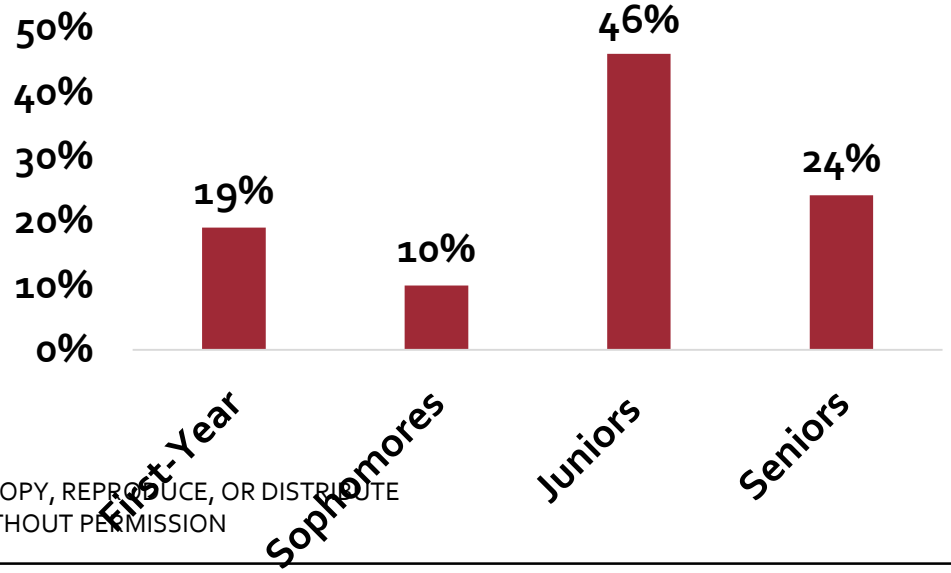
- Multiple-choice tests
- Formal Essays
- Homework

	High Utility Value	Low Utility Value
High Inclusive Content	Reflective Writing	Inclusive Projects
Low Inclusive Content	Writing in Discipline	Formal Essays, Tests, Homework

What do students think about different types of assignments?

- 16 items assess utility value, inclusive content, & alignment
- Completed for extra credit (n = 162)
  - Lower level classes in
    - Biology (2)
    - Theater (1)
    - Writing (2)
  - Upper level class in
    - Public Health





The Measure

Utility Value

(Chronbach's Alpha = .90)

- Result in something I will discuss with others.
- Help me understand myself better.
- Improve my understanding.
- Provide me with experience that will be professionally useful.
- Have personal value.

- Are only completed to earn a grade.

Inclusive Content

(Chronbach's Alpha = .93)

- Allow me to express my learning in my own words.
- Make me feel confident I can succeed.
- Include examples and materials that are familiar to me.
- Measure my true understanding.
- Allow me to relate class materials to my own experiences.
- Include clear instructions.

Assignments Rated

Please indicate the extent to which _____ generally:

Formal Papers or Essays

Reflective Writing in which you relate class materials to your own experiences.

Inclusive Projects – Projects that allow you to write in different styles or using familiar content.

Writing in Discipline – Writing assignments in the format used in a career you are interested in pursuing (e.g., lab reports, progress reports, theater reviews).

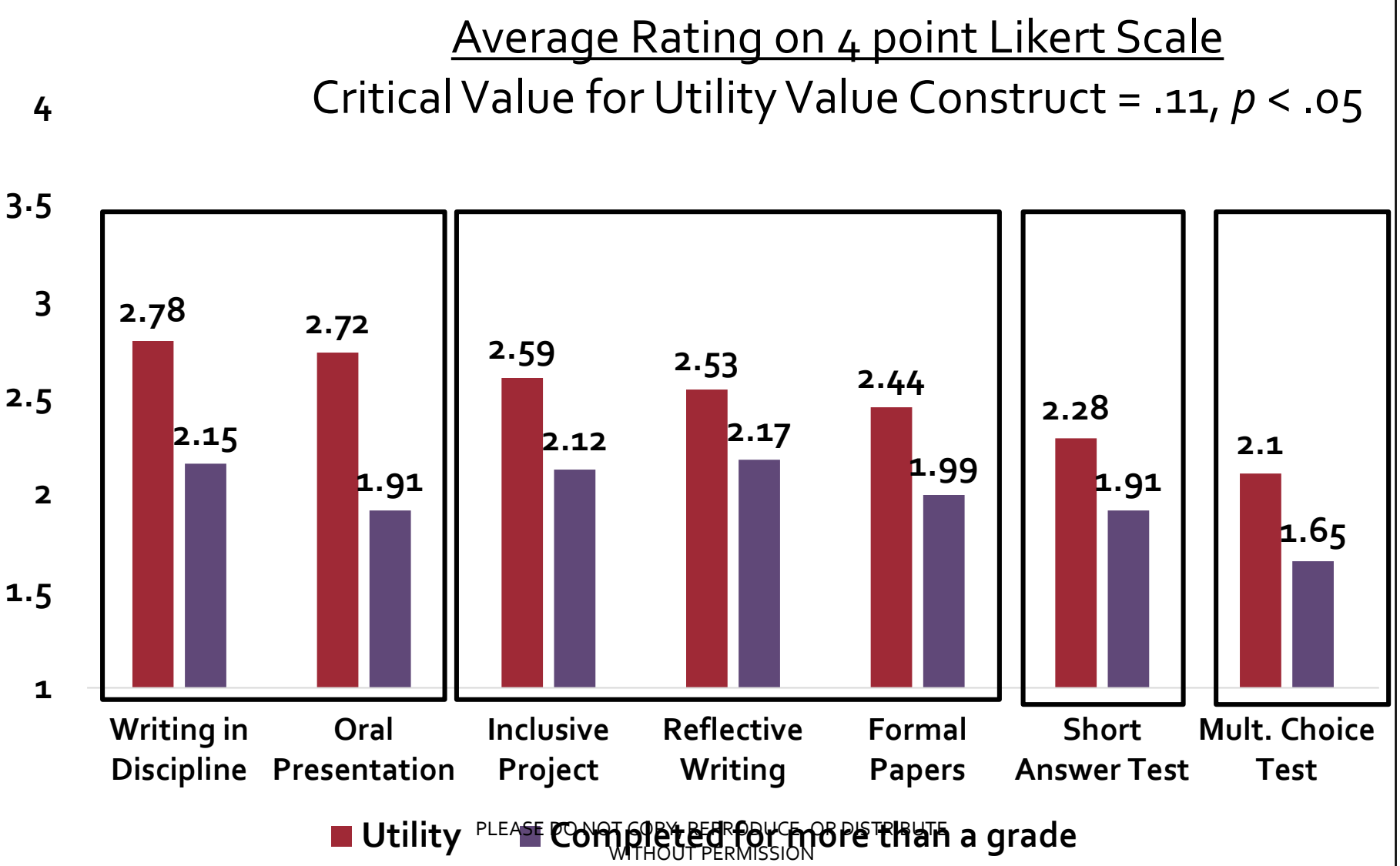
Oral Presentations

Short Answer Test Questions

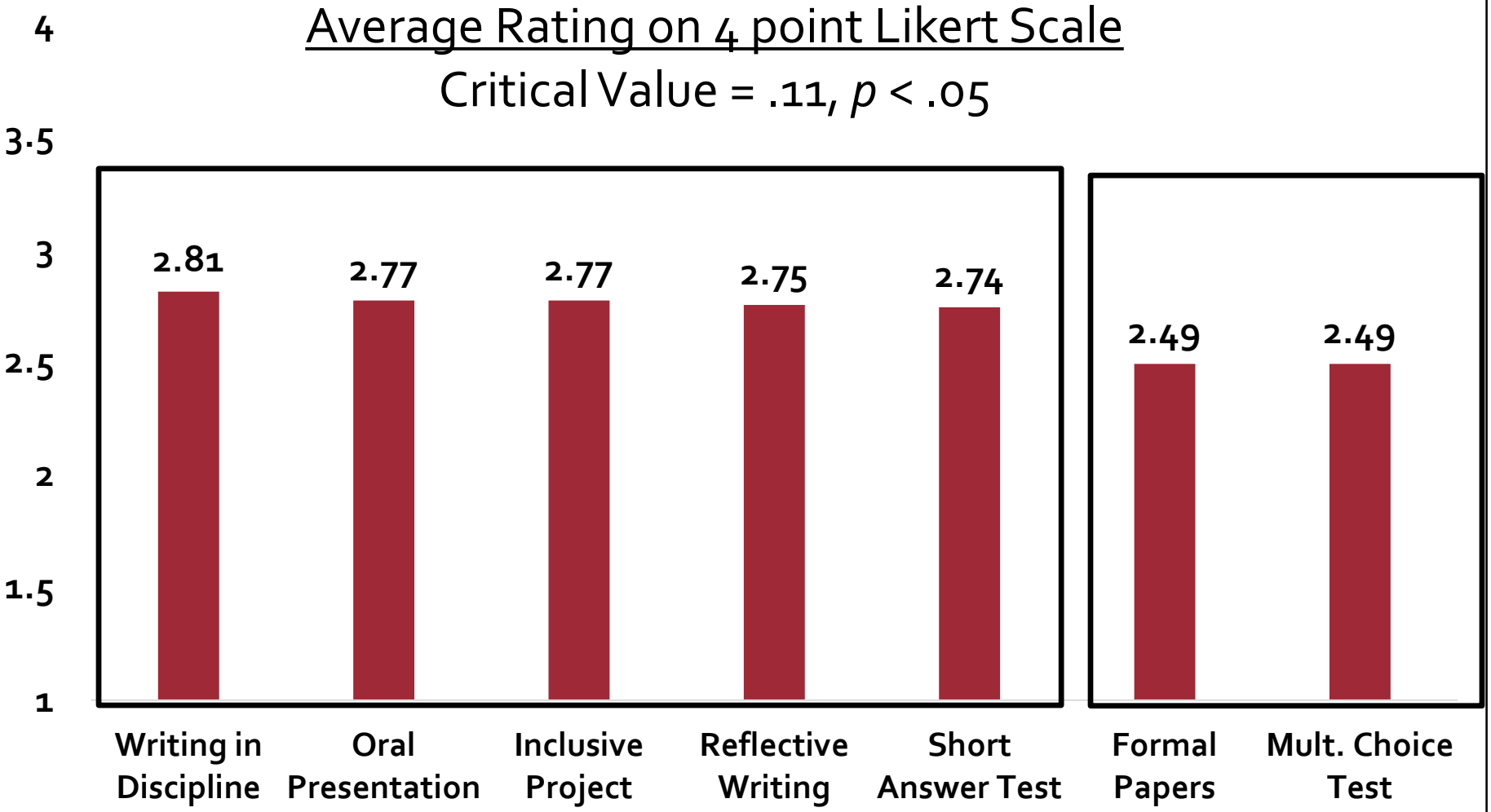
Multiple-Choice Test Questions

- Not at all, A little, To a moderate extent, Very much

Student Responses – Utility Value



Student Responses – Inclusive Content



Student Confirmation of Model

	High/Moderate Utility Value	Low /Moderate Utility Value
High Inclusive Content	Reflective Writing ☑ Oral Presentations ✚	Inclusive Projects ☑
Low Inclusive Content	Writing in Discipline	Formal Essays ☑ Tests ☑

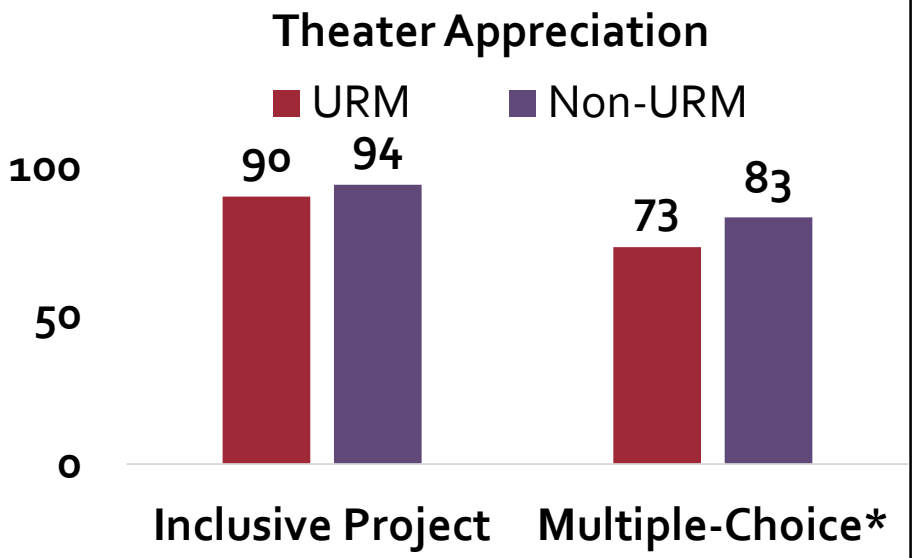
Possible Correction ☑ Confirmation ✚ Addition

Some Research Support

(Singer-Freeman, Hobbs, & Robinson, 2019)

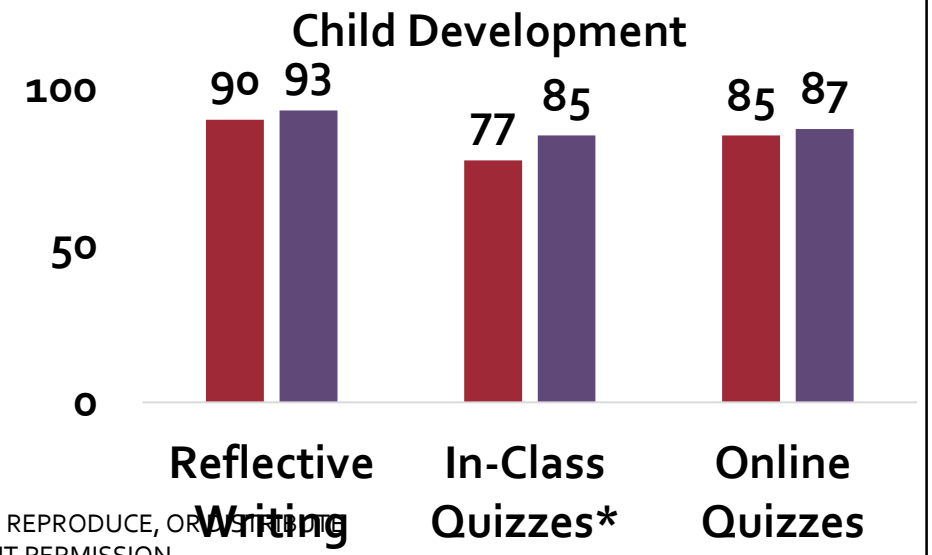
Theater Appreciation (n = 64)

- 69% URM
- Achievement gap
  - Multiple-choice exams
- No gap
  - Inclusive projects



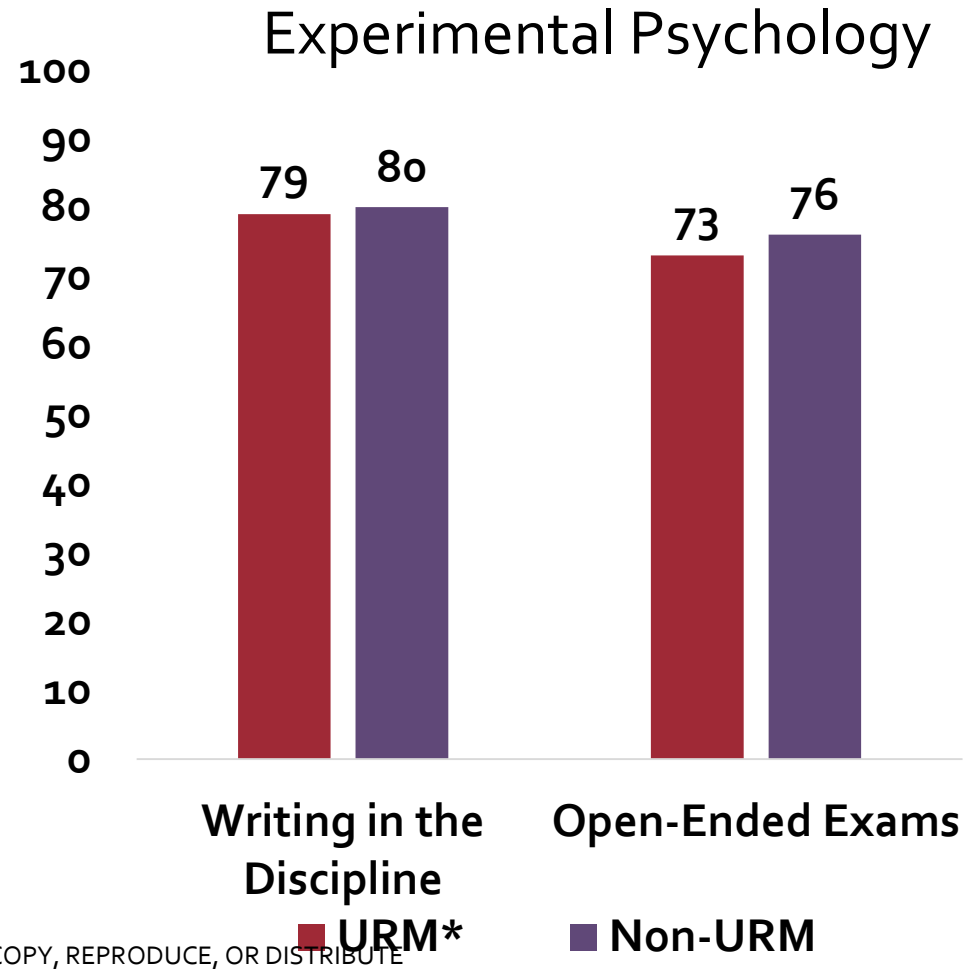
Child Development (n = 110)

- 44% URM
- Achievement gap
  - In-class multiple choice quizzes
- No gap
  - Reflective writing
  - Online multiple choice quizzes



Experimental Psychology

- 5 semesters
- 135 students
  - 30% URM
- Achievement Gap
  - URM students receive lower grades on exams than on lab reports
  - Non-URM students receive similar grades on exams and lab reports



Research Confirmation of Model

	High/Moderate Utility Value	Low /Moderate Utility Value
High Inclusive Content	Reflective Writing ☑ Oral Presentations ?	Inclusive Projects ☑
Low Inclusive Content	Writing in Discipline	Formal Essays ? Tests ☑

Possible Correction ☑ Confirmation ✚ Addition

Discussion

- Do our measures capture utility value and inclusive content?
- Do the predictions in the model and findings make sense given your experience with classroom assessments?
- What else would you want to know about how different groups of students respond to different types of assignments?

BREAK TIME

DISAGGREGATING RESULTS BY ASSESSMENT TYPE

Our Process

- Obtained a list of 88 classes with enrollments of over 50 students and DFW rates of over 30%
- Reviewed 36 classes
  - Identified 9 that included different forms of assessment and reported grades through LMS
  - The majority of classes we rejected only included testing
- Of the 9 classes with differentiated assignments
  - 100% included Exams and Quizzes
    - 2 Formal essays and 1 Writing in the Discipline (Papers)
    - 2 Projects and 1 Oral presentation (Projects)
    - 2 Homework problem sets and 3 Informal writing (Homework)

Classes

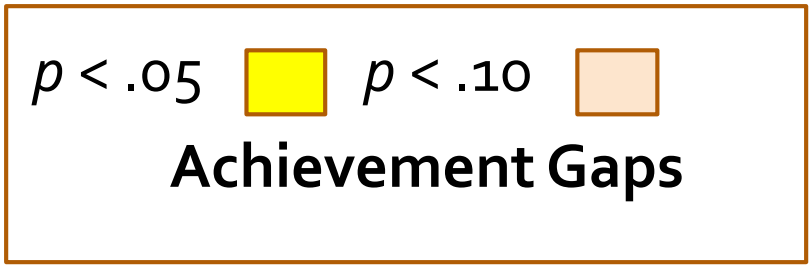
- Pre-Calculus MATH 1103
- Organic Chemistry Lab CHEM 2131L
- Introduction to Communication Theory COMM 2100
- Network Theory ENGR 2112
- Principles of Accounting ACCT 2122 (flipped)
- Physiological Psychology PSYC 3113
- Design and Implementation ITCS 3112
- Sociology of Health & Illness SOC 4120
- Conservation Biology BIOL 4244

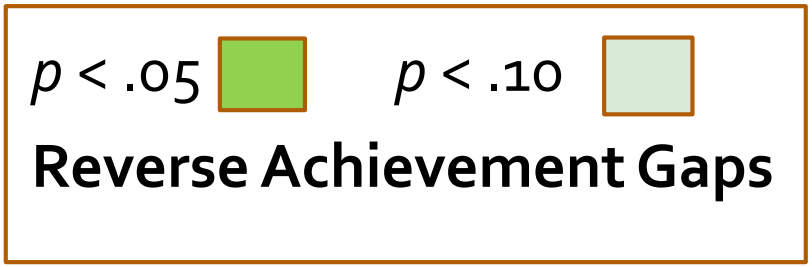
How to disaggregate data

- Download grades, assignment descriptions, and syllabi for desired course from LMS
  - Consider merging data from multiple semesters if enrollments are low
- Decide whether to include or exclude
  - Missing assignments
  - Completion-based grades
- Aggregate grades for equivalent assignments
- Convert points to percentages
- Merge file with demographic data from Institutional Research
- Compare outcomes using independent groups t-test

Introduction to the data tables

Partner with someone at your table and pick a dataset





Title provides broad introduction to contents

N = Total number of students in the class

(URM, Transfer, or Aid-Based Loans) = Number of students who were members of disaggregated group

Columns labeled with groups contain average percentage scored on each type of assignment

sig. = Whether observed differences were statistically significant

Advanced Classes in Sociology and Psychology

Assignment	Class	N (URM)	Non-URM	URM	sig	N (Aid Loans)	No Loan	Aid Loan	sig	N (Trans)	Native	Trans	sig
Reading Response 20%	Sociology of Health & Illness SOCY 4130	118 (63)	78	73	.05	129 (33)	75	79	ns	130 (81)	82	72	.001
Exams 25% (open book, online)			77	71	.01		72	76	.09		77	71	.01
Paper 35%			82	78	.05		79	83	.09		84	77	.001
Final Grade			77	70	.01		71	78	.001		76	70	.02
Assignment	Class	N (URM)	Non-URM	URM	sig	N (Aid Loans)	No Loan	Aid Loan	sig	N (Trans)	Native	Trans	sig
Quizzes (20%)	Physiological Psychology PSYC 3113	51 (18)	87	83	ns	55 (17)	86	84	ns	54 (37)	90	84	.01
Exams (45%)			80	79	ns		79	78	ns		84	77	.04
Oral (15%)			97	94	ns		94	98	ns		97	96	ns
Final Grade			82	81	ns		80	80	ns		82	80	ns

Introductory Classes Disaggregated by URM status

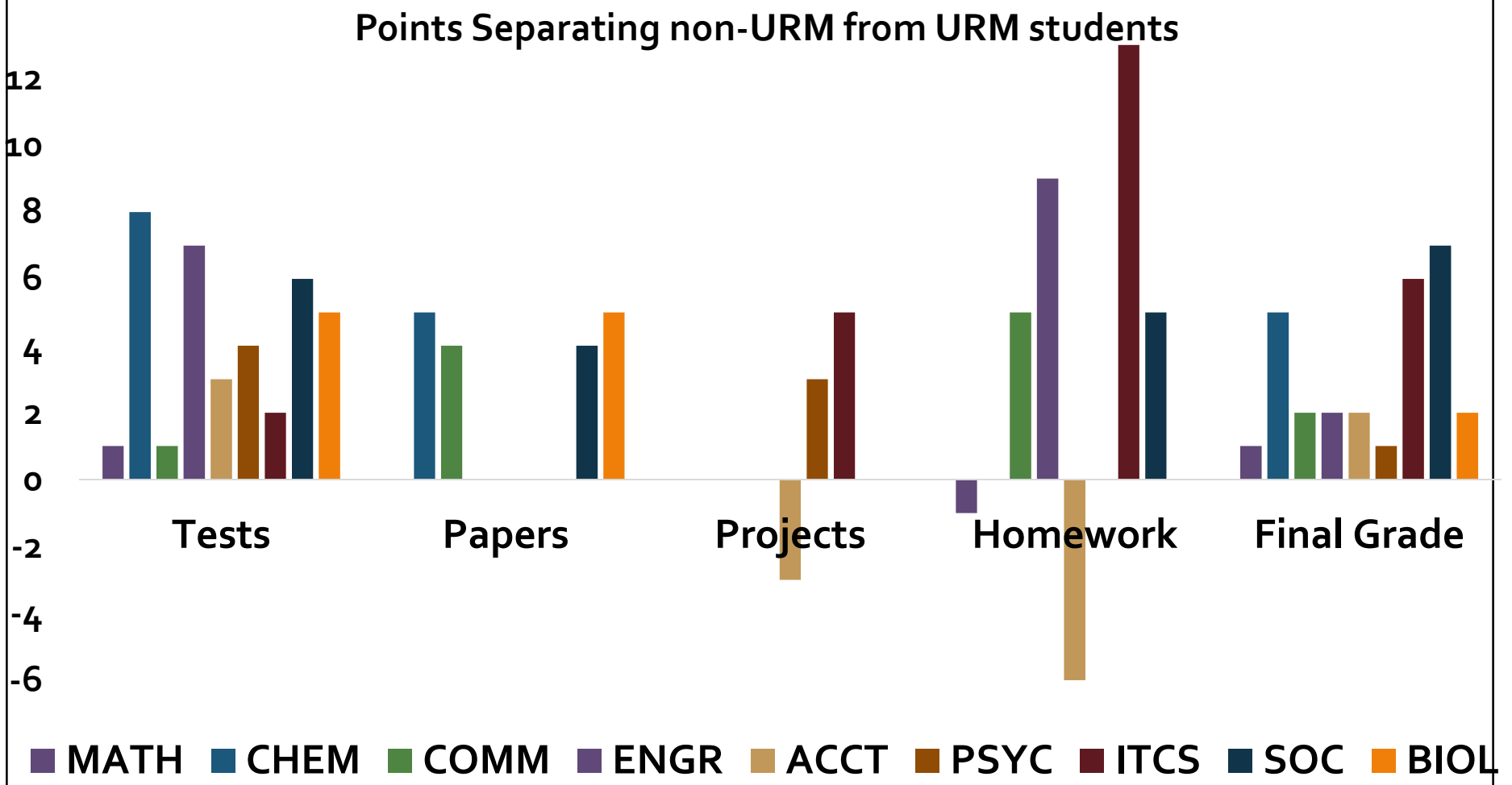
Assignment	Class	N (URM)	Non-URM	URM	sig
Quizzes 20%	Network Theory II ENGR 2112	42 (8)	85	84	ns
Tests 40%			66	66	ns
Final Exam 30%			72	65	ns
Homework 10%			74	65	.09
Final Grade			67	65	ns
Assignment	Class	N (URM)	Non-URM	URM	sig
Pre-Lab Quiz	Organic Chemistry Lab CHEM 2131L	141 (43)	78	70	ns
Lab reports			80	75	ns
Final grade			81	76	ns
Assignment	Class	N (URM)	Non-URM	URM	sig
Exams (70%)	Introduction to Communication Theory COMM 2100	136(54)	73	72	ns
Application Paper (10%)			88	84	.09
Minute Responses (20%)			97	92	.07
Final Grade			72	70	ns
Assignment	Class	N (URM)	Non-URM	URM	sig
Quizzes (7%)	Principles of Accounting	50 (18)	89	89	ns
Exams (64%)			75	72	ns
Shark Tank Group Project (14%)			85	88	.06
Homework (7%)			81	87	ns

Dive into some data

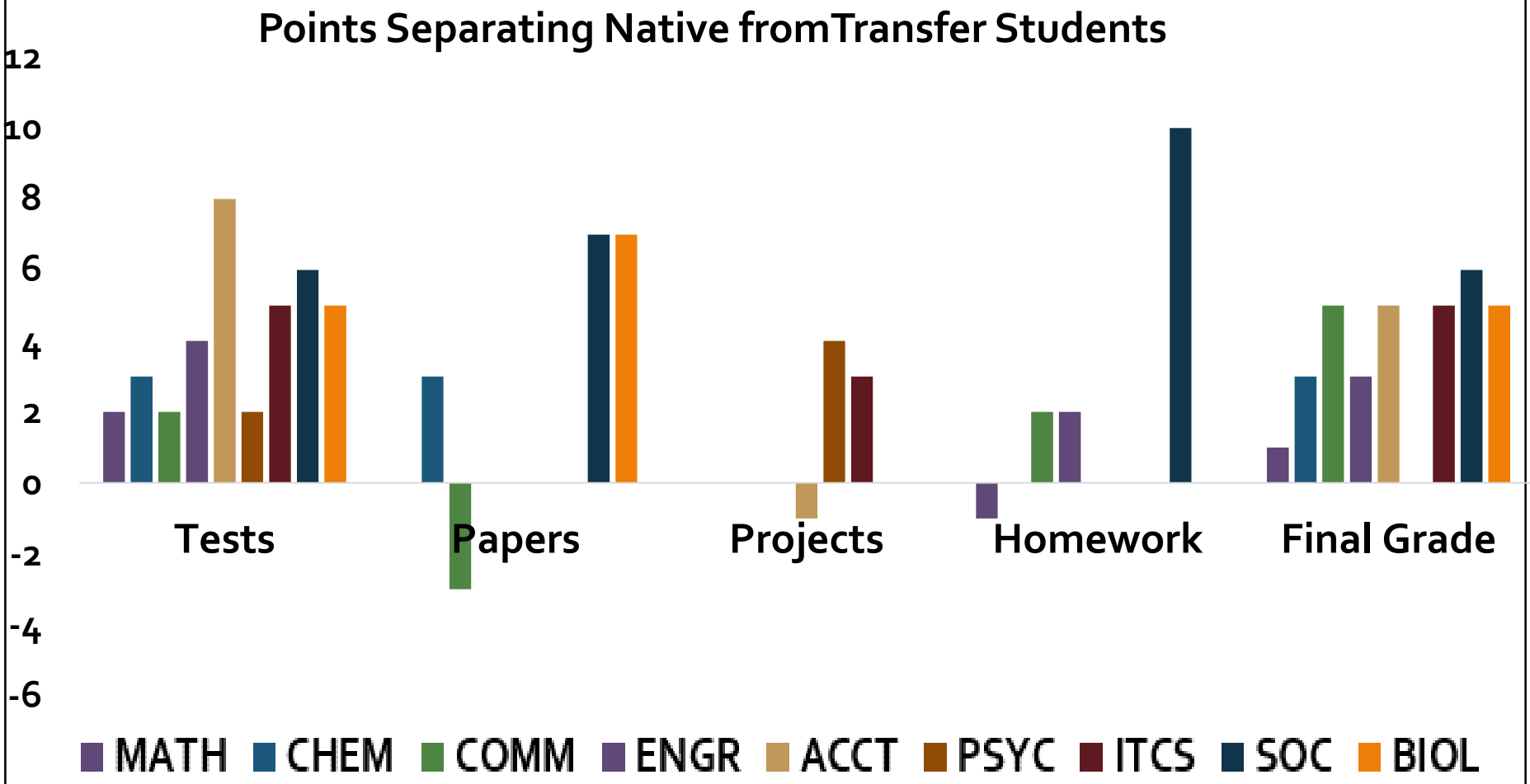
Answer the following questions:

1) For which classes do the final grades tell the same story as the assignment grades (look at significant and non-significant differences)?
2) For which classes do different assignments result in different patterns of performance than final grades (look at significant and non-significant differences)?
3) Can you identify any particular type of assignment that might be showing evidence of achievement gaps?
4) What else would you want to know?
5) Pick a class from the handout and outline some questions and suggestions you might have for the faculty member who teaches the class.
6) What other observations did you make?

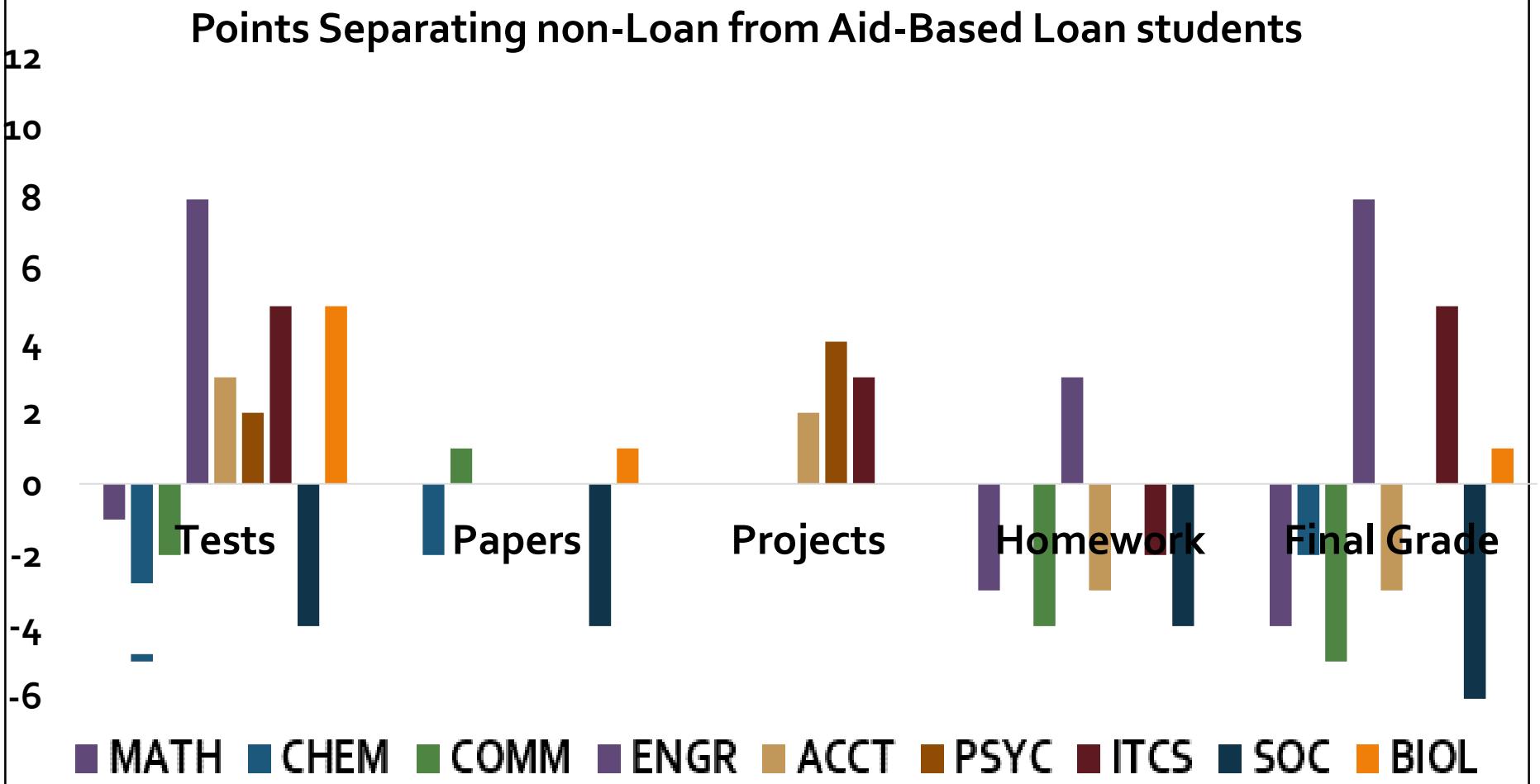
URM Results



Transfer Student Results



Aid-Based Loan Student Results



Summary

Frequent Achievement Gaps

- Tests
  - Low stakes or high stakes
  - Multiple choice or open ended
  - Open-book and Online
- Low-Stakes Homework, Writing, and Projects
- Formal Writing

Fewer Achievement Gaps

- Writing
  - Writing in the discipline
  - Reflective writing
  - Inclusive projects
- Oral Report
- Group Project

CONCLUSIONS & NEXT STEPS

Next Steps

- Disaggregation of responses to different forms of assessment reveals importance of
  - Aligning assessments with teaching and SLOs
  - Attending to context
- Faculty Workshops
  - Differentiated Assignments/Assessments
    - Utility Value and Inclusive Content
  - Implicit Bias
- Scale project to other courses and programs
- Determine if achievement gaps reflect assessments or competence

Discussion

If achievement gaps exist on your campus, after hearing this talk, what new ways might you use to investigate these gaps?

- Who would you include in the conversation?
- What are approaches you could take to determine whether gaps reflect assessments or competence?
- What would next steps include to address gaps that result from each?

SPECIAL THANKS

UNC Charlotte Academic Affairs

Arna Erega

Students and Faculty

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