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CCCCO Assessment Training for Local Colleges: Day 2 October 20, 2022

> Jessica L. Jonson, PhD Maria Elena Oliveri, PhD

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A11Y 11/23/22

# **Training Objectives**

Requirements & expectations for local college assessment applications

- CCC Standards for Assessment Instrument Review: English as a Second Language (2022)
- Criteria for review:
  - Fairness
  - Validity
  - Reliability
  - Accommodations
  - Administration and Scoring





# Agenda: Training Sessions

#### **Assessment Standards Webinar**

#### Day 1: Wed., Oct 19<sup>th</sup> 8:30 am – 12 pm

Content/Topic	Approx. Time	Lead Presenter
Welcome/Context setting	5 minutes	VC Lowe or Chantee
Application overview	25 minutes	Jessica
Validity overview & content validity	45 minutes	Jessica
Criterion validity	45 minutes	Jessica
Consequential validity	45 minutes	Jessica
Reliability	45 minutes	Malena

#### Session 2: Thur., Oct 20<sup>th</sup> 8:30 am – 12 pm

-		
Content/Topic	Approx. Time	Lead Presenter
Fairness overview & panel reviews	45 minutes	Malena
Fairness – Disproportionate impact	45 minutes	Malena
Administration considerations	10 minutes	Jessica
Accommodations	10 minutes	Malena
Scoring considerations	10 minutes	Jessica
Setting cut scores	50 minutes	
Next steps	Malena	
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Conceptual overview of each criteria

# Outlines requirements/expectations for criteria from CCC Standards (2022)

# Provide applied examples to provide further guidance







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# **Fairness Overview**

#### Maria Elena Oliveri, PhD

#### What Is Fairness?

- A test that is **fair** provides:
  - valid score-based inferences for the intended use(s) of the test for individuals from all relevant subgroups.
  - minimizes construct-irrelevant variance associated with individual or group characteristics and testing contexts.
- A test that is **unfair**:
  - produces construct-irrelevant variance for some test-takers.





Fairness As Absence of Bias: Potential Sources of Bias

In the case of an ESL placement test, a fair test

- Assesses the skill(s) needed to respond to an item on the focal construct (e.g., English language proficiency) and tries to eliminate construct-irrelevant variance:
  - Knowledge of technical or sports-related vocabulary (e.g., lacrosse, baseball)
  - Offensive or sensitive topics (e.g., war, natural disasters)
  - Mode (e.g., paper- vs. computer-administered)
  - Formatting (small font that is hard to read)





#### Fairness And Accessibility

- Fairness considerations should also include <u>accessibility</u>.
- Accessibility means that all test takers (not just test takers from a specific subgroup) have an unobstructed opportunity to demonstrate their standing on a construct of interest.
- A design approach widely known for incorporating accessibility considerations is **universal design**.





# Suggested Attributes of A Fair Test

Consider fairness in all steps in the testing process

- Not only design and development but also administration, scoring, use, and interpretation
   Potential fairness threats
- test context if it is unfamiliar to test-takers
- lack of familiarity with response formats
- no opportunity to learn in classroom but tested





## Cautions

- Difficult items do not equal biased items
- Any topic can be potentially upsetting in some circumstances for some test takers --> avoid overextending guidelines
- Specific knowledge can be irrelevant for one testing purpose but relevant for another (e.g., everyday English language proficiency vs. knowledge of technical terms)





# CCC Standards: Fairness (pp. 14-17)

<u>Fairness panel review</u>: A panel evaluates all test items, prompts, tasks and rubrics. The panel includes culturally and linguistically diverse reviewers in alignment with the largest cultural and linguistic groups attending the local college. Items are evaluated qualitatively to detect sources of construct-irrelevant variance (unfamiliar contexts, offensive, or sensitive topics).

#### AND

<u>Empirical review</u>: involves analysis of disproportionate impact; however, might also include other analyses such as differential item functioning or qualitative studies (e.g., cognitive interviews).

Might also include other considerations (e.g., the use of universal design in development; fairness reviews of other assessment development phases - administration, scoring, recommended interpretation and use)





# **QUESTIONS?**

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# Fairness Review

#### Maria Elena Oliveri, PhD

#### Fairness Review: Overview

- Qualitative review/evaluation of items, prompts, tasks, and rubrics to identify sources of construct-irrelevant variance (unfamiliar contexts, offensive or sensitive topic).
- The review is conducted by a representative panel of culturally and linguistically (C/L) diverse reviewers matching the largest C/L groups attending the local college.





#### Fairness Review: Overview

- Describe panel qualifications/background (min. 2 reps from each C/L group of ESL students).
- Panel should be independent of item writers and test developer.
- Describe the process for conducting the panel review in detail (when the panel was convened, materials reviewed).
- Summarize the results and actions based on the results (removal, revision, or retention of items).
- Provide conclusions and summarize recommendations.



# CCC Standards (pp. 14-17). Doc. Requirements

- Provide evidence that:
  - the test has been reviewed for potential fairness issues
  - empirical studies have been conducted to identify potential fairness issues for individuals from relevant subgroups





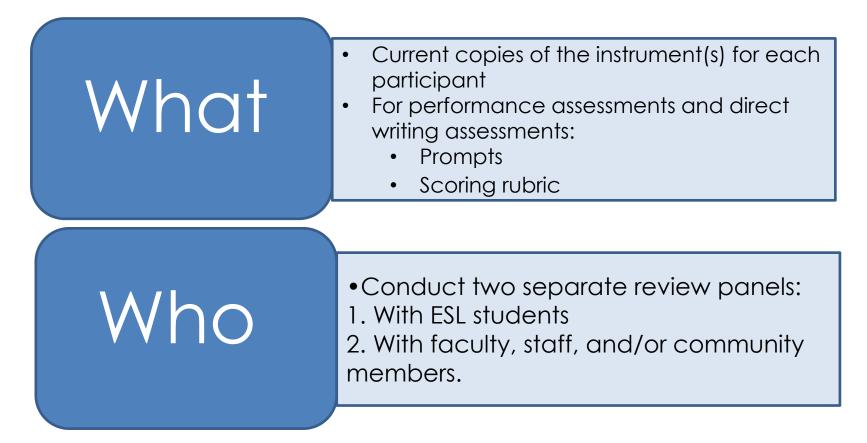
# Fairness: Submission Requirements (pp. 14-17)

- New Submissions: Fairness reviews are required.
  - Probationary: A panel review was conducted but only partially meet requirements.
- Renewal Submissions: Fairness reviews are required if the test items, format, administration has changed or if the local college's ESL population has a new cultural, linguistic group that was not represented in a previous fairness panel and now represents 2%+ of the local college's population.
- Provide a rationale if test has not changed and will not conduct a new fairness review.





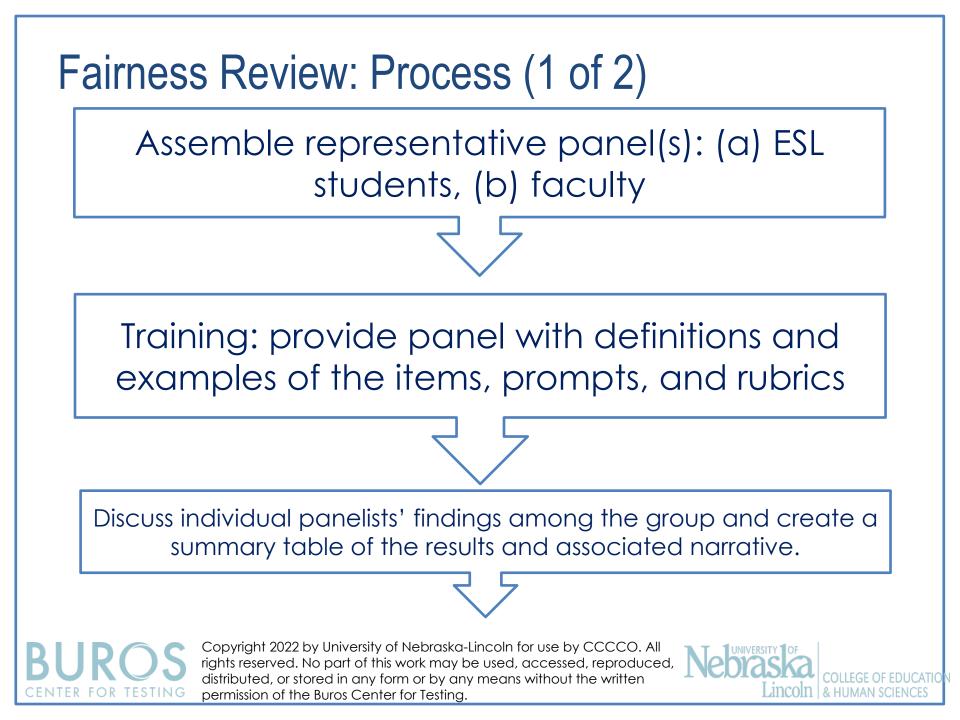
# Fairness Review: individuals And Materials



**Note**: If conducting two panels is not possible, ESL students should constitute more than 50% of the panel members on the single panel. Also, indicate the steps taken to help ensure faculty's or staff's presence does not inhibit ESL students from voicing their fairness concerns.







# Fairness Review: Process (2 of 2)

Identify the number of panelists that determined the items, prompts, tasks, scoring rubric to be (un)fair, discuss why, decide on actions for those materials (remove, revise, retain).

College considers panelist findings and input when making relevant decisions.

Write summary findings, conclusions, and recommendations.





## Potential Sources Of Construct-Irrelevant Variance

- **Cognitive**: The item includes information that is unnecessarily cognitively complex.
  - The item assesses technical knowledge of automatives in an English proficiency test (e.g., what is an axle?).
- Affective (Emotional): The item includes information that is unnecessarily emotional.
  - The item asks students to recall emotionally-heavy experiences to express language proficiency.
- **Physical:** The item includes information that presents physical barriers.
  - The item asks students who are visually impaired to describe a diagram or photo.





## **Examples of Items Posing Fairness Issues**

 Tests should not contain materials inciting hatred or contempt for people based on age, atypical appearance, citizenship status, disability, ethnicity, gender (including gender identity or gender representation), national or regional origin, native language, race, religion, sexual orientation, or socioeconomic status.





### Fairness Review: Report Outline

- Fairness Review
  - When was the study conducted
  - Who were the participants
  - How was the fairness review conducted
    - Brief description of the study procedures
    - Training materials
    - Rating form
    - Discussion process
  - What were the results and consequences
    - Individual results
    - Group results
    - Course of action such as item modifications or item removals





## Fairness Review: Analysis Considerations

- Are there sources of construct-irrelevant variance?
- What are those potential sources?
- Do those items lead to increased complexity/difficulty to answer the items?





# Fairness Review: Common Error/Omissions

Panelists/panels:

- Group membership is not described
- Do not include a major C/L group
- Include individuals with conflicts of interest

Process:

- Fairness reviews are not conducted item by item;
- Judgments are made for the whole test

Results:

- Are not reported for each affected group
- Are ignored (no course of action)
- Miss information (e.g., no rationale for continued use of flagged items)
- Individual panelist reviews are excluded in favor of focusing on the overall panel review

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# **Empirical Fairness**

#### Maria Elena Oliveri, PhD

#### **Disproportionate Impact: Overview**

Disproportionate impact (DI) occurs when the percentage of persons from a particular group, who are directed to a particular service or course placement, is **significantly different** from the representation of that group in the assessed population and that is **not justified by empirical evidence**.





### Indices For Disproportionate Impact

- Proportionality Index: Compares a demographic group's representation across the college to the same demographic group's representation among those achieving a particular educational outcome.
- 80-percent Index (four-fifths rule) Equal Employment Opportunity Commission (EEOC); cutoff of 80% ratio.





#### **EEOC's Four-Fifths Rule**

A selection rate for any race, sex, or ethnic group which is less than four-fifths (4/5) (or eighty percent) of the rate for the group with the highest rate will generally be regarded by the Federal enforcement agencies as evidence of adverse impact, while a greater than four-fifths rate will generally not be regarded by Federal enforcement agencies as evidence of adverse impact."





# Empirical Fairness: Doc. Requirements (p. 16-17)

**A DI study is required**. Additionally, can include DIF, cognitive interviews, mixed methods fairness studies.

Must describe:

- study sample and provide demographic comparison of the study sample and local college population (rep sample of ESL students from cultural, linguistic group of ESL students at the college).
- study methods (describe data, time of data collection).
- results and actions based on the results.
- conclusions and summarize recommendations.





#### **Empirical Fairness: Documentation Requirements**

- Continuously monitored/evaluated

   Maintain records of student placement data
   Evaluate every 3 years
- When DI observed,
  - Implement plan for correcting DI





# DI: Submission Requirements (pp. 16-17)

**New Submissions**: Results from a disproportionate impact (DI) study and plans for mitigating any potential DI found are required.

Probationary Approval can be obtained if a local college submits an acceptable plan for conducting a DI study.

**Renewal Submissions**: Results from a disproportionate impact (DI) study and plans for mitigating any potential DI found are required.





#### **Disproportionate Impact: Process**

Collect data until the sample size is large enough for student groups of interest to have 30 students **minimum** 

Determine the percent of students in each impacted group recommended into each course

Divide minority percent placement rate into upper-level courses by majority percent placement rate into the same courses

> Ratio below 80% = evidence of disproportionate impact





## **DI Example**

	-	-	-		
	White and	<b>Hispanic and Latino</b>	<b>Black and African</b>		
	<b>European American</b>	American	American		
ENG 101	100	300	500		
ENG 201	600	500	300		
ENG 301	300	200	200		

Step 1) Collect and aggregate placement data for desired demographic variables.

А	В	C	U	E	F	G
	White and		<b>Hispanic and Latino</b>		<b>Black and African</b>	
	<b>European American</b>	Percent	American	Percent	American	Percent
ENG 101	100	10	300	30	500	50
ENG 201	600	60	500	50	300	30
ENG 301	300	30	200	20	200	20
Total	1000		1000		1000	

Step 2) Calculate the Percentage of students placed in each course for each group. This can help provide guidance for what comparisons to make.





# **DI Example (Continued)**

	Α	В	С	D	E	F	G	н	I.
		White and		<b>Hispanic and Latino</b>		HispLA:White	<b>Black and African</b>		BlackAA:White
1		<b>European American</b>	Percent	American	Percent	EA	American	Percent	EA
2	ENG 101	100	10	300	30	3.00	500	50	5.00
3	ENG 201	600	60	500	50	0.83	300	30	0.50
4	ENG 301	300	30	200	20	=D4/B4	200	20	=G4/B4
5									
6	Total	1000		1000			1000		
7									

Step 3: Calculate the proportion of students placed in each course between each subgroup of interest and the reference group.

	Α	В	С	D	E	F	G	Н	I
		White and		Hispanic and Latino		HispLA:White	<b>Black and African</b>		BlackAA:White
1		<b>European American</b>	Percent	American	Percent	EA	American	Percent	EA
2	ENG 101	100	10	300	30	3.00	500	50	5.00
3	ENG 201	600	60	500	50	0.83	300	30	0.50
4	ENG 301	300	30	200	20	0.67	200	20	0.67
-									

Step 4: Interpret. Proportions **less than .80**, or **larger than 1.25**, are evidence of potential disproportionate impact. Proportions larger than one indicate an overrepresentation of a group in that course.



#### **Disproportionate Impact: Analysis**

Colleges must evaluate fairness of test, look for causative factors of differential placement, and consider steps to increase fairness: • When proportion of placement between minority group and majority group is below .80 or higher than 1.25.





### Disproportionate Impact: Errors/Omissions

- Not all required C/L groups are included in the plan or analysis
- No steps to explore the cause of or minimize disproportionate impact are outlined
- Data were not collected within the last threeyear period
- Inappropriate design or analysis is used





## Empirical Fairness Review: Differential Item Functioning (DIF)

#### Optional

- Analyze whether groups matched on ability (e.g., based on test score) have a similar chance of responding to an item.
- Statistically flag items that may function differentially across groups.
- Use additional methods (e.g., cognitive interviews) to detect potential sources of DIF and potential bias.
- Bias (sources of construct-irrelevant variance).
- Item impact: actual differences on performance across groups matched on ability.





#### **DIF Studies: Mantel-Haenszel Statistic**

Frequently reported (but not solely) – Needs large samples sizes

#### Reference Groups (e.g., whites, English first language)

 When there is no clear reference group (e.g., for ESL examinee population), the group with the best performance should be used as the reference group (e.g., whites).

#### Focal Groups (e.g., Hispanics)

- Focus of the Standards is ESL placement tests: consider the panelists' linguistic and cultural background.
- Include representative samples from each major C/L group of ESL students at the college.





#### **DIF Studies: Mantel-Haenszel Statistic**

Results in terms of direction:

- Negative values: item more difficult for focal group
- Positive values: item more difficult for reference group

#### Results magnitude:

A – little to no difference (typically retained)
B – Small to moderate difference (removal/retention depends)
C – greatest difference (item is dropped or revised unless content is critical)



#### CCC Standards: CAT And Performance

- Computer-Adapted Tests: Use different methods for analyzing group differences at item and test level
- Performance assessments: comparing scores of two groups across multiple points.





### **QUESTIONS?**

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#### **Administration Considerations**

#### Jessica L. Jonson, PhD

#### **Administration Overview**

In order to increase the validity, reliability, and fairness of a test, administration conditions in most cases need to be standardized.

• Exception: Students who need accommodations (more later)

Standardization requires clear, accurate, and complete instructions for how to administer (and score) the test.





### Administration: Documentation Req (pp. 25-26)

- Document who, how, and in what context administration of the test should occur.
  - Administer qualifications, if required
  - Instructions for administrators
  - Addressing test disruptions
  - If time limits, provide rationale
  - Additional considerations if test is computerbased, computer-adapted, or multiple administration formats





Administration: Submission Requirements

- New submissions: Description required
   Probationary: Description required
- Renewal submissions: Description required





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### Accommodations

#### Maria Elena Oliveri, PhD

#### Accommodations: Overview

- ESL students with disabilities may require test accommodations to minimize barriers irrelevant to measuring students' English proficiency.
- Such barriers may be found in:
  - test content,
  - setting,
  - instructions,
  - response format,
  - access
  - opportunity to learn
- Recognize students' needs for accommodations and ways to provide them. If the test/test administration is altered for a student who cannot take it under standard conditions, document any accommodation used.





#### Accommodations: Overview

- Accommodations: Adaptations made to the design of an assessment or its administration that do not alter the measurement of the underlying construct or score-based interpretations.
- Adaptations: Changes made to a test's design (content, format, or test administration) to increase access to the test content.





Accommodations: Examples

- Read aloud
- Allowing extra time, providing extra breaks
- Providing a scribe
- Altering visual (colored overlay)
- Audio amplification equipment
- Visual magnifying equipment
- Braille
- Noise buffers
- Testing in small settings





### Accommodations: Overview/Considerations

- The test manual should contain clear, explicit, and easy to understand instructions for the test proctors to reduce sources of error and make clear the test takers' rights and responsibilities.
- Test proctors/administrators should read verbatim any scripts, instructions, or examples provided for test administration in the test's accommodated/adapted form.
- All test accommodations should be developed and documented to allow for the valid measurement of the targeted construct for members of all C/L groups.
- Prior to any test administrations, determine the kinds of allowable accommodations that can be made for test takers.
- Procedures regarding the ways in which the accommodations will be implemented should be established prior to test administration.





### Accommodations: Documentation Req. (p. 24-25)

#### Review the accessibility of the ESL placement test.

- Prior to administering the test to an ESL student with a disability, have the test reviewed by an individual with expertise in testing individuals with disabilities. If a review occurred, provide a summary of the expert's findings and accommodation(s) recommended.
  - If the test is computer-based, conduct a review of the procedures used to help ensure accessibility and describe the features included in the test that improve its accessibility for students with disabilities.

#### Provide documentation for each accommodation (e.g., extra time or modification to the test) that is provided to an ESL student with a disability.

- Provide a justification for the accommodation. When possible, use personnel who have been specifically trained in working with students with disabilities to administer the test and the accommodation.
- If validity and reliability data for test scores resulting from accommodated testing conditions are not available, indicate if other measures or information were also used in making the placement decision or what cautions were taken when interpreting and using the score for placement decisions.





### Accommodations: Submission Req

- New Submissions: Information about the process and procedures used to review the accessibility of the test and provide accommodations for students with disabilities is required.
  - <u>Probationary Approval</u> Documentation is provided but only partially meets requirements.
- Renewal Submissions: Information about any changes in the process and procedures used to provide accommodations for students with disabilities is required along with any documentation of accommodations that occurred since the last review of the test.



### **QUESTIONS?**

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### **Scoring Considerations Setting Cut Scores**

#### Jessica L. Jonson, PhD

#### Scoring: Overview

Important to specify and standardize scoring procedures as well as administration procedures to improve validity, reliability, and fairness

- Particularly true for performance assessments given scoring is more subjective
- Important step in scoring is setting cut score





### Scoring: Documentation Req. (p. 26-27)

- Describe the scoring process
  - Describe training of scorers
  - Provide processes (e.g., who scores and how) and criteria (e.g., scoring rubric) for scoring subjective assessments
  - Additional documentation if multiple prompts/tasks/forms or scoring involves an algorithm
- Description and rationale for setting cut scores (more in a minute)
- Describe information included in score reports for CCC faculty/staff as well as student and guidance given for interpreting scores for placement decisions





### Scoring: Submission Req

• New submissions: Required

 Probationary approval: Study for setting cut scores completed

- Renewal submissions: Required
  - Probationary approval: Documentation and rationale of cut scores were adjusted as a result of validity studies





#### Setting Cut Scores: Formal Definition

... proper following of a prescribed, rational system of rules or procedures resulting in the assignment of a number to differentiate between two or more states or degrees of performance -Cizek (1993)

#### Two key terms:

**KSAs:** Knowledge, skills, and abilities form a continuum

**Borderline**: person possesses just enough to "pass"





#### Setting Cut Scores: Overview

- AKA "standard setting" or "mastery levels"
- Identifying 1 or more scores divide examinees' test performance into 2 or more classifications or categories Example: pass/fail, ESL 1/ESL 2/Transfer level composition
- Compare performance in terms of content mastery of KSAs
- Consequential for students use data and informed judgments not arbitrary

#### GOAL: defensible and valid cut scores

 Students who score above a cut score have a higher level of success in the course they were placed in than ESL students placed in a lower course because they scored lower than that cut score





#### Setting Cut Scores:

### Documentation Requirements (p. 26-27)

- 1. Describe credentials/qualifications of participants
  - Individuals' familiar with ESL student learning
- 2. Describe the process used
  - Test-based (or student-based) approach
  - Use entry-level skills for each ESL course
- 3. Report resulting cut scores for each placement decision

#### Rationale for those results





### Setting Cut Scores: Submission Requirements

#### New submissions: Required

- Probationary:
  - Study conducted

# **Renewal submissions**: Required only if cut scores were adjusted as a result of validity studies





#### **Content/Performance Standards**

- Content Standards (KSAs): What examinees are expected to know and be able to do?
- For each content standards, establish performance level descriptors (PLD) for each one.
  - Describe the KSAs that entry-level students in each ESL course should possess?





#### Example PLDs

Content Standard (KSAs)	ESL 1	ESL 2	Transfer Level Composition
Located details in text	Locate obvious details	Locate details in longer passage	Make distinction among details to make complex inferences
Identify main ideas in text	Identify main ideas explicitly stated	Paraphrase main ideas	Understand and analyze literal and figurative language
Draw conclusions and make interpretations	Draw simple conclusions presented with obvious support	Provide literal interpretations	Make interpretations that go beyond text





### PLD (Rubric) Guidelines

- Each must describe explicit skills expectations, strengths, deficits, etc.
- Must use specific, concrete language to describe performance, not global statements
- Developed using input and suggestions from all faculty





#### Fairness Review: individuals And Materials

Panel of 3 or more faculty familiar with content and students

What

Who

Entry-level skills for each course (PLDs), copies of test with answer key, rating form/data sheet





#### **Cut Score Studies: Process**

Discuss course entry-level skills and expectations – identify content standards (KSAs)

> Establish performance level definitions (PLDs) of minimally qualified student for each course

> > (Optional) Ask faculty panelists to take the test to get a sense of scope and difficulty levels



#### Modified Angoff: Objective Assessments Each faculty identify a student who barely achieves PLDS at each course level Independently judge each item's difficulty, and decide whether a minimally qualified student could answer correctly at each course level Discuss individual evaluations of difficulty allowing for modification in item ratings Sum number of points for each course level and record at the bottom. Use to determine minimum cut score and record score range for each course Discussion of proposed final cut score ranges and adjustments Copyright 2022 by University of Nebraska-Lincoln for use by CCCCO. All rights reserved. No part of this work may be used, accessed, reproduced, distributed, or stored in any form or by any means without the written permission of the Buros Center for Testing,

#### Modified Angoff: Objective Assessment Example

Modified Angoff- Individual Rating Sheet			
Item #	Minimally Competent Student – ESL 1	Minimally Competent Student – ESL 2	Minimally Competent Student – Transfer Level composition
1		Yes	
2			Yes
3	Yes		
4			Yes
5		Yes	





#### Modified Angoff: Objective Assessment Example

Modified Angoff- Individual Rating Sheet			
Item #	Minimally Competent Student – ESL 1	Minimally Competent Student – ESL 2	Minimally Competent Student – Transfer Level composition
1		Yes	
2			Yes
3	Yes		
4			<mark>Yes</mark>
5		Yes	

CONVERSION of above ratings			
1	0	1	1
2	0	0	1
3	1	1	1
4	0	0	1
5	0	1	1
Total	1	3	5
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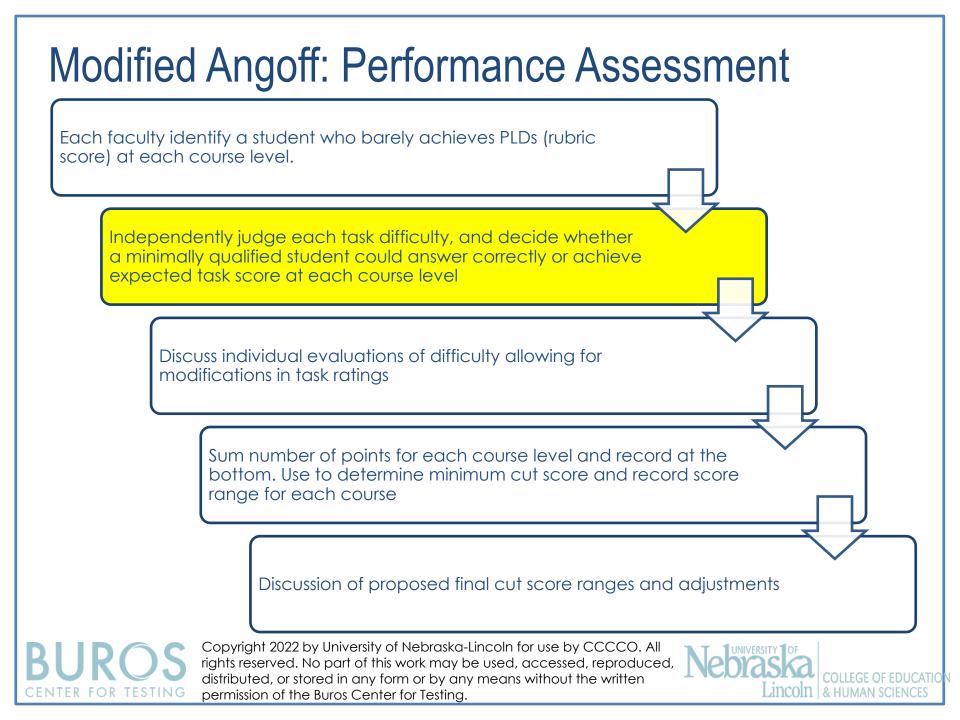
### Modified Angoff: Objective Assessment Example

Modified Angoff- Individual Rating Sheet			
Item #	Minimally Competent Student – Course 2	Minimally Competent Student – Course 3	Minimally Competent Student – Course 4
1		Yes	
2			Yes
3	Yes		
4			Yes
5		Yes	

CONVERSION of above ratings			
1	0	1	1
2	0	0	1
3	1	1	1
4	0	0	1
5	0	1	1
Total	1	3	5







### Modified Angoff: Performance assessment example

Panelist	Minimally Competent Student – ESL 1	Minimally Competent Student – ESL 2	Minimally Competent Student – Transfer Level Composition
1	1	3	5
2	2	3	4
3	1	4	5
Average	1.33	3.33	4.67
Rounded Average	1	3	5

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### Setting Cut Scores: Validation & Adjustment

Do the final cut scores provide clear-cut and reasonably differentiated cut points for making cut score decisions?

- Cut points progressively higher
- Decisions between placement levels not based on only a few items

Do results agree with content validation (table of specifications and alignment study results)?

Ask panelists how confident they are in the final cut scores

Use criterion and consequential validation evidence to assess whether the cut scores are accurately placed. - Would system improve if the cut scores were raised or lowered?





# QUESTIONS?

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#### **Next Steps**

### Next Steps: Preparing Your Submission For 2023

Keep probationary expectations for new submissions in mind (Appendix D, Table 1, CCC Standards 2022)

Step 1: Prepare for fairness review, content alignment, setting cut scores

- Identify individuals
- Collect/create needed materials
- Schedule those processes

Step 2: Conduct at least one reliability study

- If data exist, use it to run analysis.
- If data doesn't exist, start collecting data.
- Create a plan for conducting future relevant studies.
- Step 3: Create a plan for criterion validation studies
- Start collecting needed data.

Step 4: Create a plan for a consequential validation study.

• Start collecting needed data.

Step 5: Conduct or plan for a disproportionate impact study.

• If data exist, use it to conduct an analysis.

• If data does not exist, start collecting data and create a DI analysis plan. Step 6: Documentation for administration, scoring, and accommodations.





# QUESTIONS?

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