Assessing Core Competencies: Results of Critical Thinking Skills Testing

Graduating Seniors, 2016 Fall

University of Guam
Academic and Student Affairs
Office of Academic Assessment and Institutional Research

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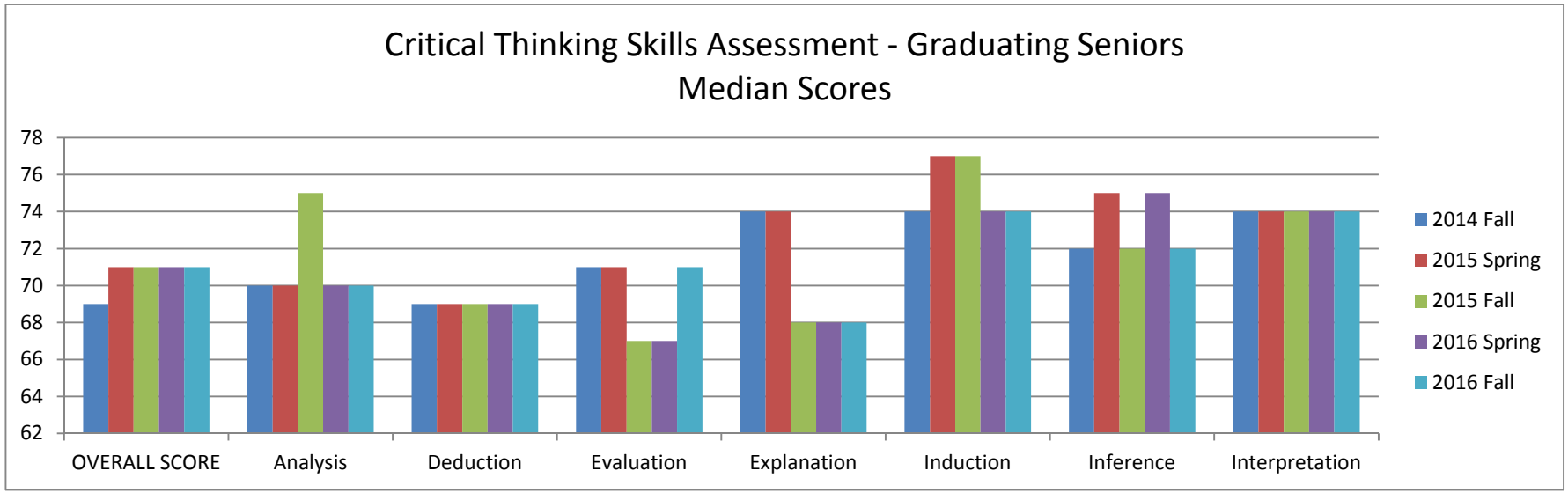
Critical Thinking Skills Assessment - Graduating Seniors

MEDIAN Scores

Skill/Attribute	2014 Fall	2015 Spring	2015 Fall	2016 Spring	2016 Fall	Five-Semester Average
N	153	251	153	275	172	200.8
OVERALL SCORE	69	71	71	71	71	71
Analysis	70	70	75	70	70	71
Deduction	69	69	69	69	69	69
Evaluation	71	71	67	67	71	69
Explanation	74	74	68	68	68	70
Induction	74	77	77	74	74	75
Inference	72	75	72	75	72	73
Interpretation	74	74	74	74	74	74
Aggregate sample of CCTST Four Year College Students, **average percentile score**:	29	32	30	31	30	30

MEAN Scores

Skill/Attribute	2014 Fall	2015 Spring	2015 Fall	2016 Spring	2016 Fall	Five-Semester Average
N	153	251	153	275	172	200.80
OVERALL SCORE	70.4	71.4	70.8	70.9	70.8	70.86
Analysis	71.9	73.2	73.0	73.0	72.9	72.80
Deduction	69.8	70.8	70.2	70.7	70.6	70.42
Evaluation	69.9	70.2	69.4	69.8	69.8	69.82
Explanation	71.0	71.1	71.1	71.1	70.8	71.02
Induction	75.3	76.1	75.7	75.3	75.1	75.50
Inference	72.9	74.5	73.4	73.6	73.1	73.50
Interpretation	75.8	76.7	77.2	76.4	76.4	76.50
Aggregate sample of CCTST Four Year College Students, **average percentile score**:	29	32	30	31	30	30



OVERALL

The Reasoning Skills Overall score describes overall strength in using reasoning to form reflective judgments about what to believe or what to do. High Overall scores are attained by test takers who excel in the sustained, focused and integrated application of core thinking skills measured on this test, including analysis, interpretation, inference, evaluation, explanation, induction and deduction. The Overall score predicts the capacity for success in educational or workplace settings which demand reasoned decision making and thoughtful problem solving.

INDUCTION

Decision making in contexts of uncertainty relies on inductive reasoning. We use inductive reasoning skills when we draw inferences about what we think is probably true based on analogies, case studies, prior experience, statistical analyses, simulations, hypotheticals, and patterns recognized in familiar objects, events, experiences and behaviors. As long as there is the possibility, however remote, that a highly probable conclusion might be mistaken even though the evidence at hand is unchanged, the reasoning is inductive. Although it does not yield certainty, inductive reasoning can provide a confident basis for sold belief in our conclusions and a reasonable basis for action.

EXPLANATION

Explanatory reasoning skills, when exercised prior to making a final decision about what to believe or what to do, enable us to describe the evidence, reasons, methods, assumptions, standards or rationale for those decisions, opinions, beliefs and conclusions. Strong explanatory skills enable people to discover, to test and to articulate the reasons for beliefs, events, actions and decisions.

INTERPRETATION

Interpretative skills are used to determine the precise meaning and significance of a message or signal, whether it is a gesture, sign, set of data, written or spoken words, diagram, icon, chart or graph. Correct interpretation depends on understanding the message in its context and in terms of who sent it, and for what purpose. Interpretation includes clarifying what something or someone means, grouping or categorizing information, and determining the significance of a message.

INFERENCE

Inference skills enable us to draw conclusions from reasons and evidence. We use inference when we offer thoughtful suggestions and hypotheses. Inference skills indicate the necessary or the very probable consequences of a given set of facts and conditions. Conclusions, hypotheses, recommendations or decisions that are based on faulty analyses, misinformation, bad data or biased evaluations can turn out to be mistaken, even if they have been reached using excellent inference skills.

EVALUATION

Evaluative reasoning skills enable us to assess the credibility of sources of information and the claims they make. And, we use these skills to determine the strength or weakness of arguments. Applying evaluation skills we can judge the quality of analyses, interpretations, explanations, inferences, options, opinions, beliefs, ideas, proposals, and decisions. Strong explanation skills can support high quality evaluation by providing the evidence, reasons, methods, criteria, or assumptions behind the claims made and the conclusions reached.

ANALYSIS

Analytical reasoning skills enable people to identify assumptions, reasons and claims, and to examine how they interact in the formation of arguments. We use analysis to gather information from charts, graphs, diagrams, spoken language and documents. People with strong analytical skills attend to patterns and to details. They identify the elements of a situation and determine how those parts interact. Strong interpretation skills can support high quality analysis by providing insights into the significance of what a person is saying or what something means.

DEDUCTION

Decision making in precisely defined contexts where rules, operating conditions, core beliefs, values, policies, principles, procedures and terminology completely determine the outcome depends on strong deductive reasoning skills. Deductive reasoning moves with exacting precision from the assumed truth of a set of beliefs to a conclusion which cannot be false if those beliefs are true. Deductive validity is rigorously logical and clear-cut. Deductive validity leaves no room for uncertainty, unless one alters the meanings of words or the grammar of the language.

Insight Assessment

Measuring Thinking Worldwide

Customer: Univ Guam - Assessment
Test/Survey: California Critical Thinking Skills Test - 10.1.10
Report Date: 11/16/2016 2:34:43 AM
Assignment: [redacted] 2016 Fall [redacted] Senior CCTST testing

California Critical Thinking Skills Test (CCTST). The CCTST measures the reasoning skills human beings use in the process of reflectively deciding what to believe or what to do.

Skill/Attribute Name	N	Mean	Median	Standard Deviation	SE Mean
OVERALL	172	70.8	71	6.1	0.5
Analysis	172	72.9	70	7.7	0.6
Interpretation	172	76.3	74	8.3	0.6
Inference	172	73.1	72	6.5	0.5
Evaluation	172	69.8	71	7.4	0.6
Explanation	172	70.7	68	8.8	0.7
Induction	172	75.1	74	6.4	0.5
Deduction	172	70.6	69	6.7	0.5

Skill/Attribute Name	Minimum	Maximum	Quartile 1	Quartile 3
OVERALL	57	92	67	75
Analysis	55	95	66	80
Interpretation	61	100	68	81
Inference	55	92	69	78
Evaluation	55	88	63	75
Explanation	55	100	63	74
Induction	58	97	71	79
Deduction	56	90	66	74

Based on the distribution of the overall score percentiles for the test takers in this group, as compared to an aggregate sample of CCTST Four Year College Students, the average percentile score of this group of test takers is 30.

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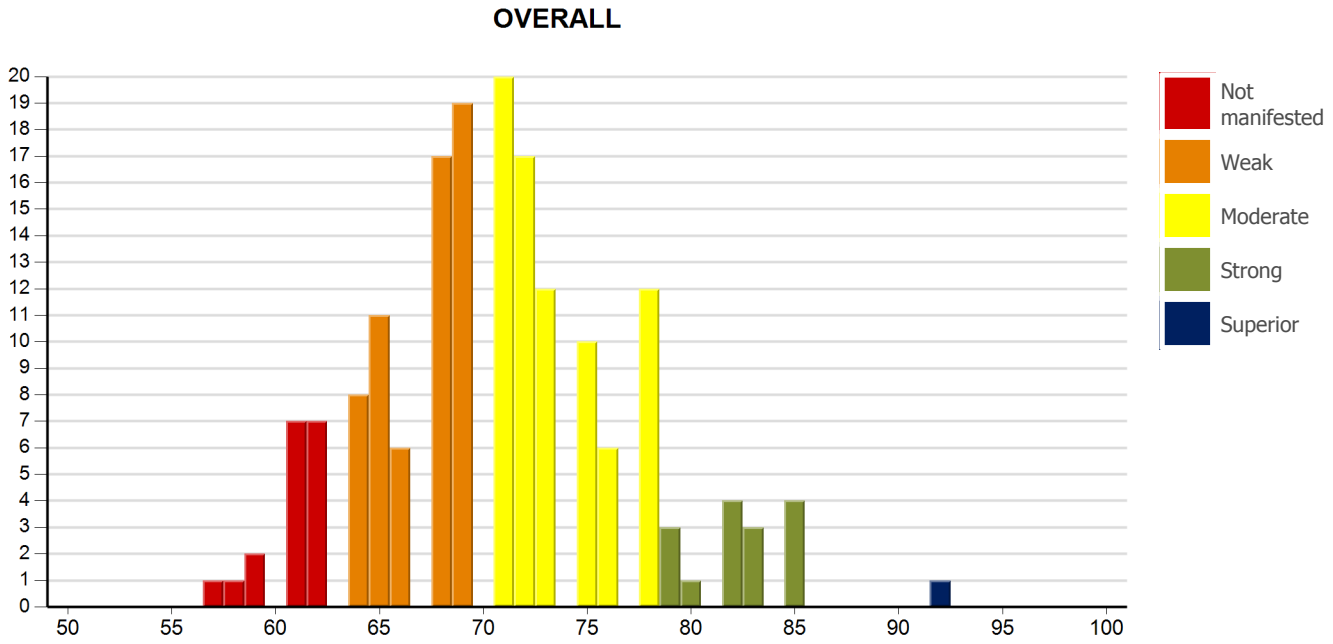
Descriptive Information: OVERALL

N	Mean	Median	Standard Deviation	SE Mean	Minimum	Maximum	Quartile 1	Quartile 3
172	70.8	71.0	6.1	0.5	57	92	67.0	75.0



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The descriptive information reported below indicates strengths and weaknesses in specific areas. These results are useful for understanding group characteristics, for comparing and contrasting similar groups on specific attributes or skills, and for guiding the development of more targeted educational or training programs.

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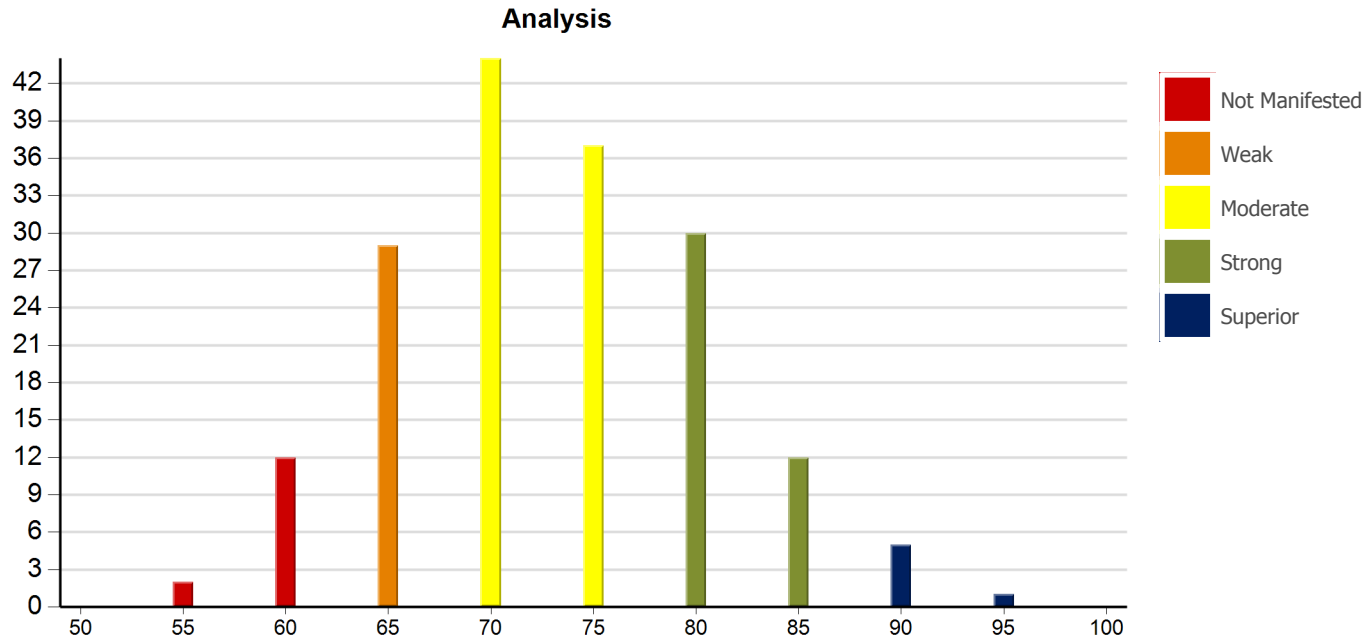
Descriptive Information: Analysis

N	Mean	Median	Standard Deviation	SE Mean	Minimum	Maximum	Quartile 1	Quartile 3
172	72.9	70.0	7.7	0.6	55	95	66.0	80.0



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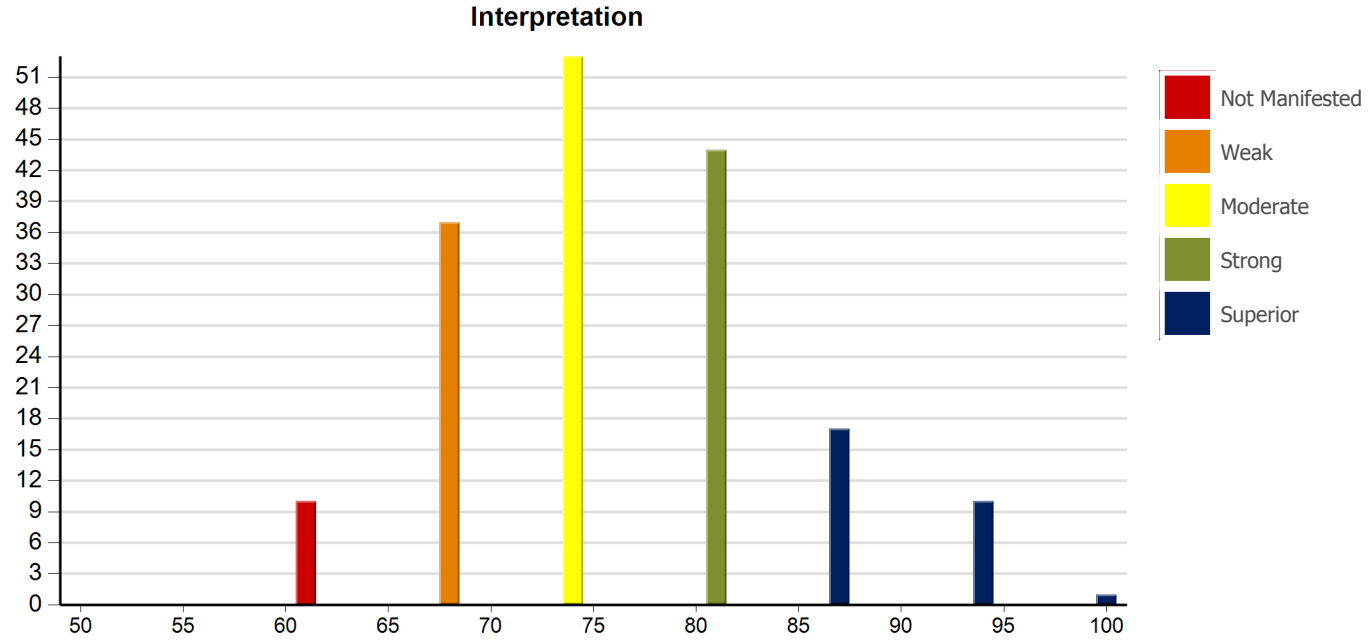
Descriptive Information: Interpretation

N	Mean	Median	Standard Deviation	SE Mean	Minimum	Maximum	Quartile 1	Quartile 3
172	76.3	74.0	8.3	0.6	61	100	68.0	81.0



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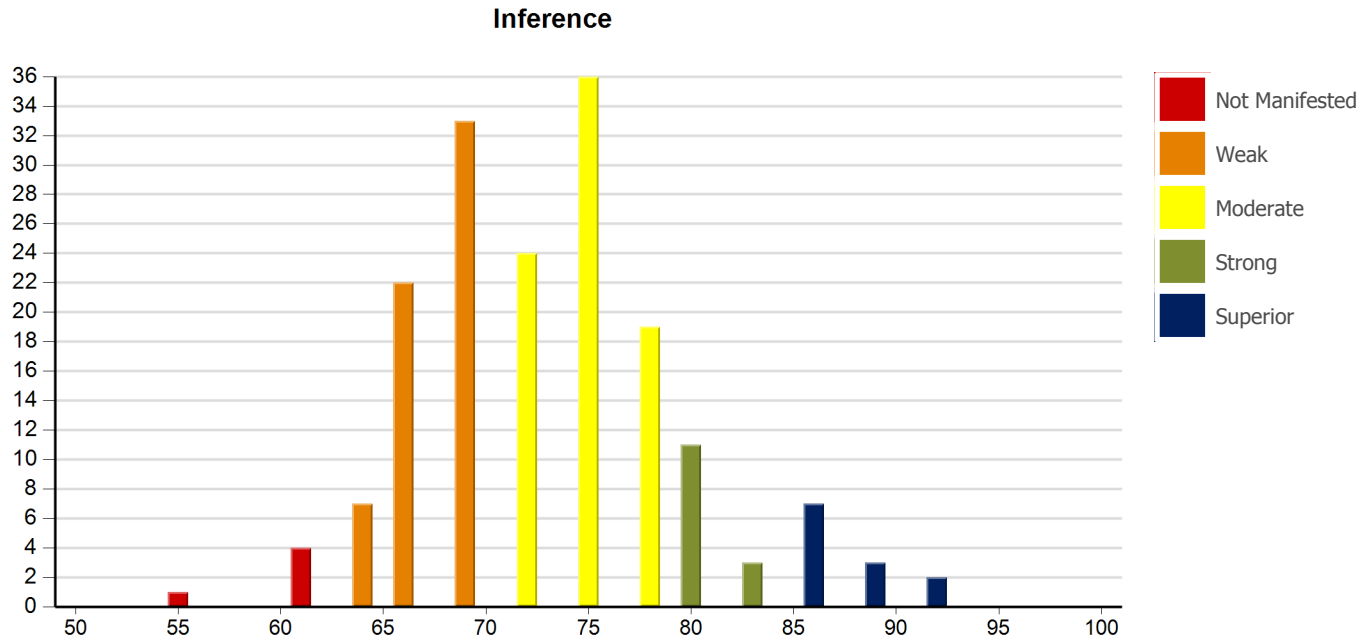
Descriptive Information: Inference

N	Mean	Median	Standard Deviation	SE Mean	Minimum	Maximum	Quartile 1	Quartile 3
172	73.1	72.0	6.5	0.5	55	92	69.0	78.0



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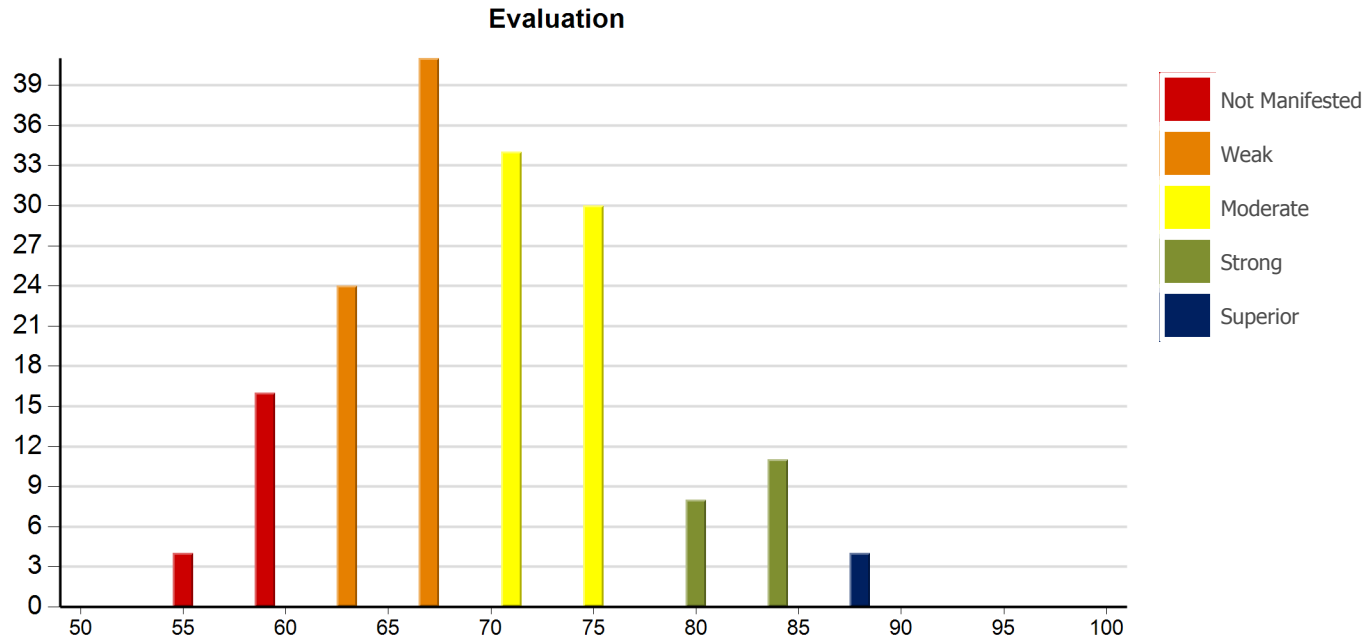
Descriptive Information: Evaluation

N	Mean	Median	Standard Deviation	SE Mean	Minimum	Maximum	Quartile 1	Quartile 3
172	69.8	71.0	7.4	0.6	55	88	63.0	75.0



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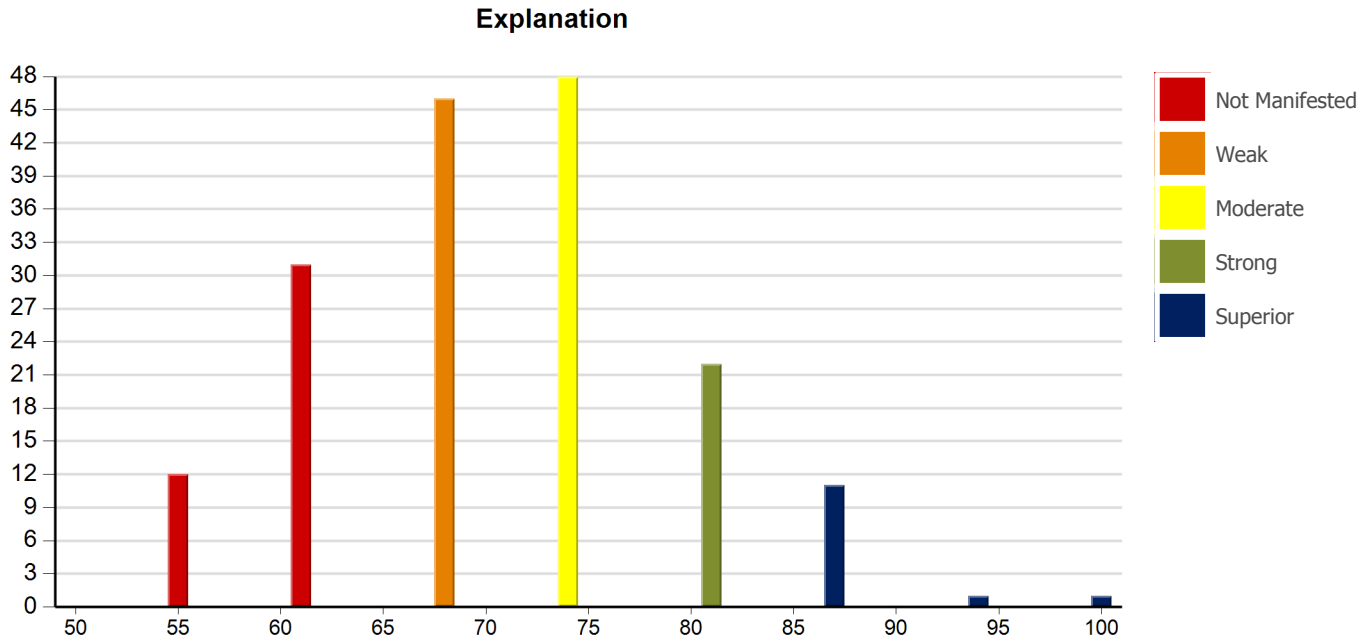
Descriptive Information: Explanation

N	Mean	Median	Standard Deviation	SE Mean	Minimum	Maximum	Quartile 1	Quartile 3
172	70.7	68.0	8.8	0.7	55	100	63.0	74.0



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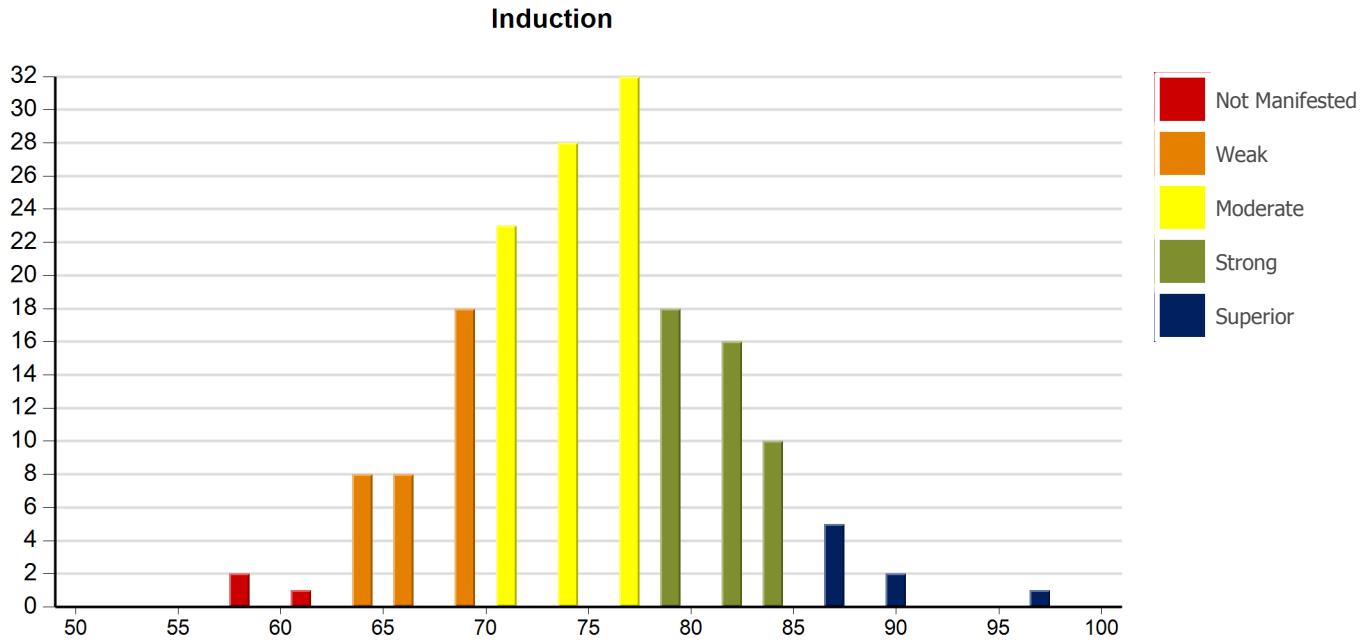
Descriptive Information: Induction

N	Mean	Median	Standard Deviation	SE Mean	Minimum	Maximum	Quartile 1	Quartile 3
172	75.1	74.0	6.4	0.5	58	97	71.0	79.0



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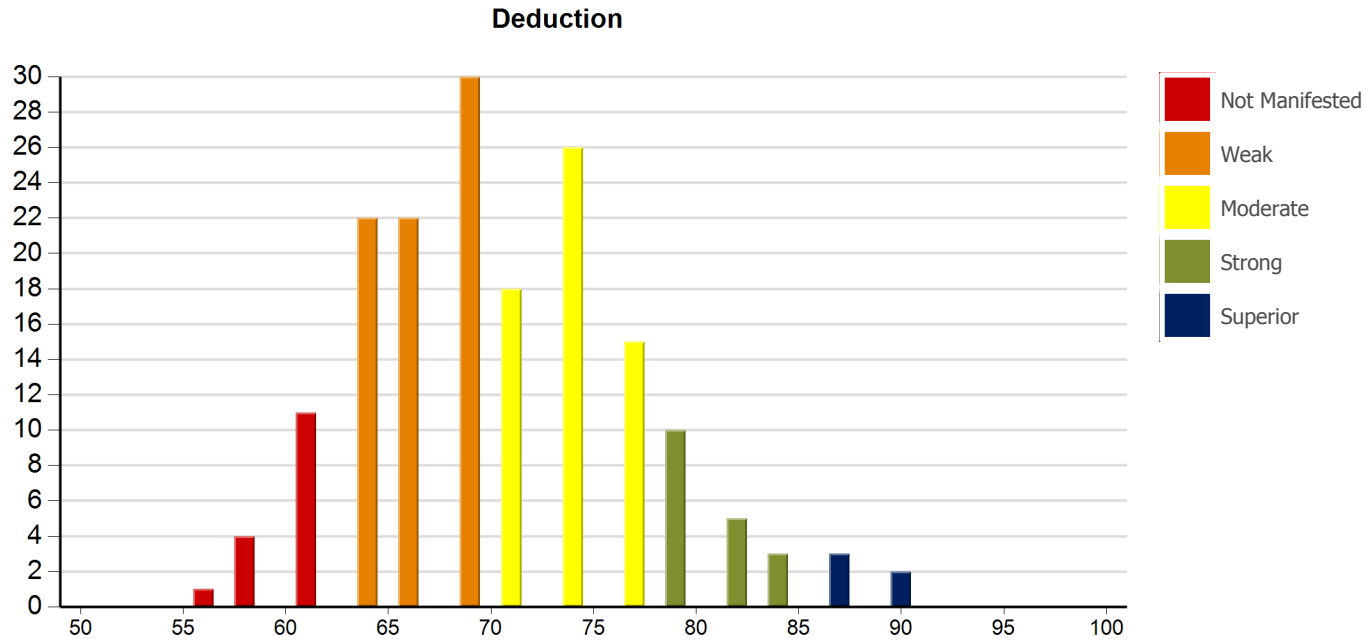
Descriptive Information: Deduction

N	Mean	Median	Standard Deviation	SE Mean	Minimum	Maximum	Quartile 1	Quartile 3
172	70.6	69.0	6.7	0.5	56	90	66.0	74.0



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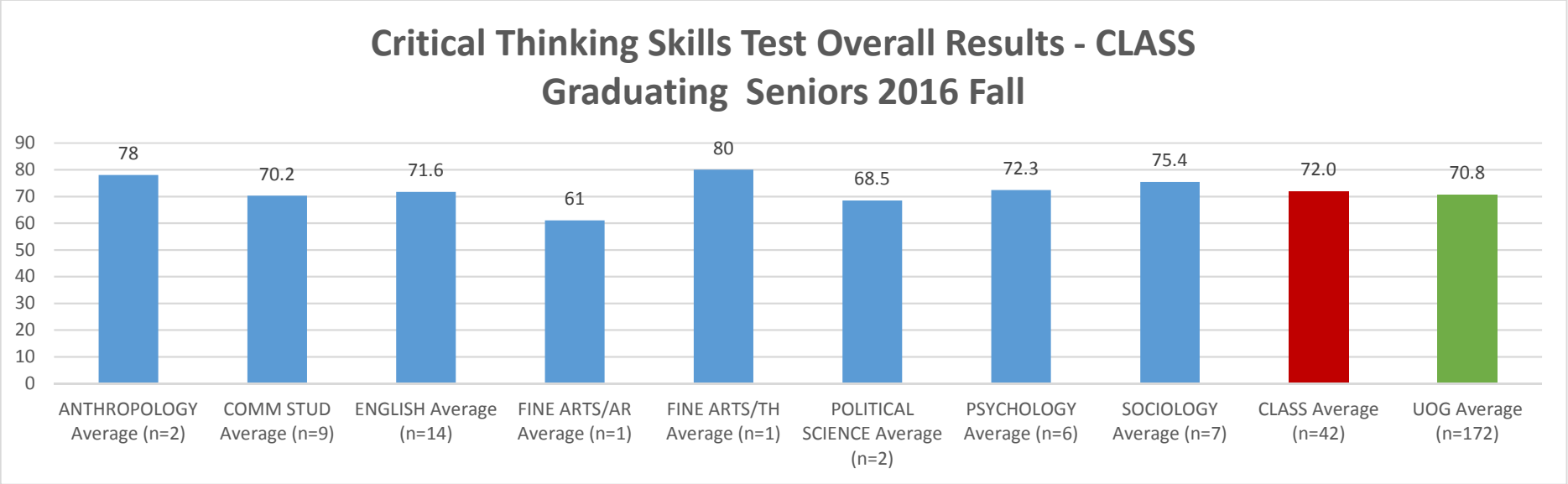

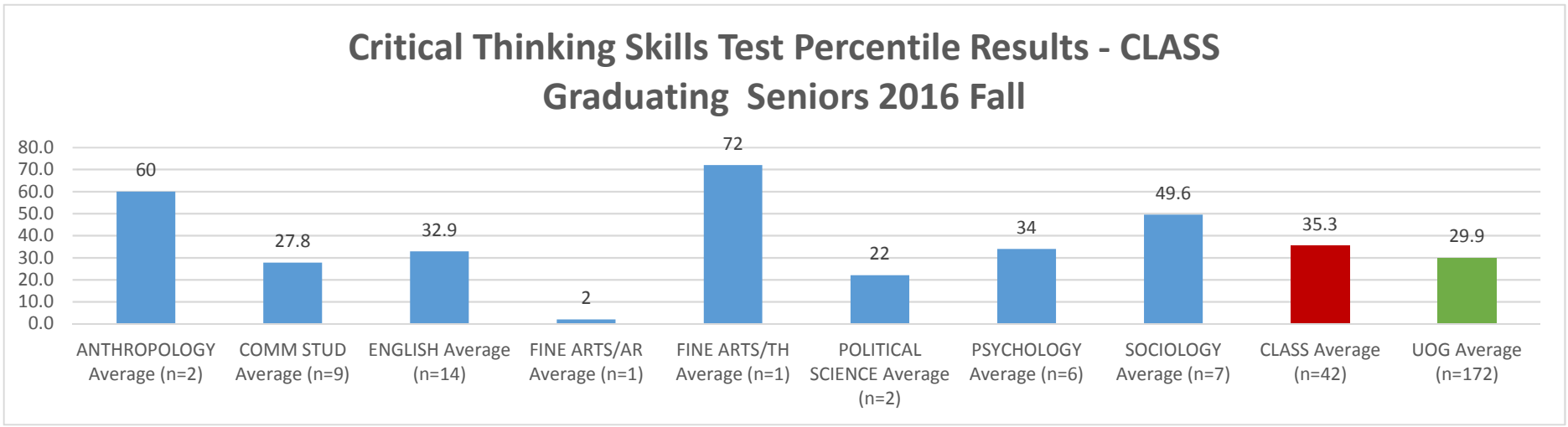

Source: Califonia Critical Thinking Skills Test Results

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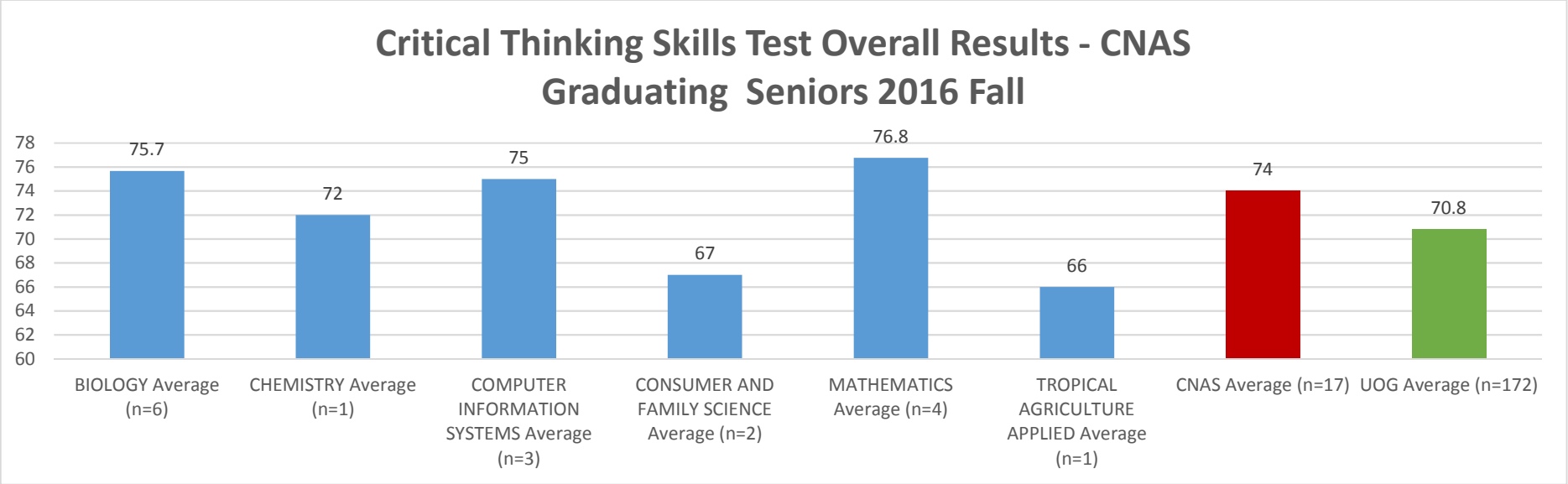

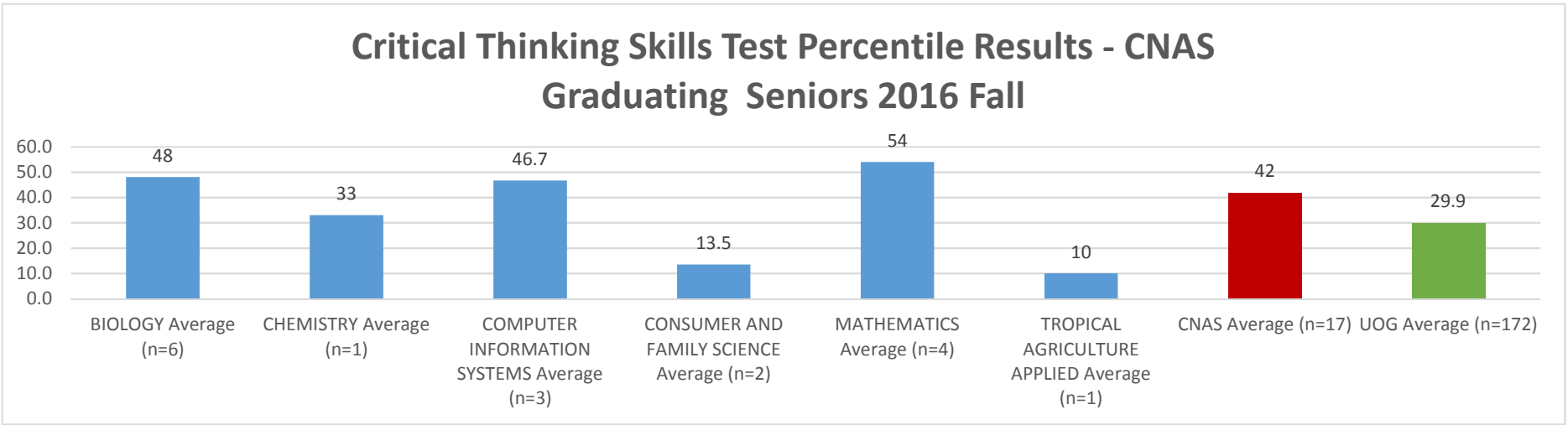

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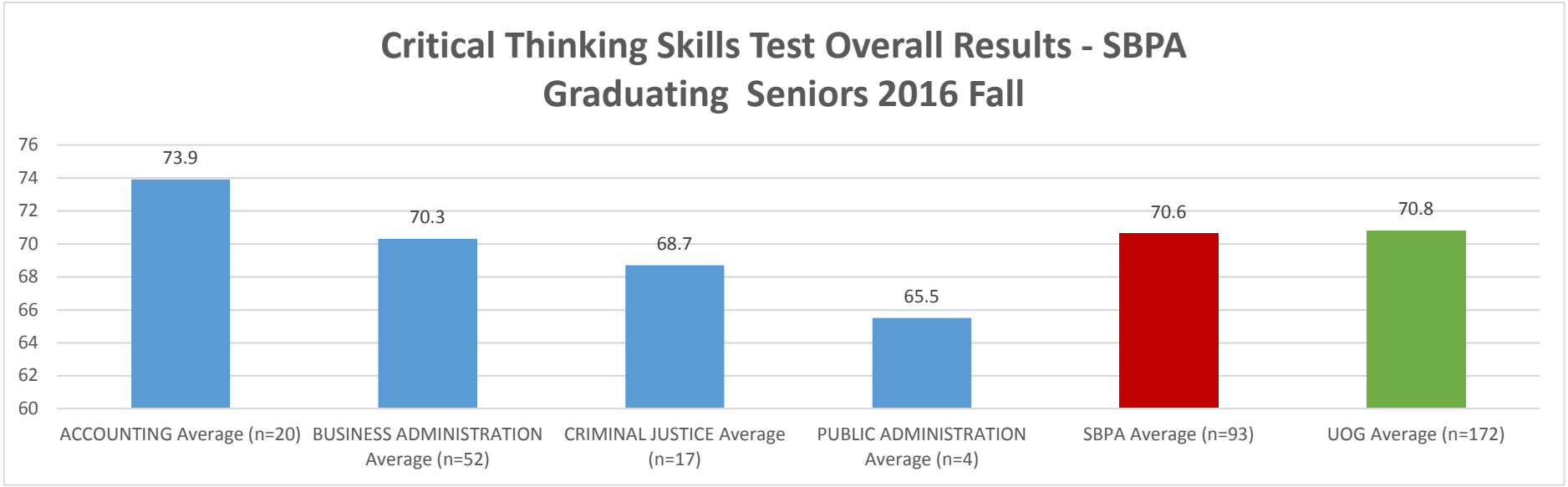

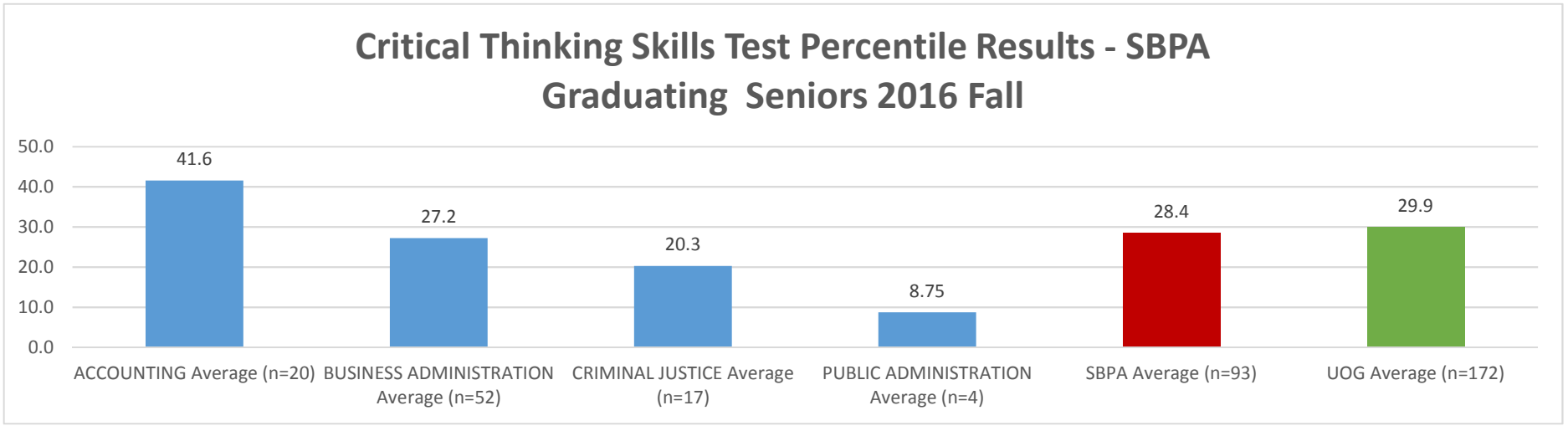

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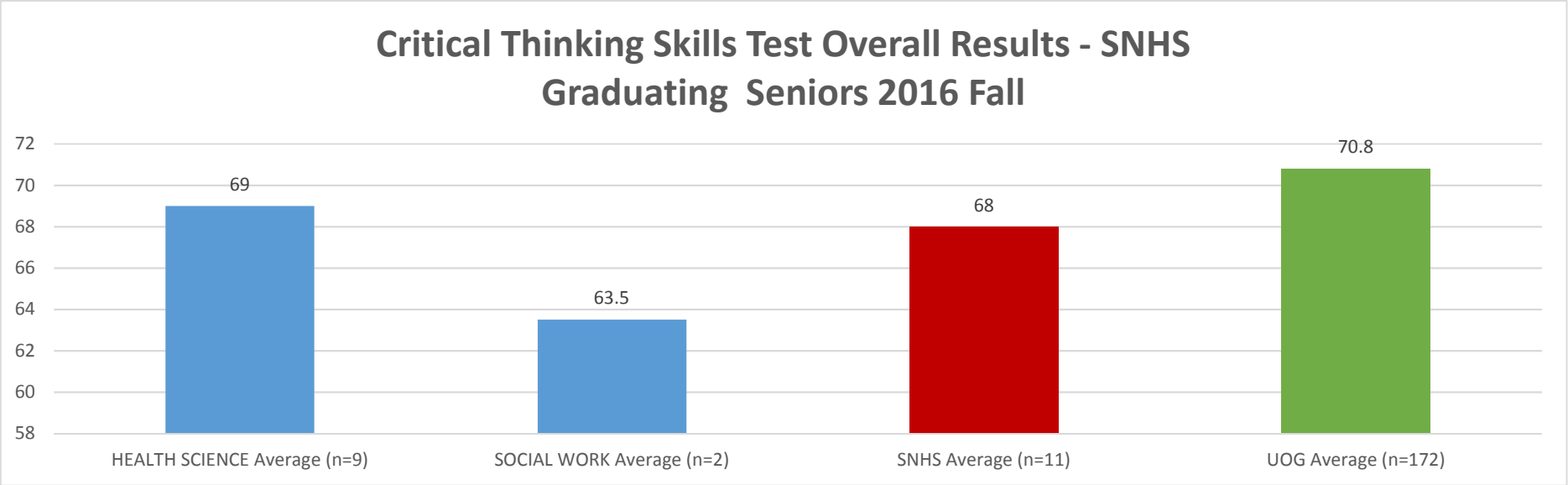

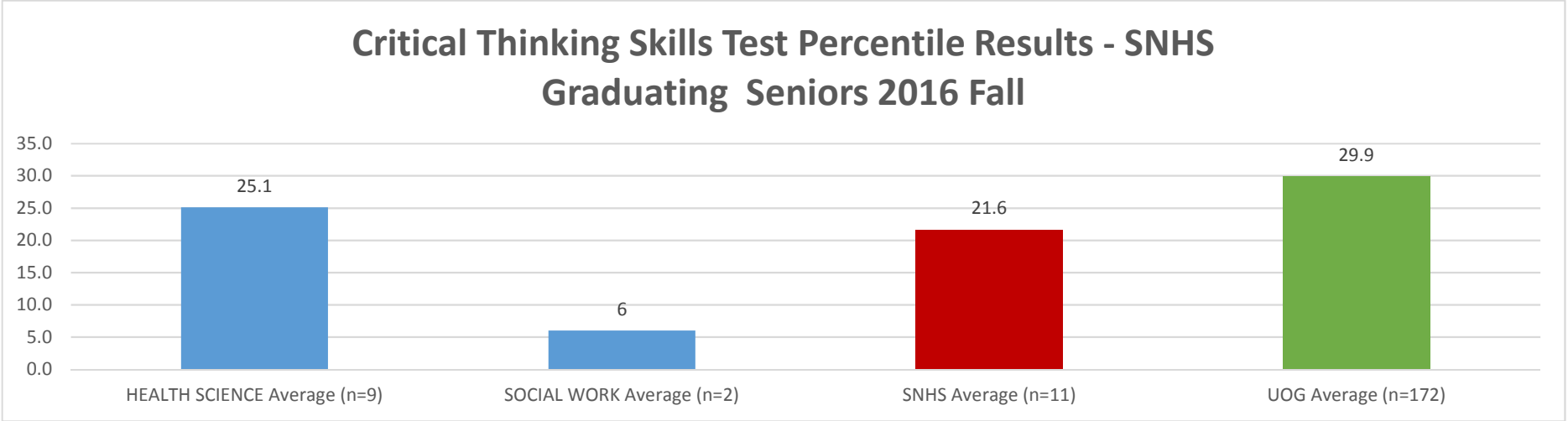

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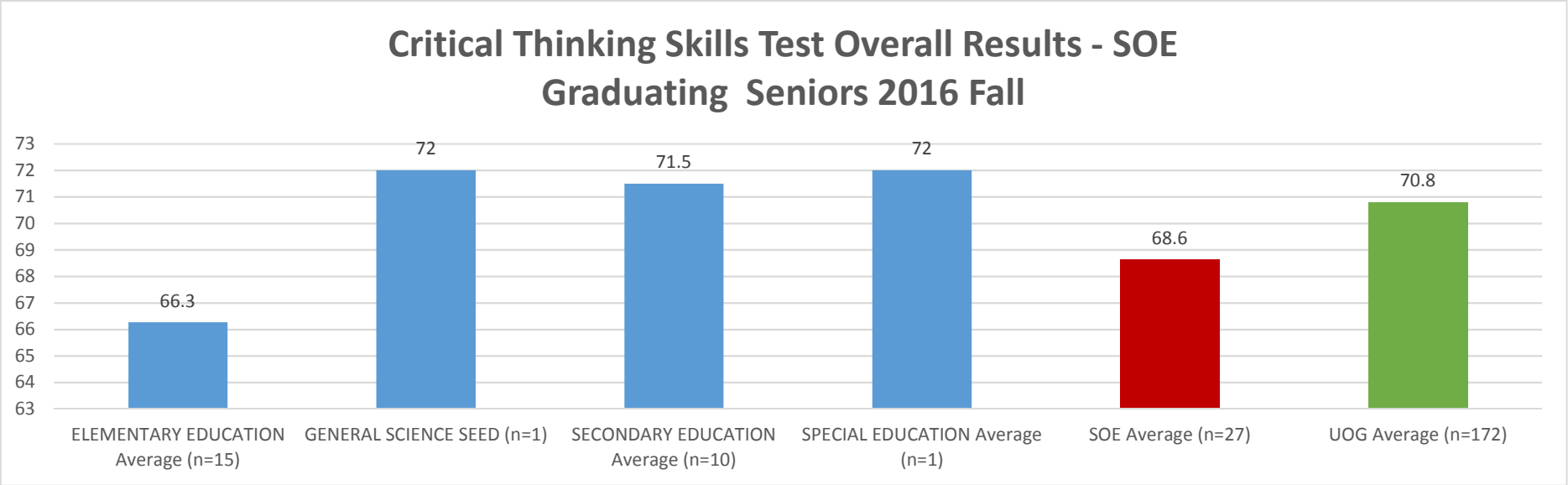

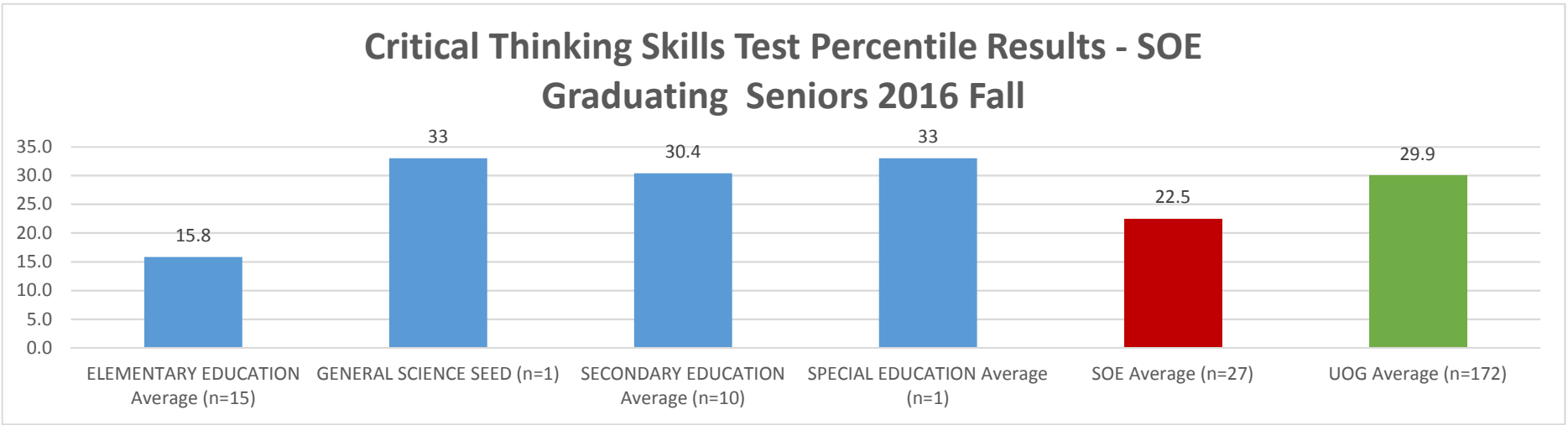

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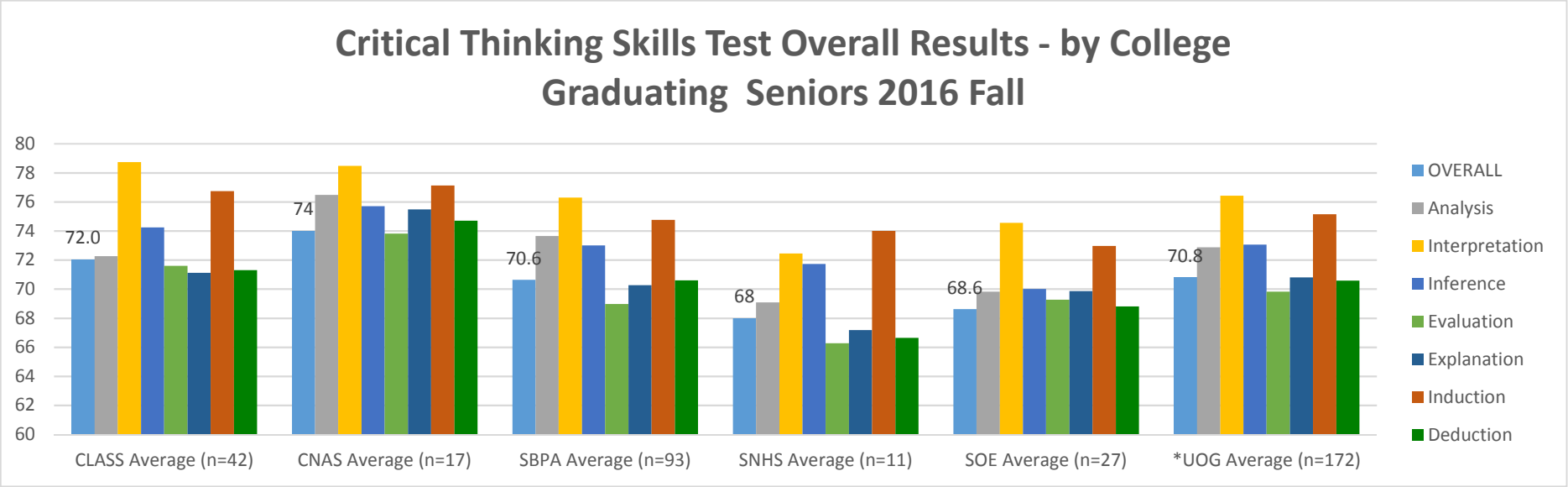

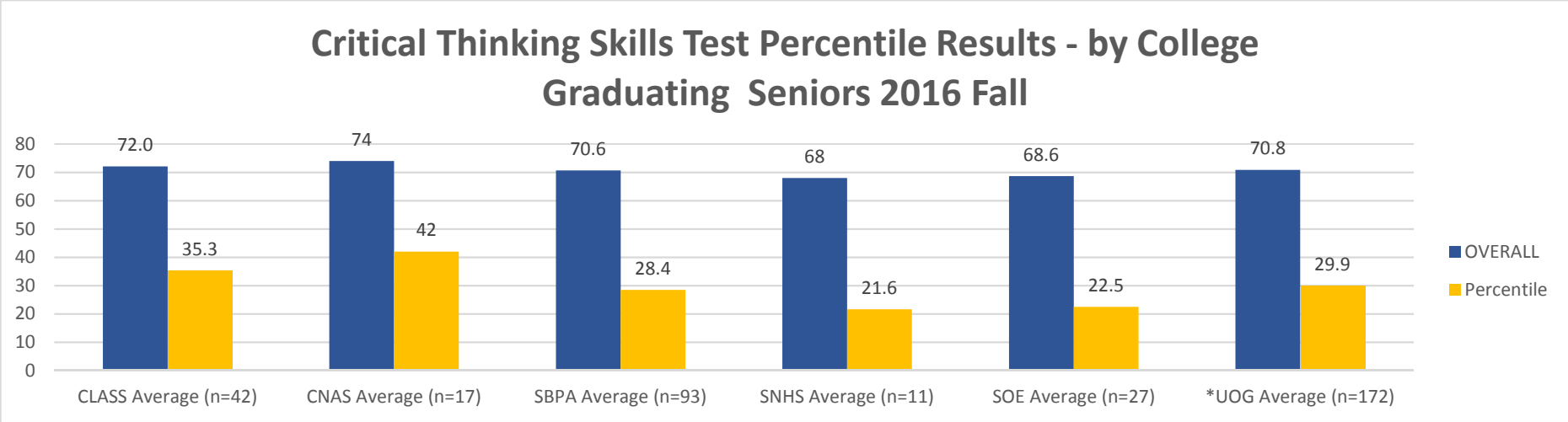

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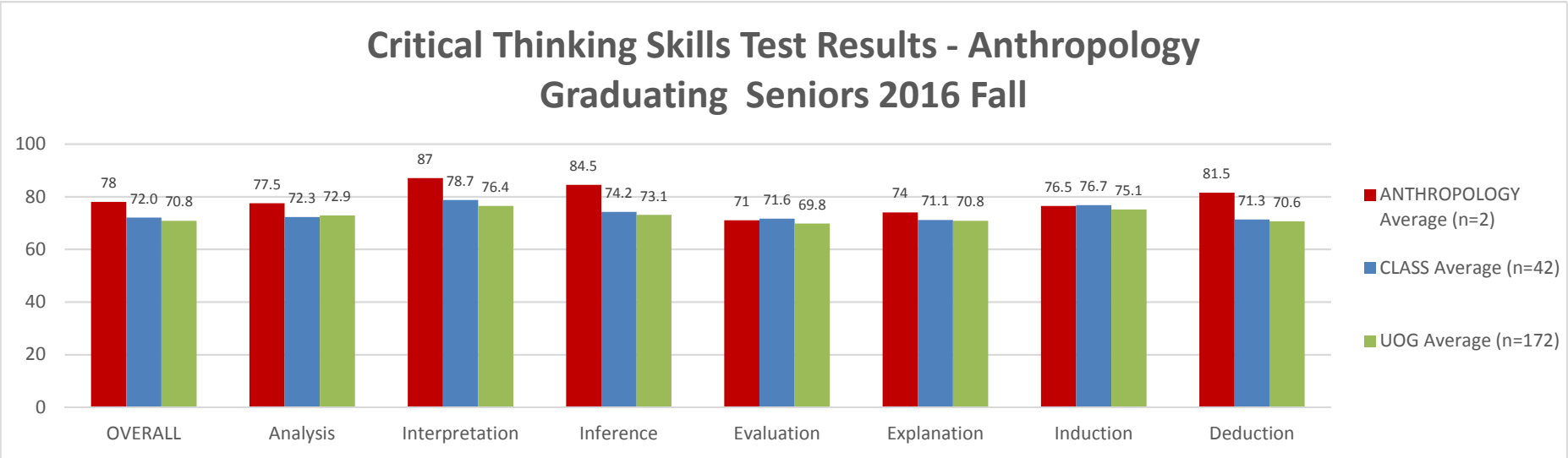

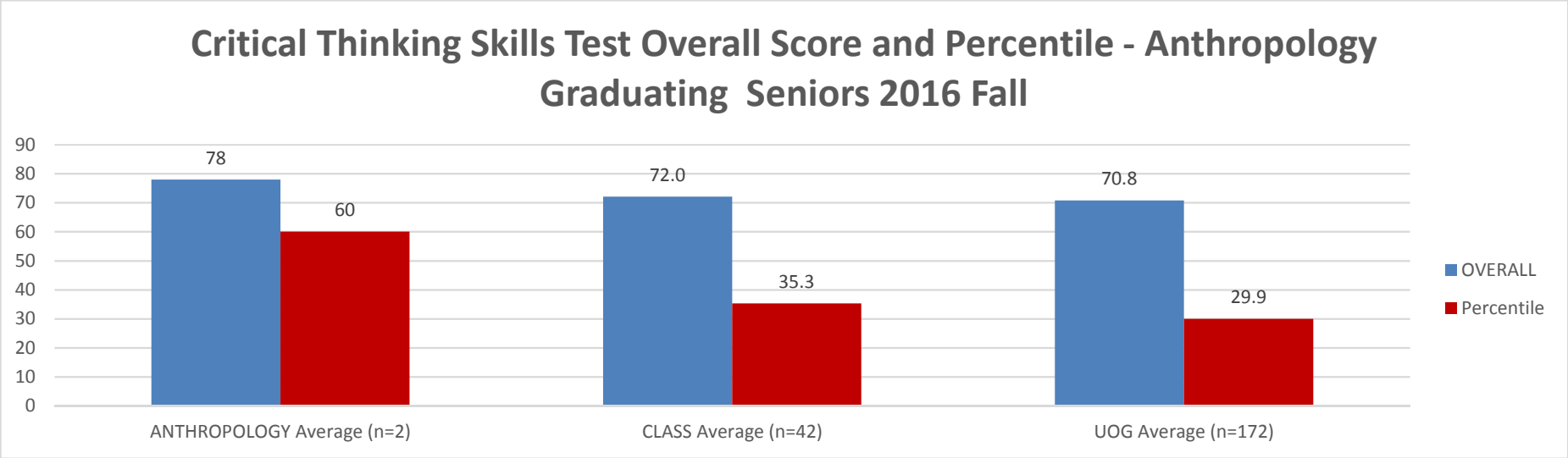

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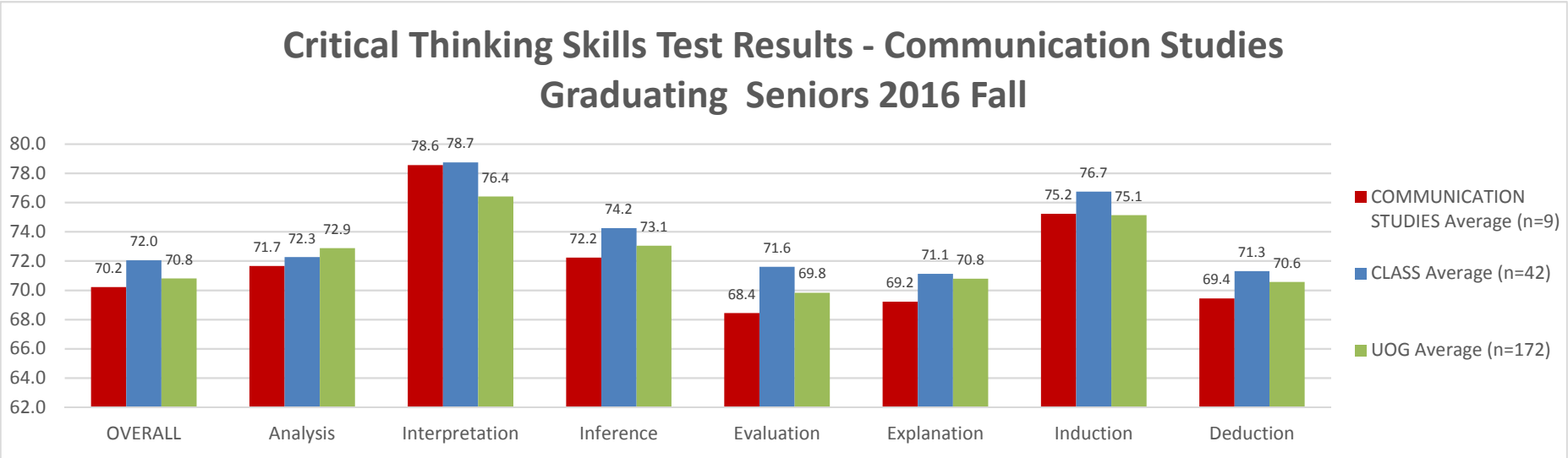

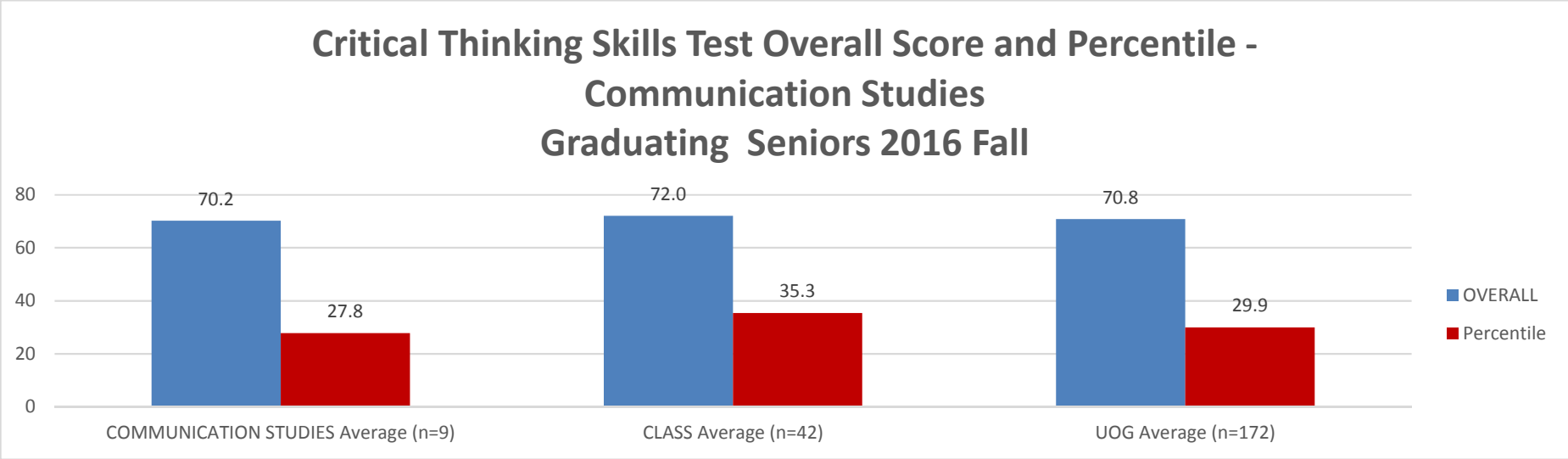

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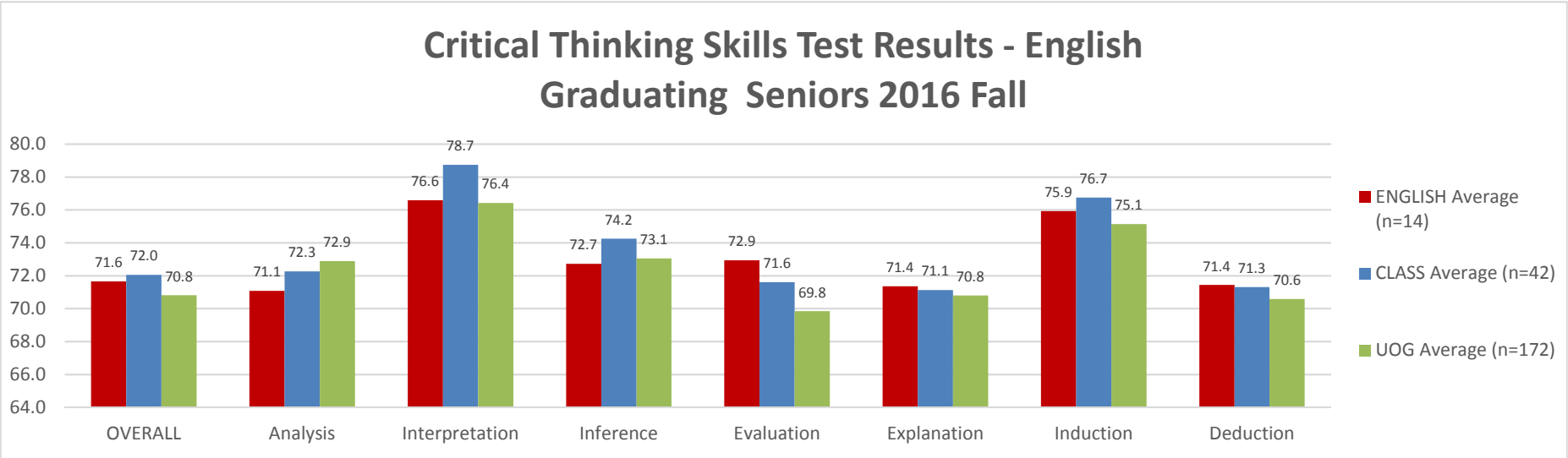

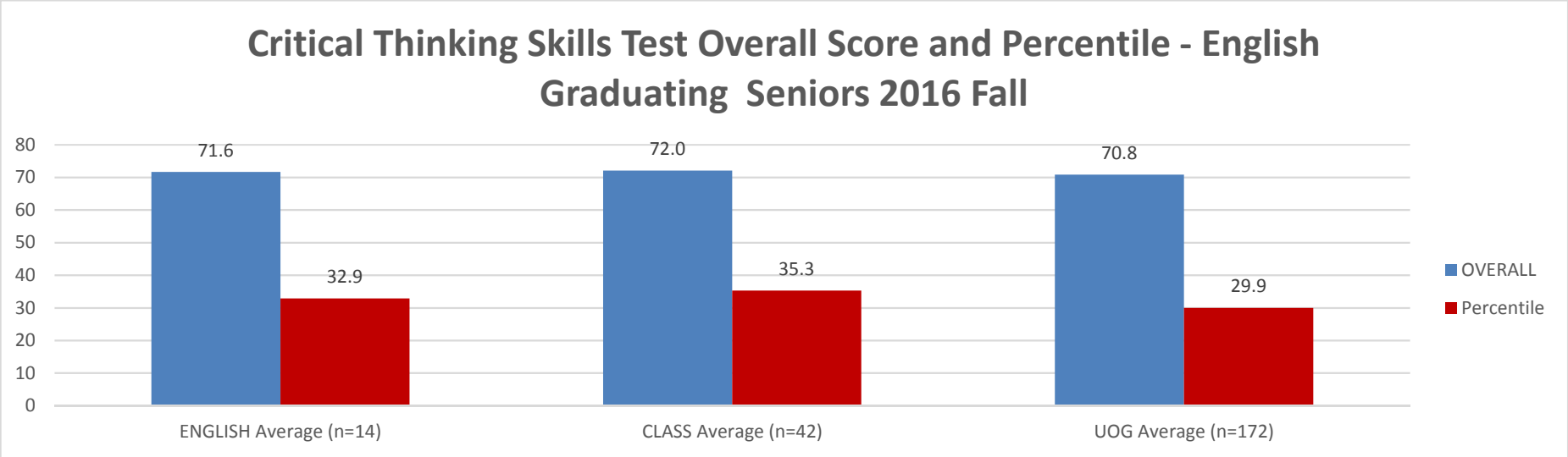

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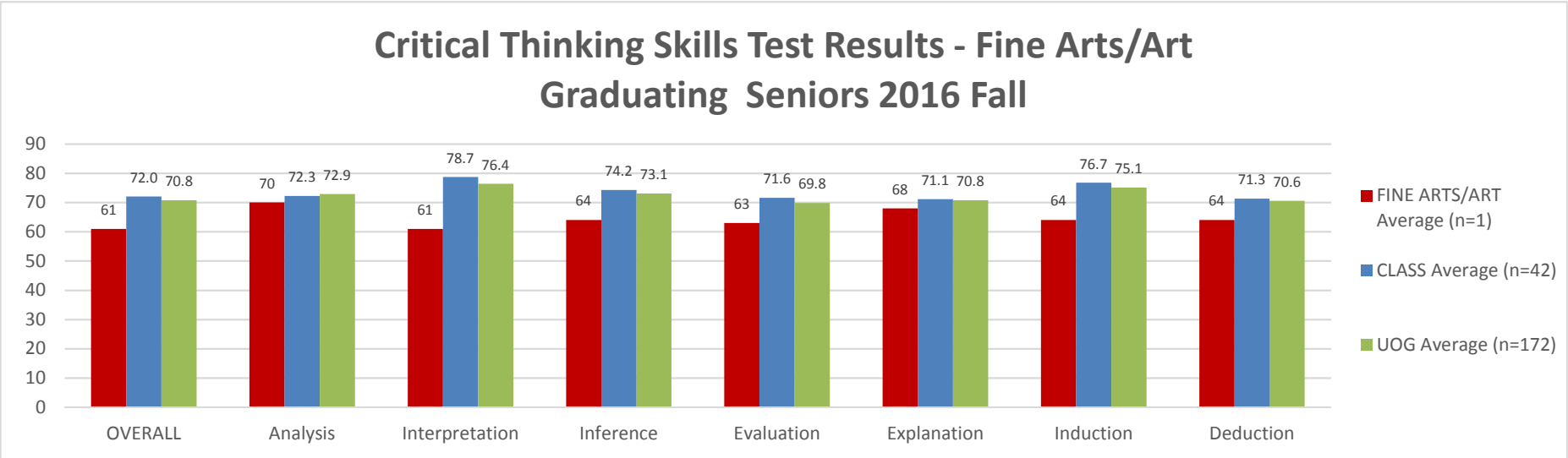

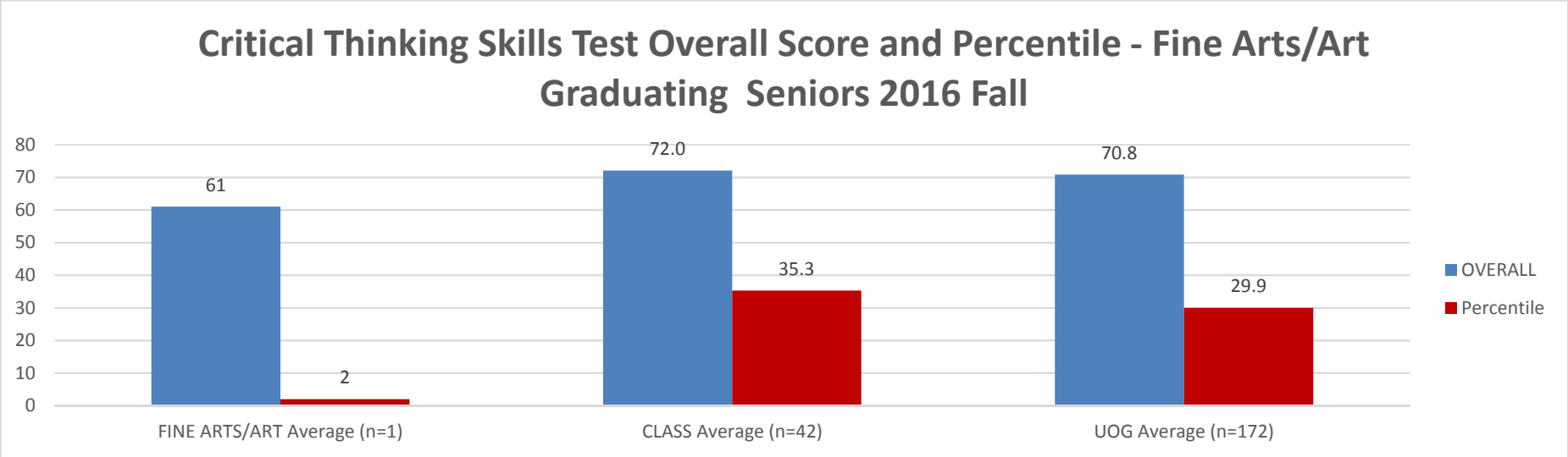

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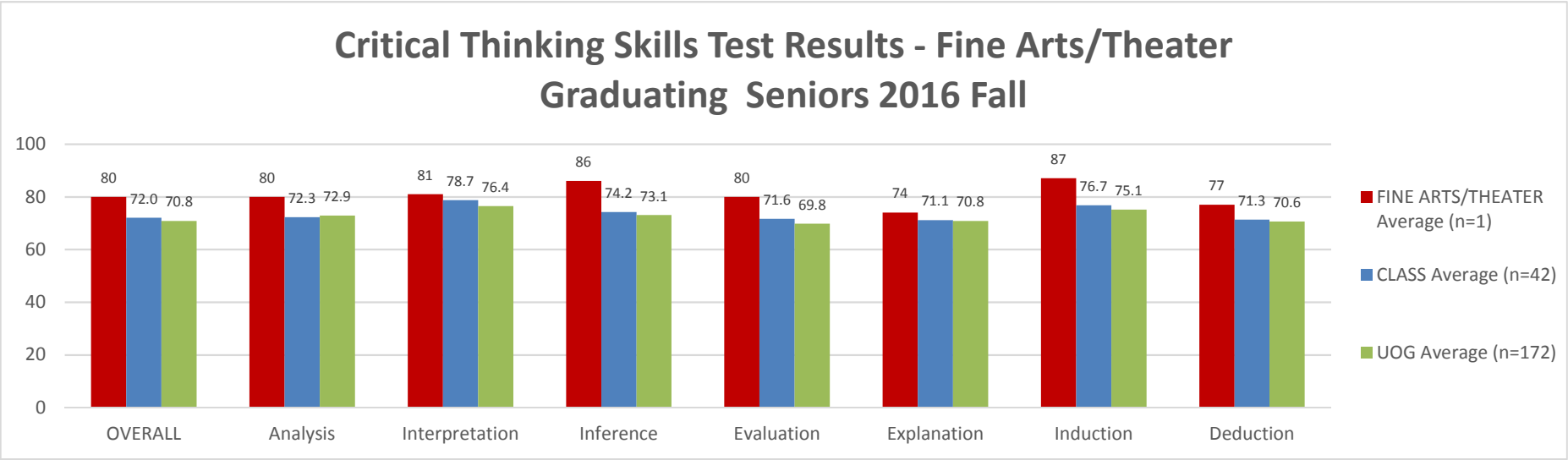

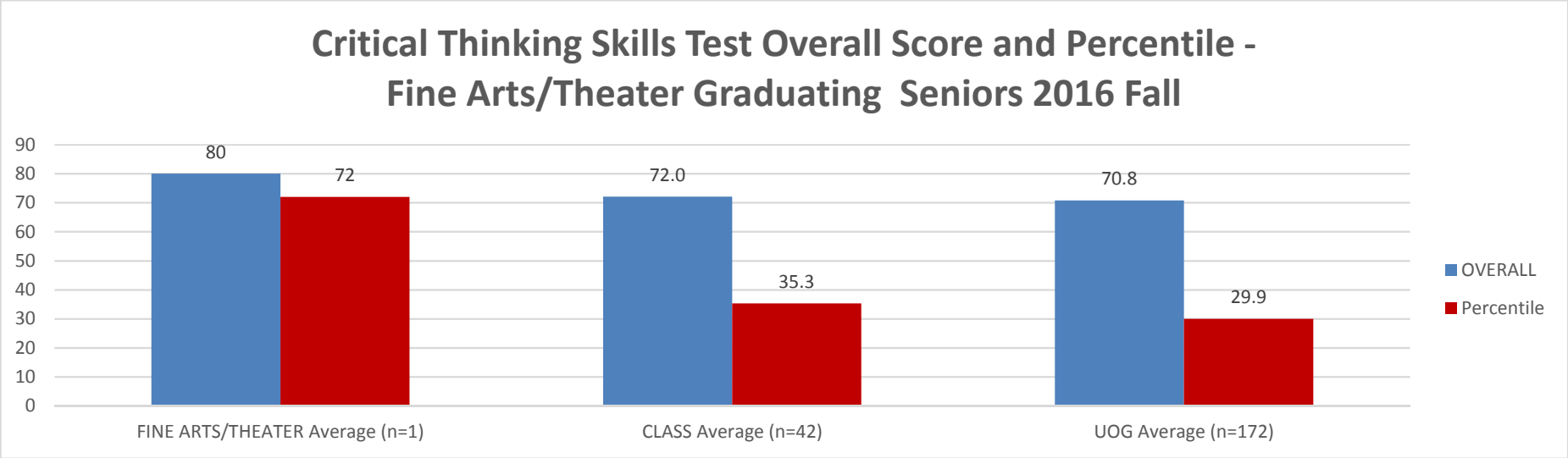

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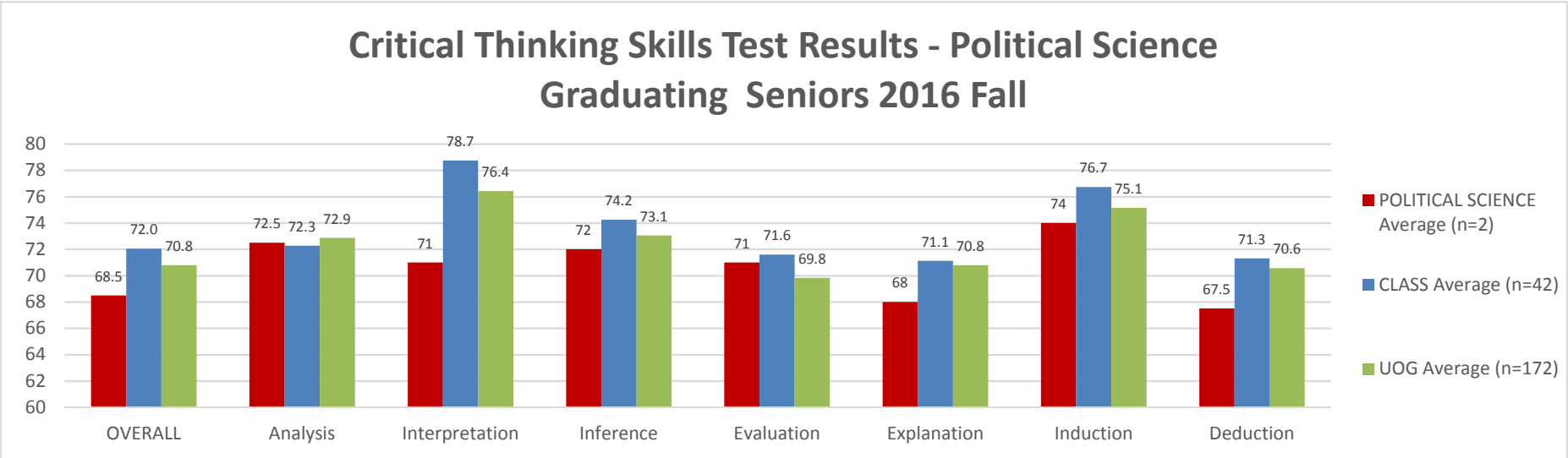

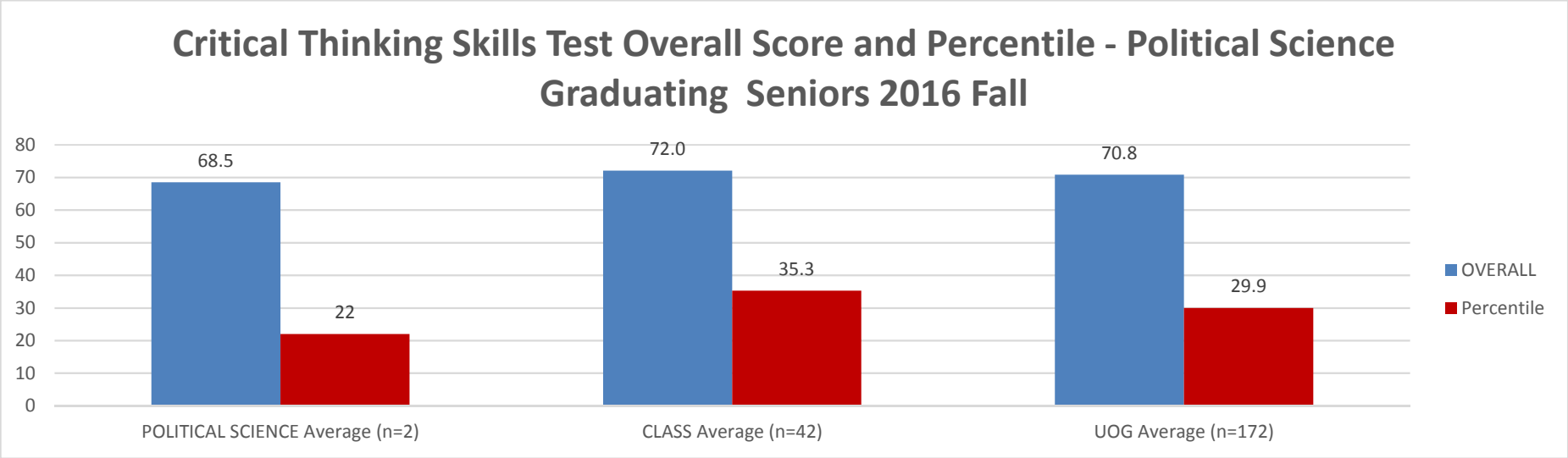

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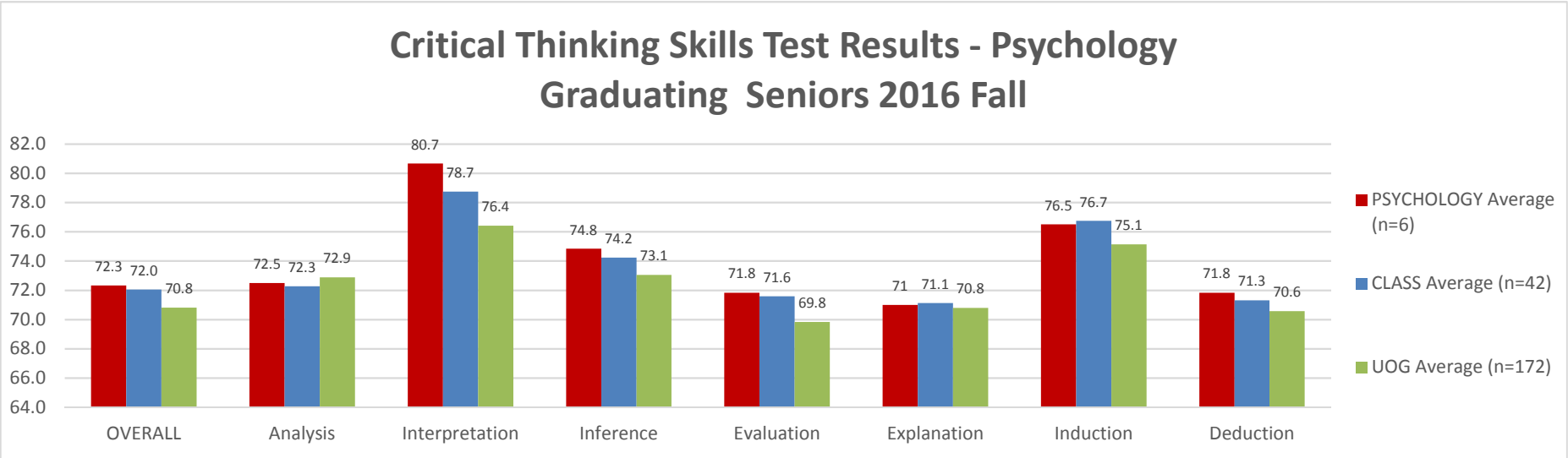

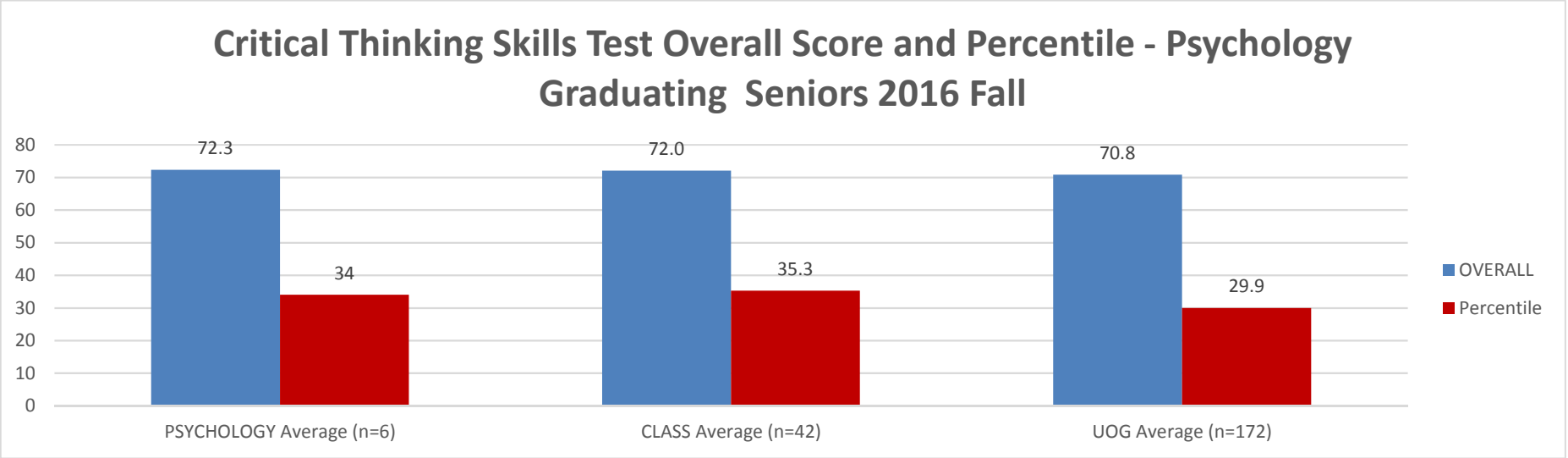

Source: Califonia Critical Thinking Skills Test Results

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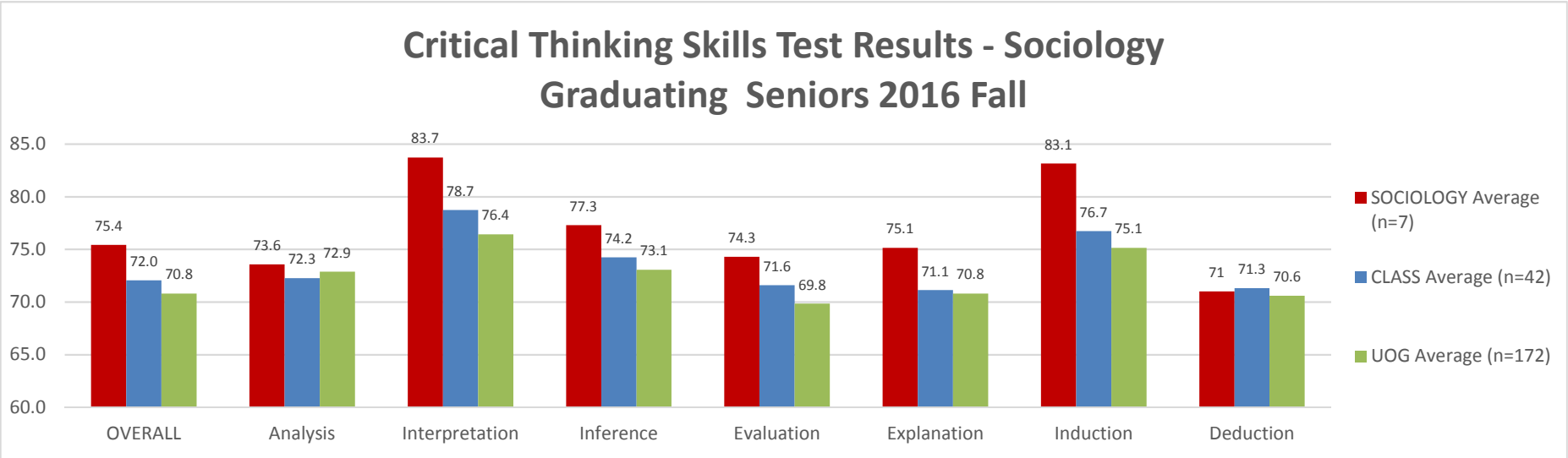

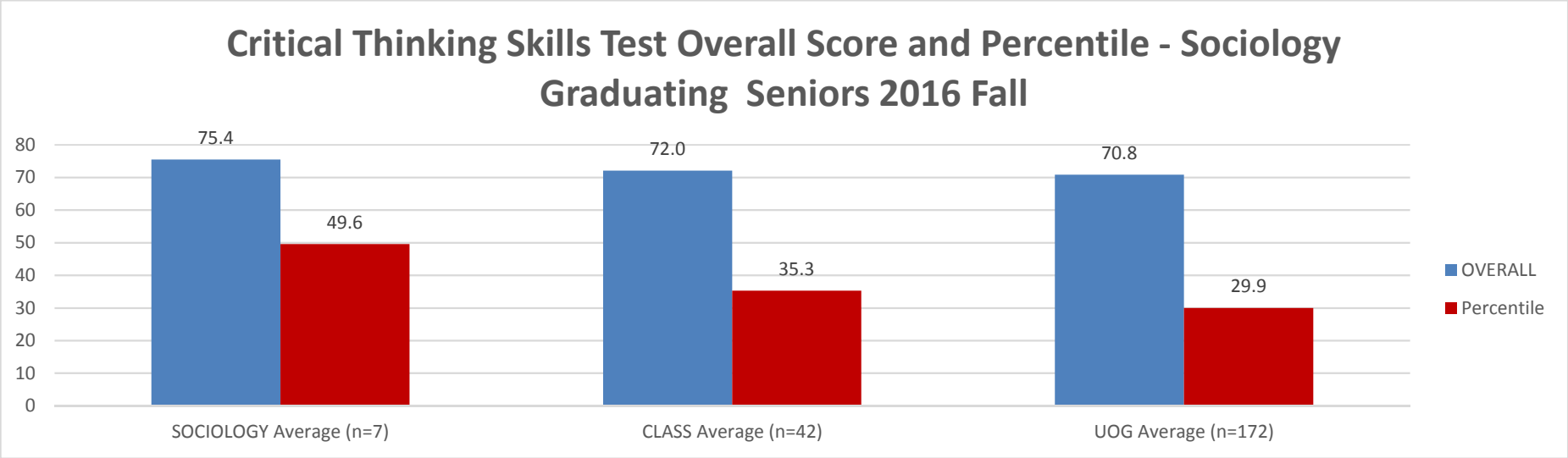

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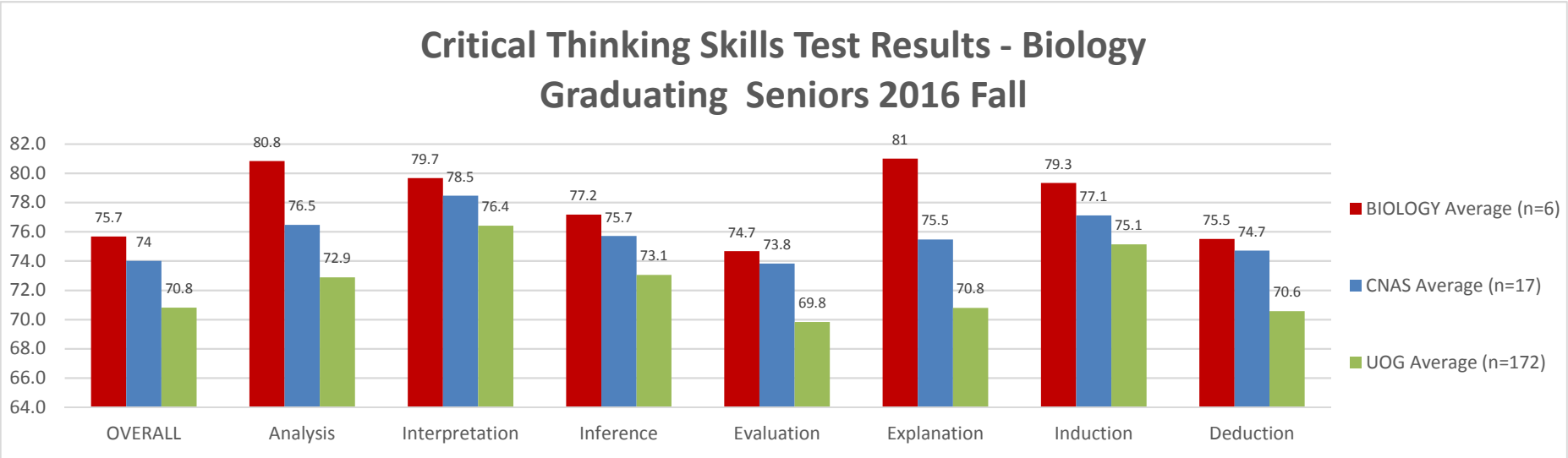

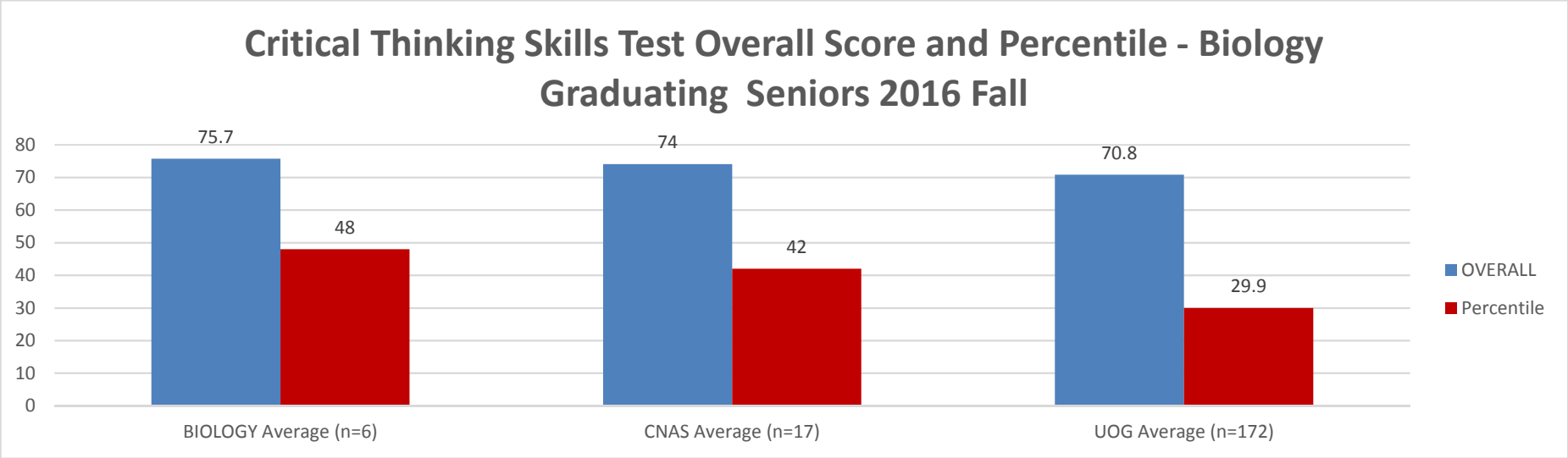

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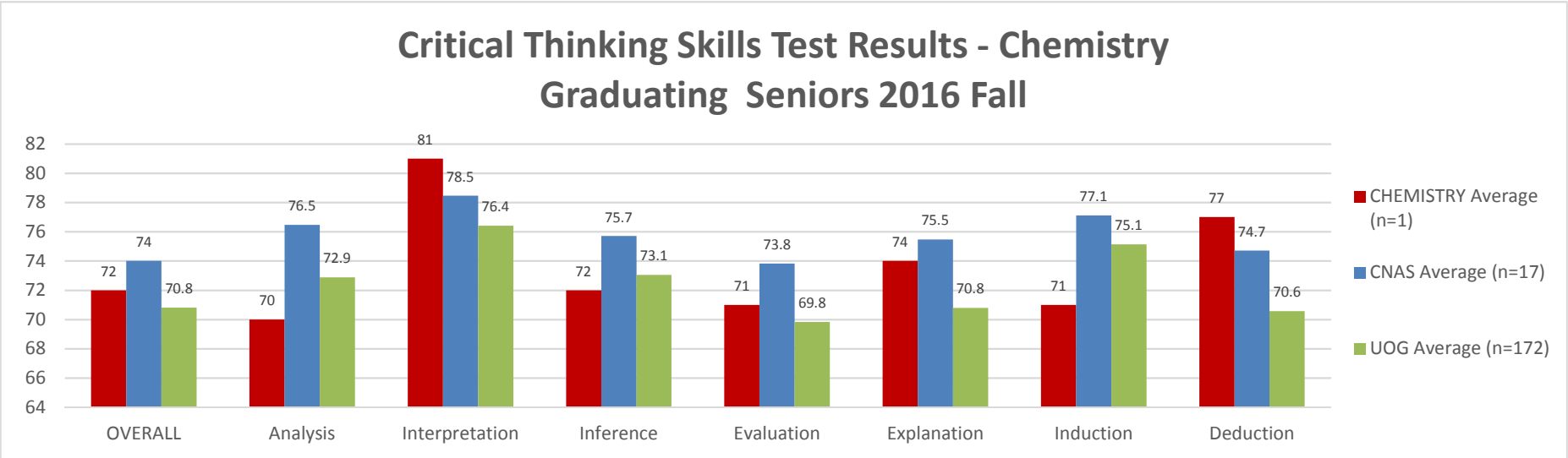

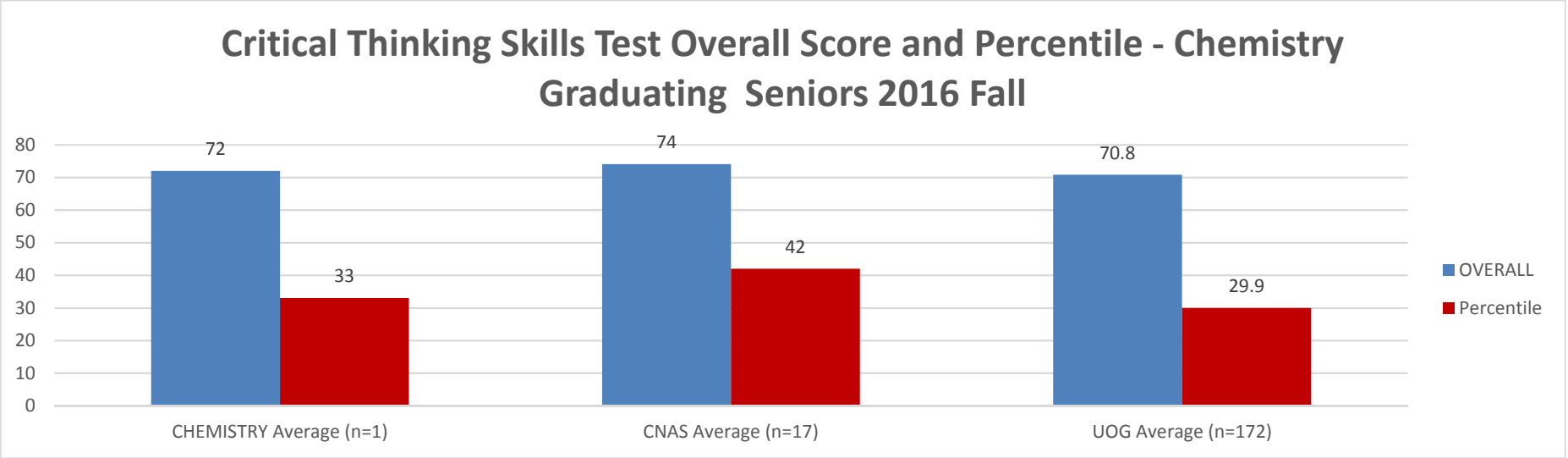

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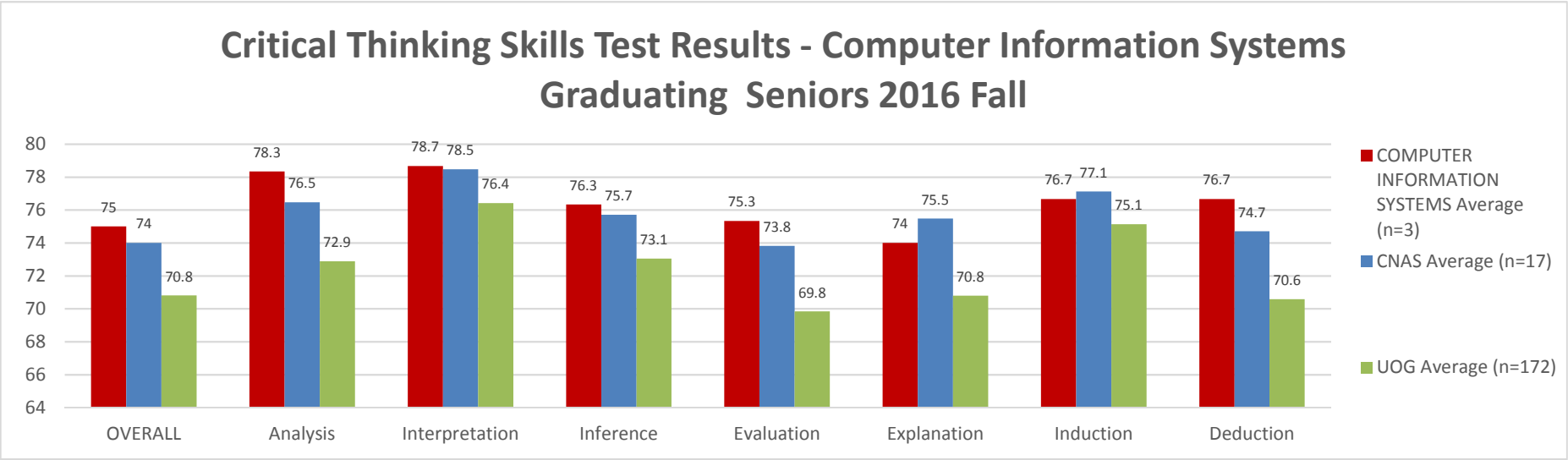

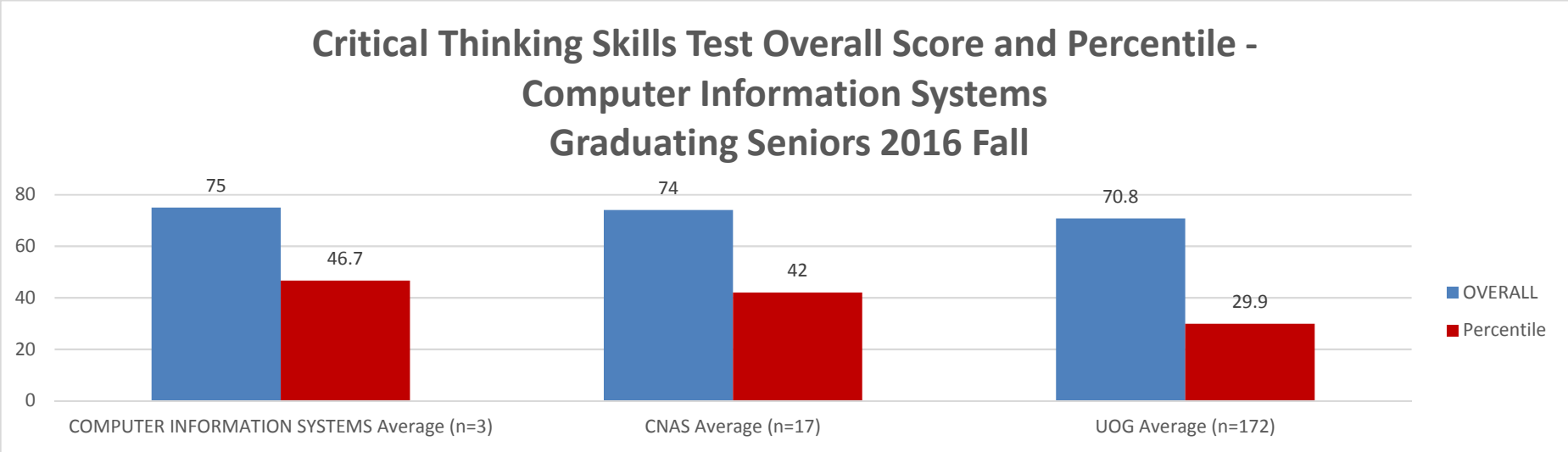

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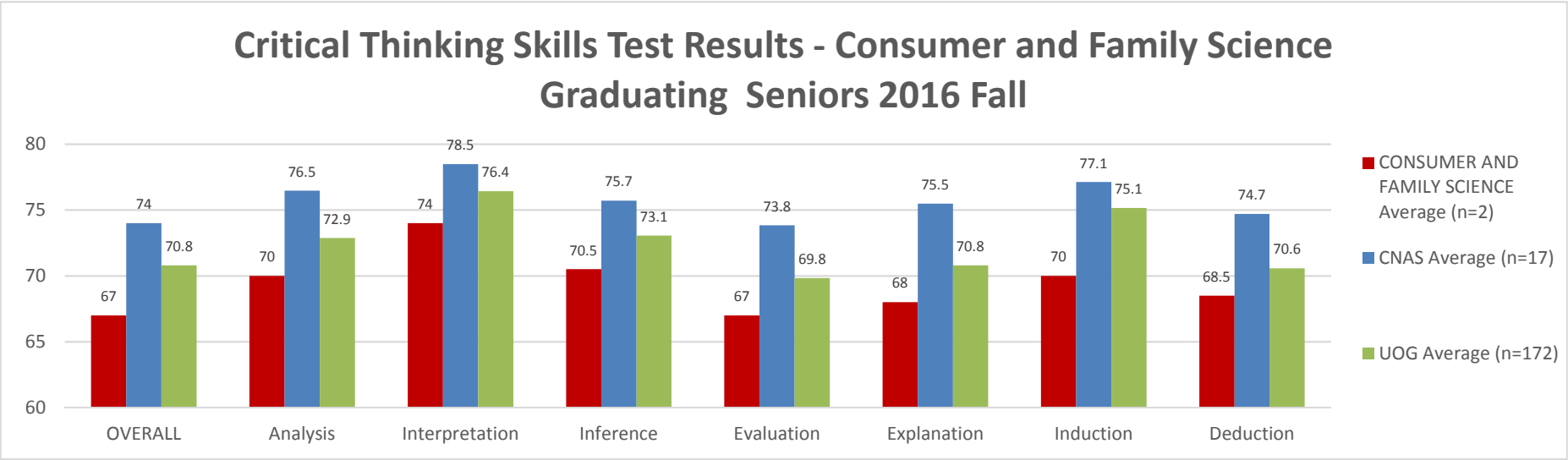

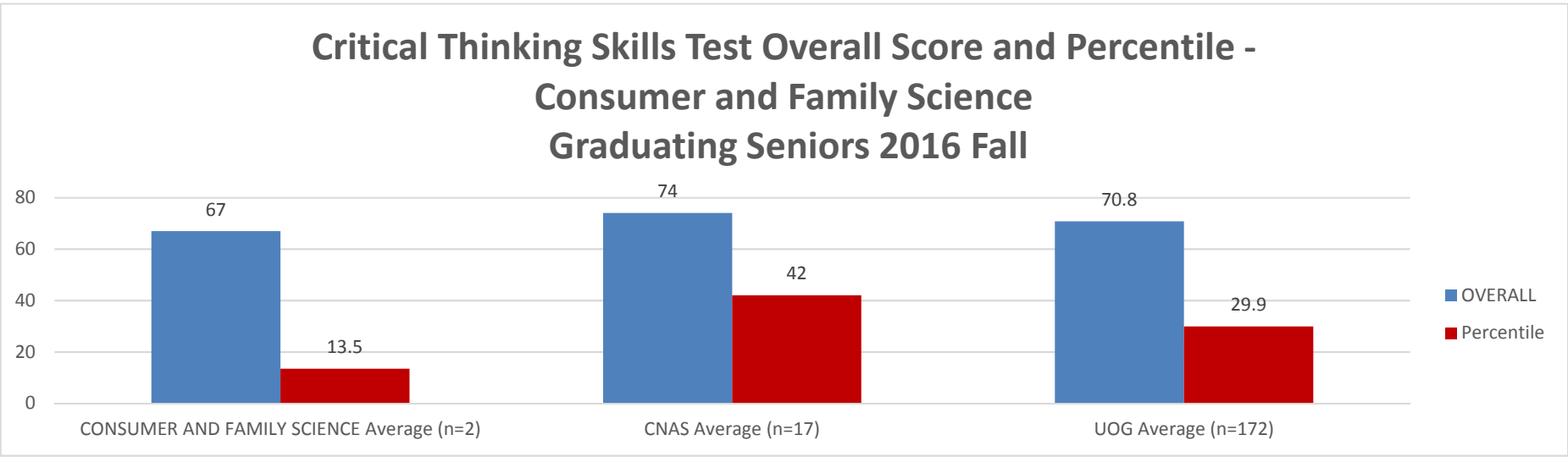

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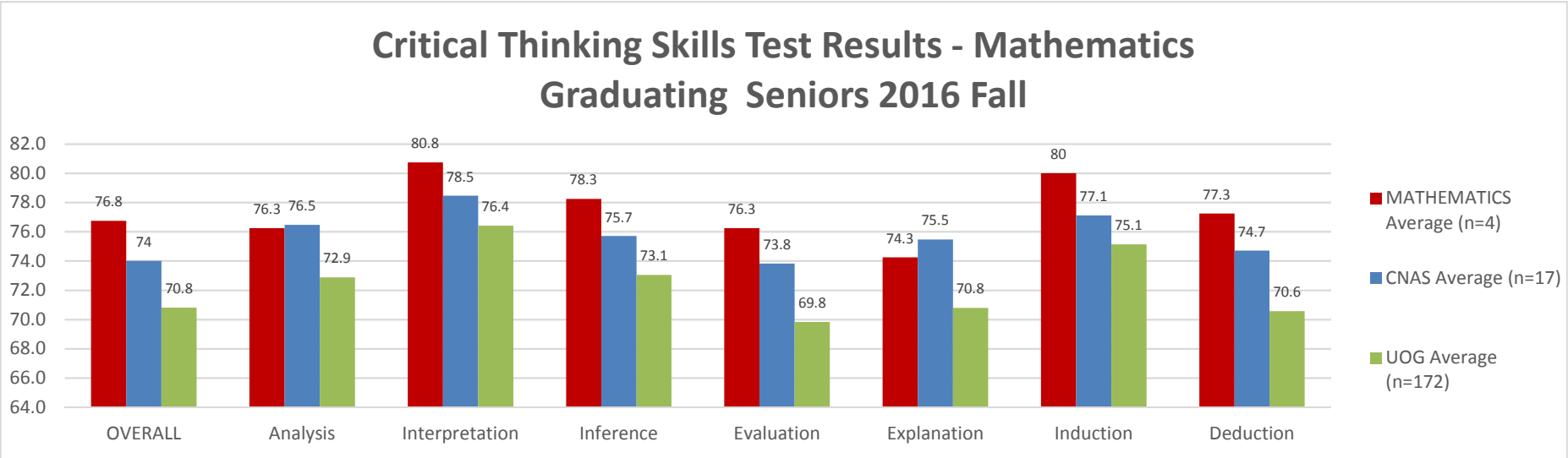

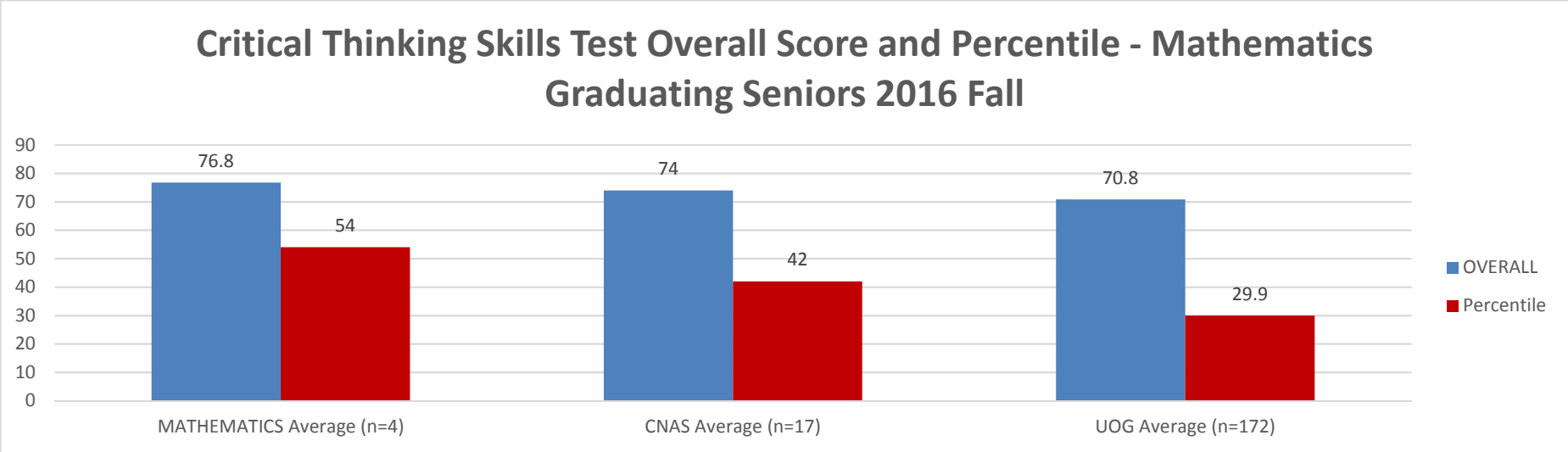

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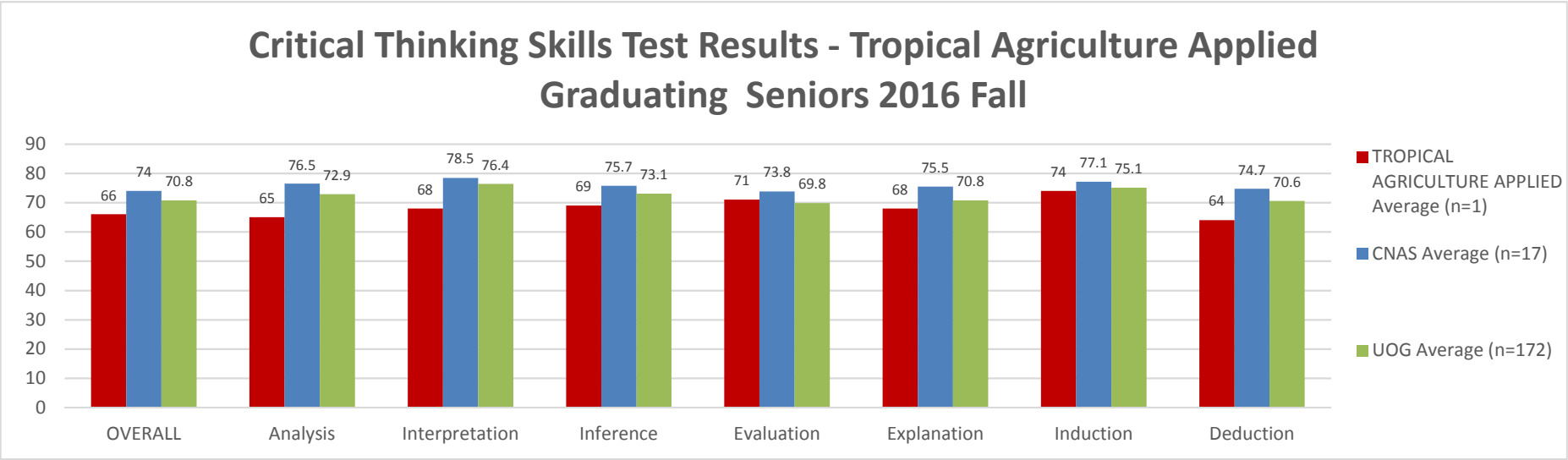

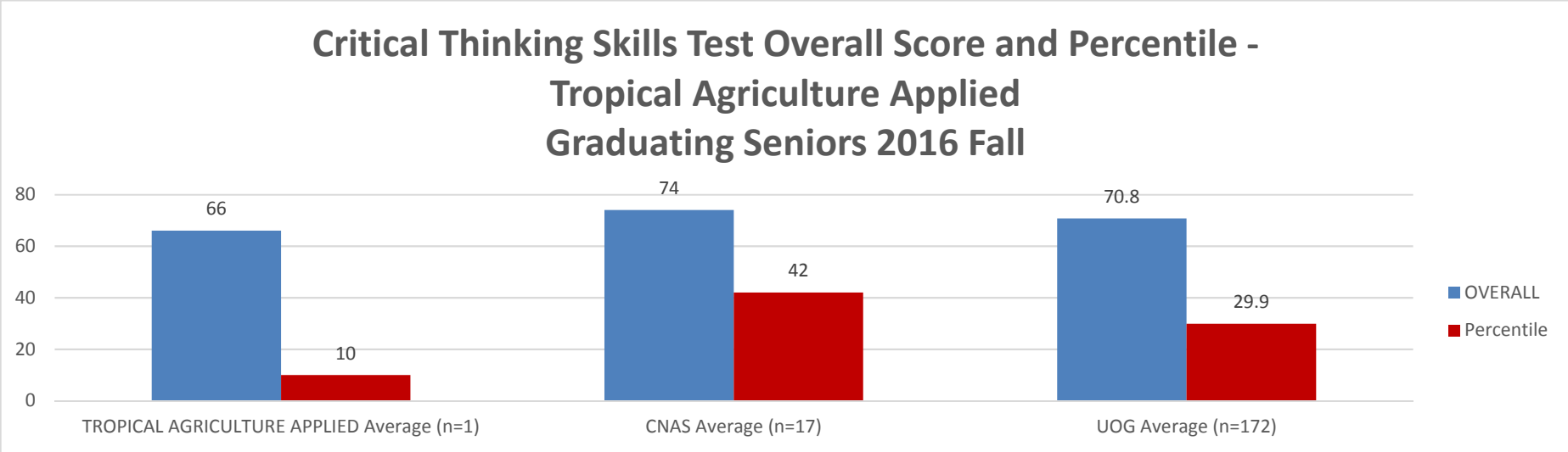

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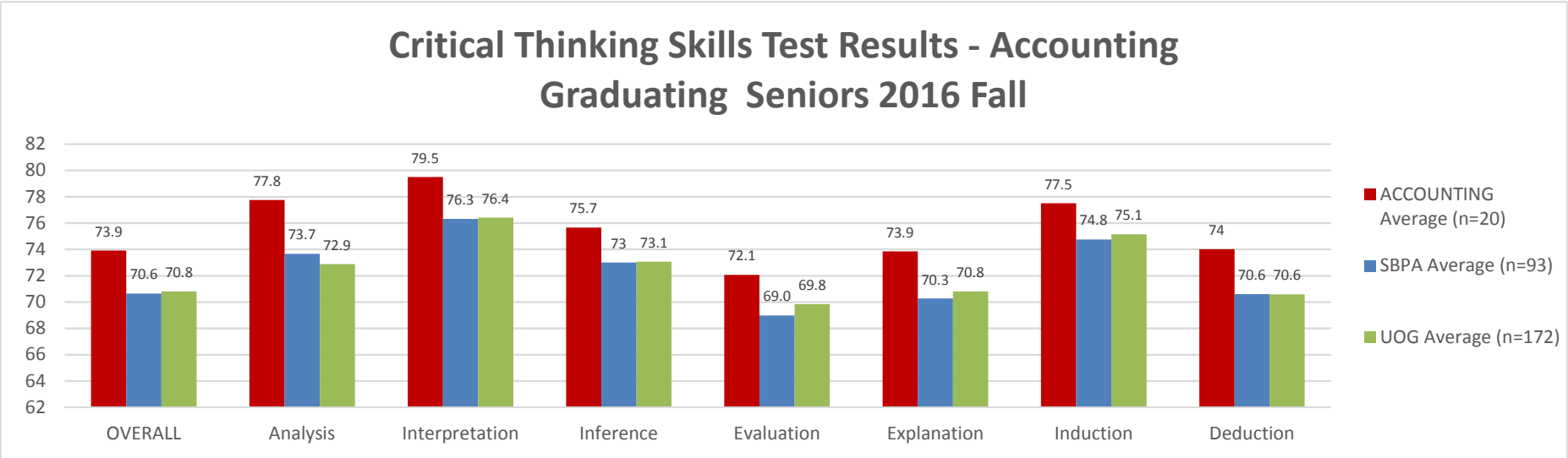

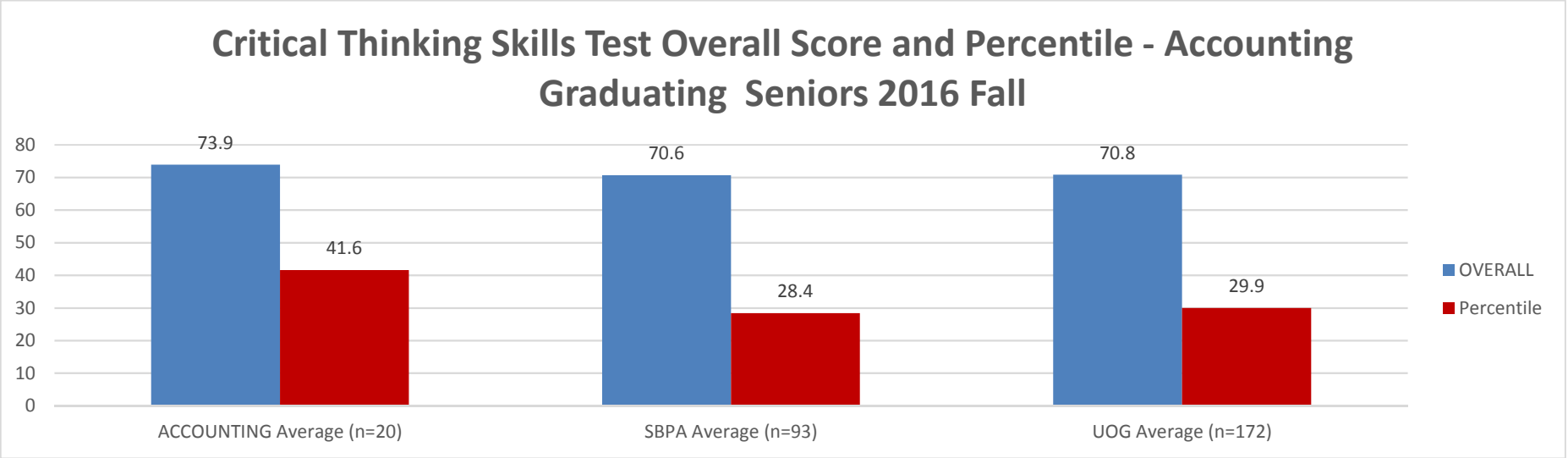

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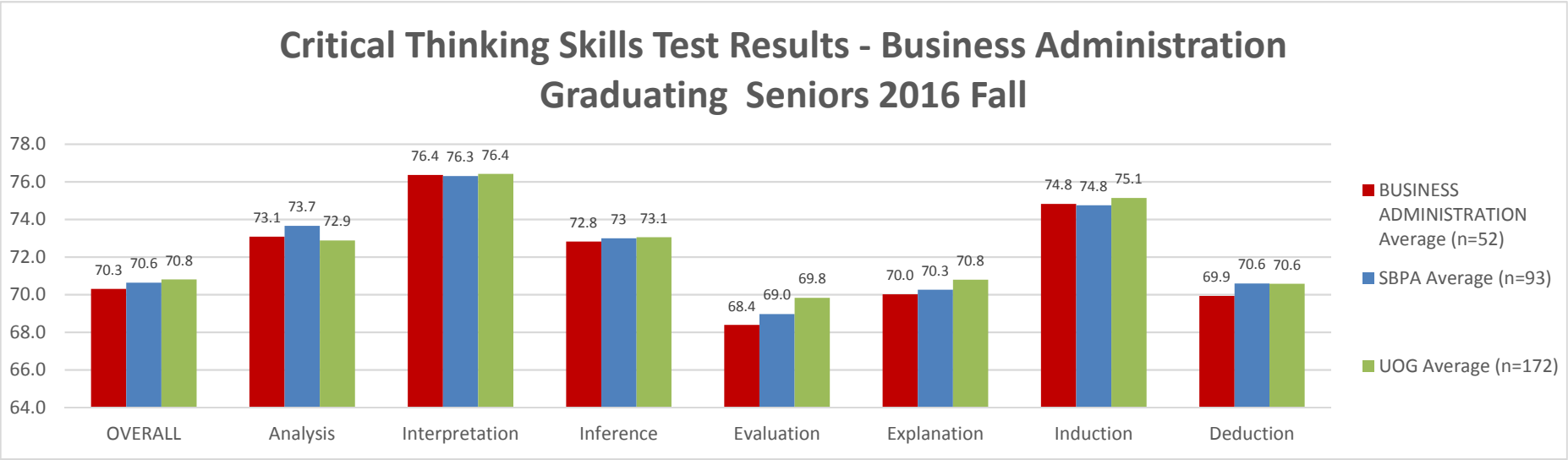

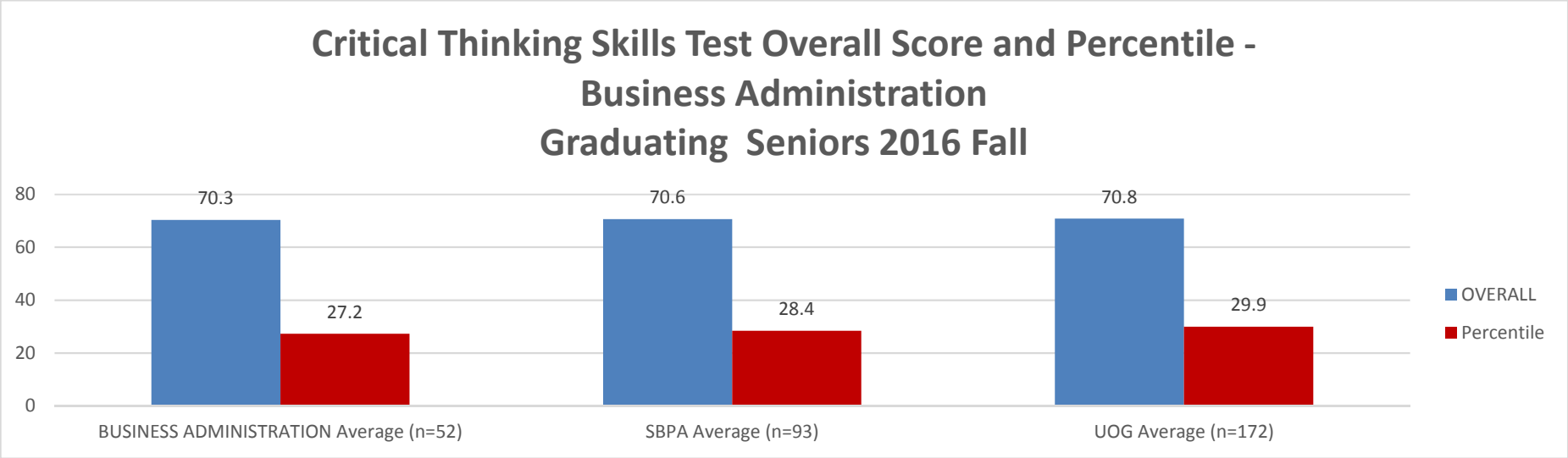

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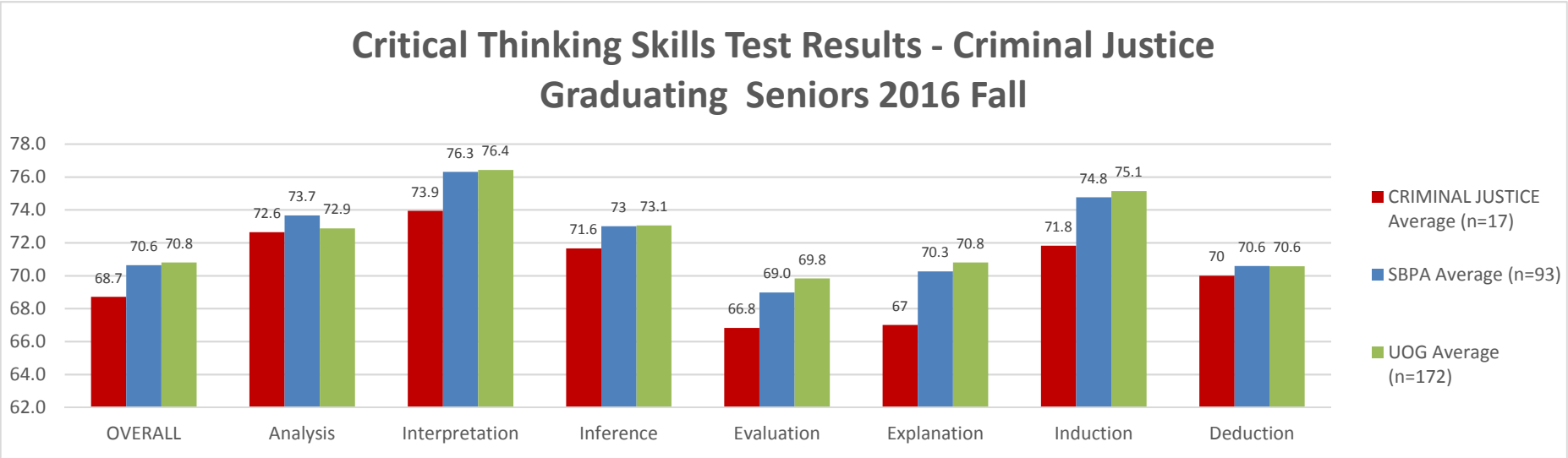

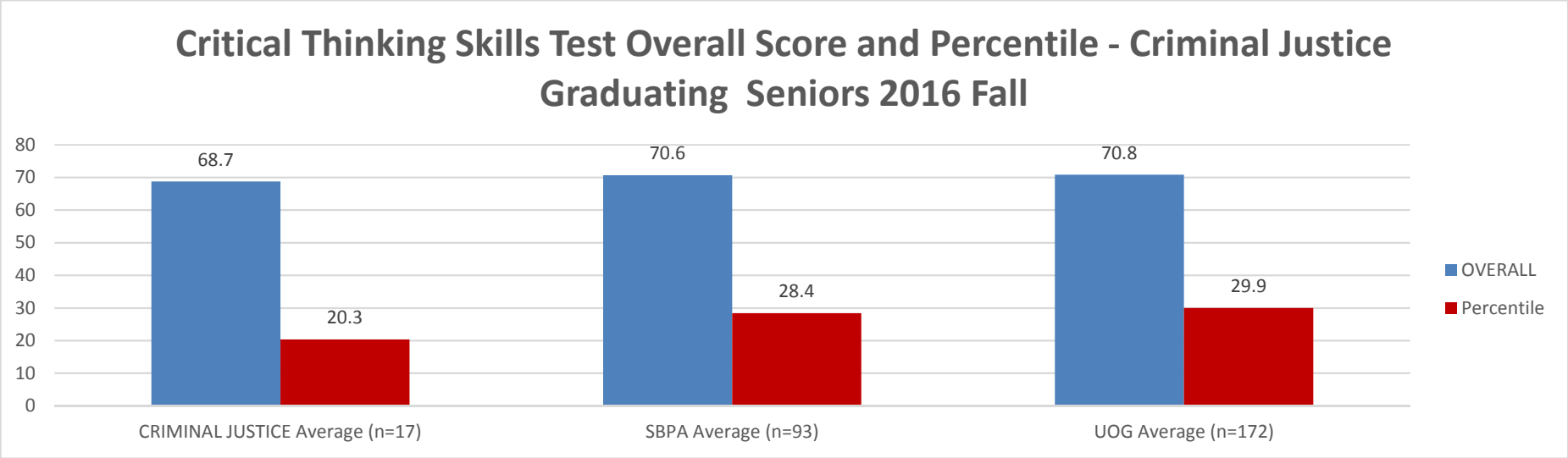

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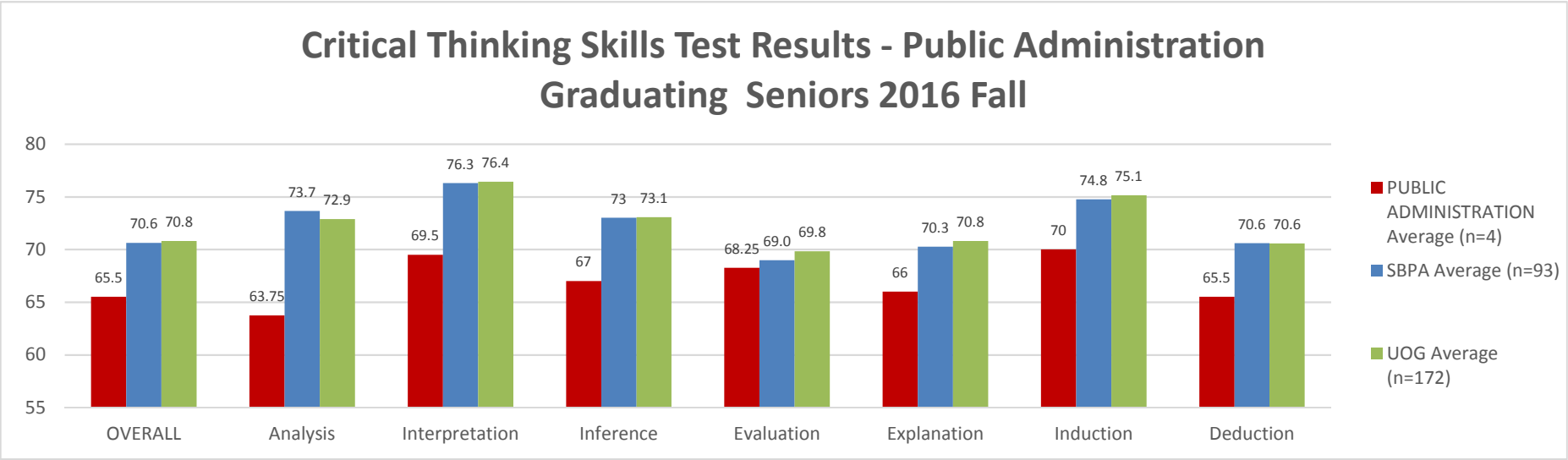

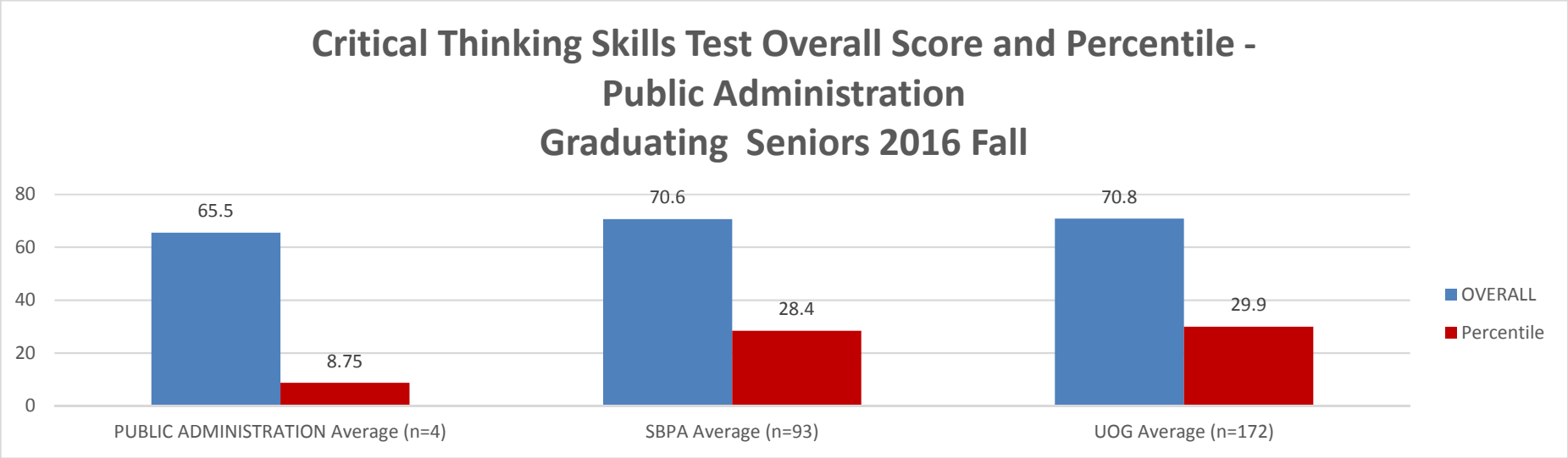

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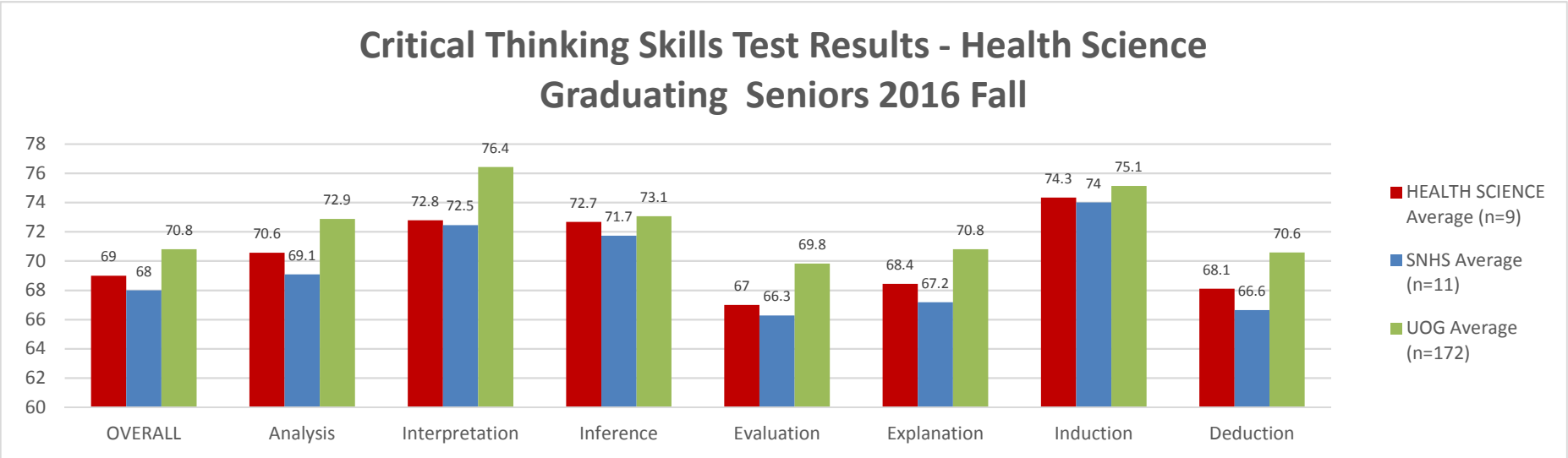

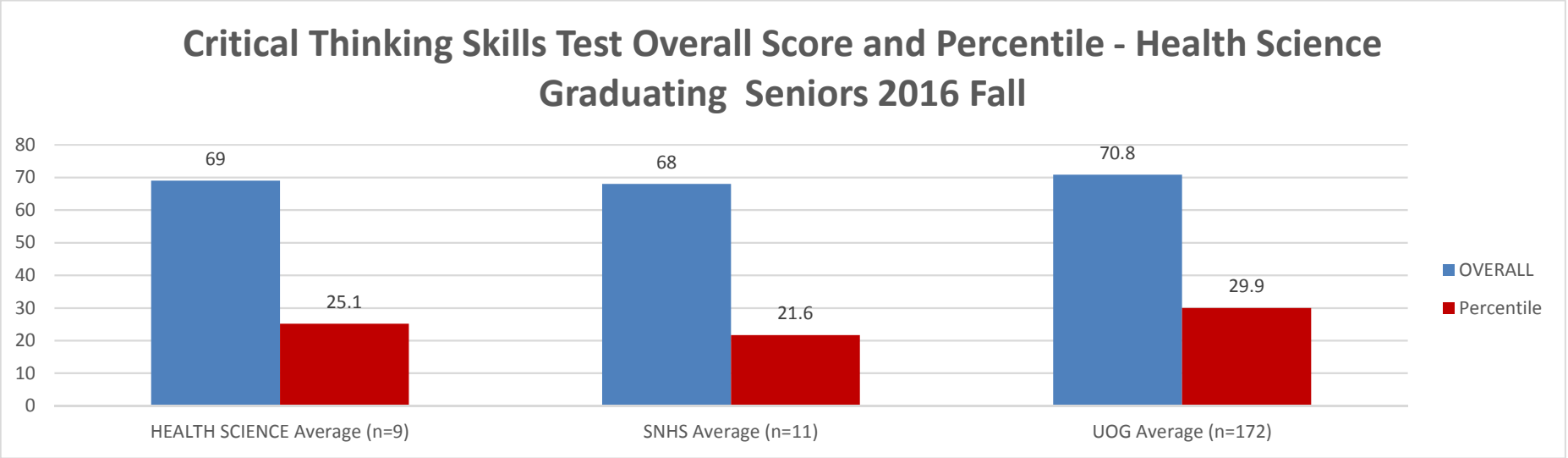

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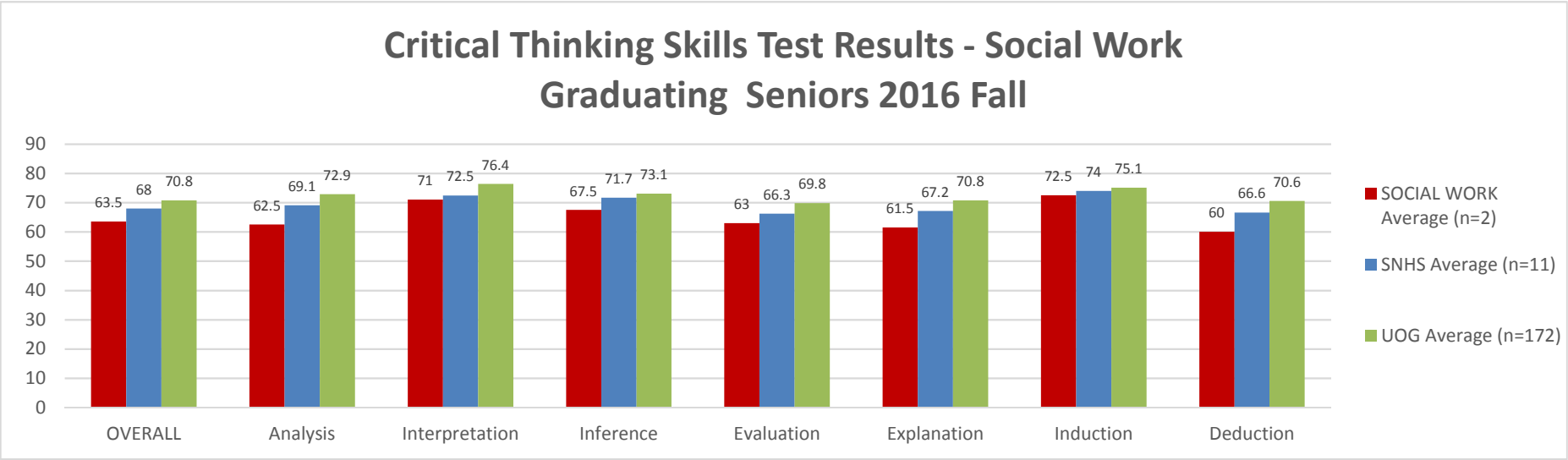

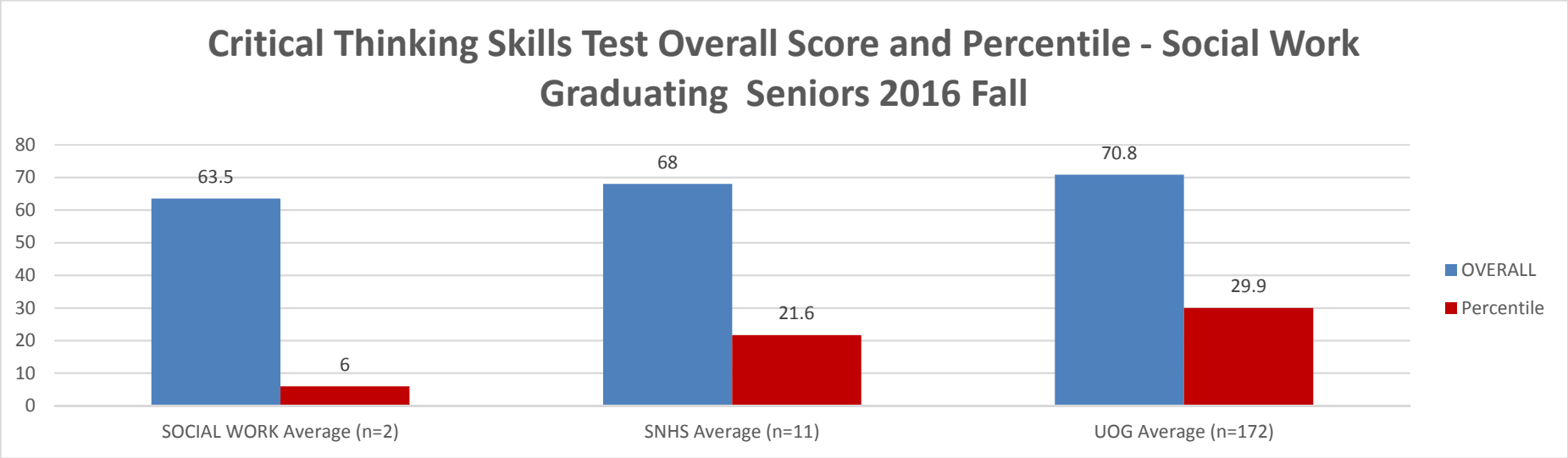

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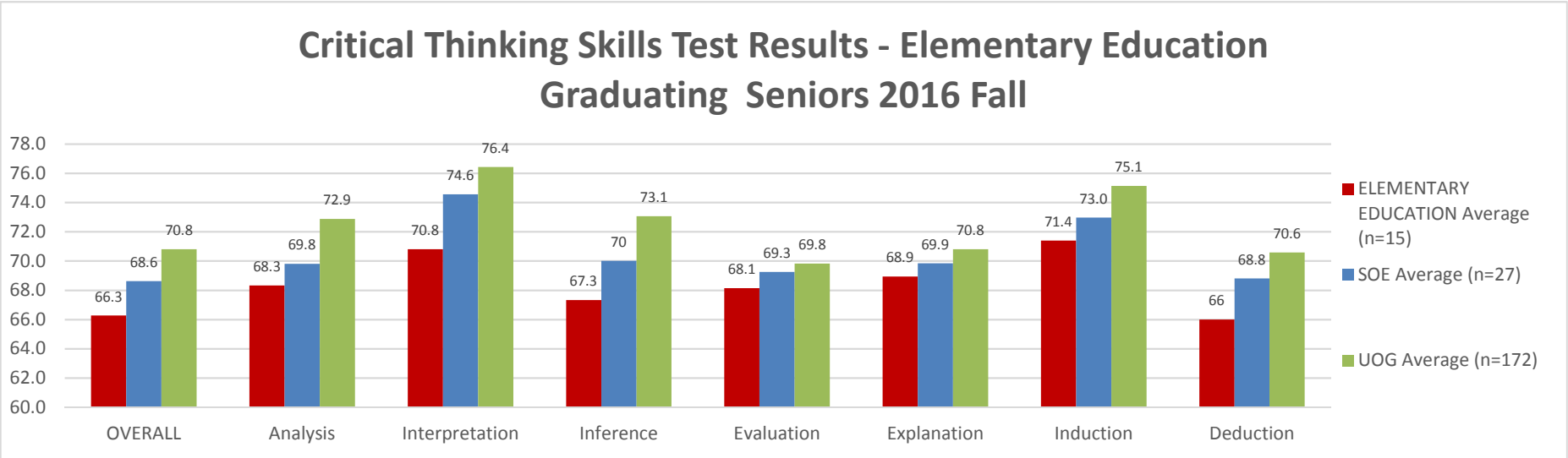

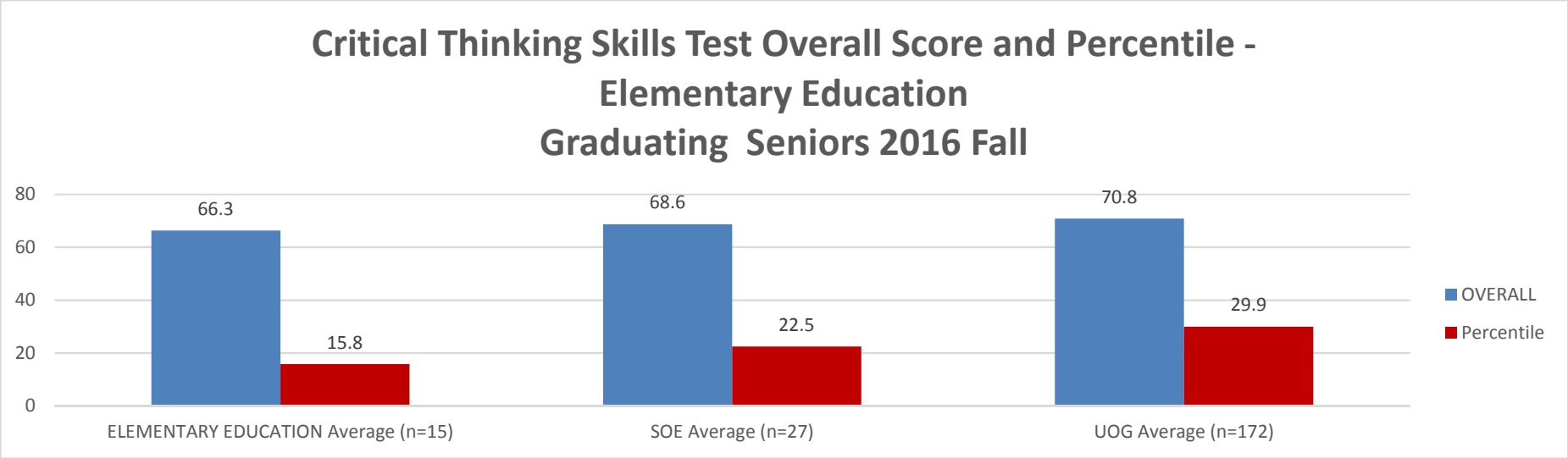

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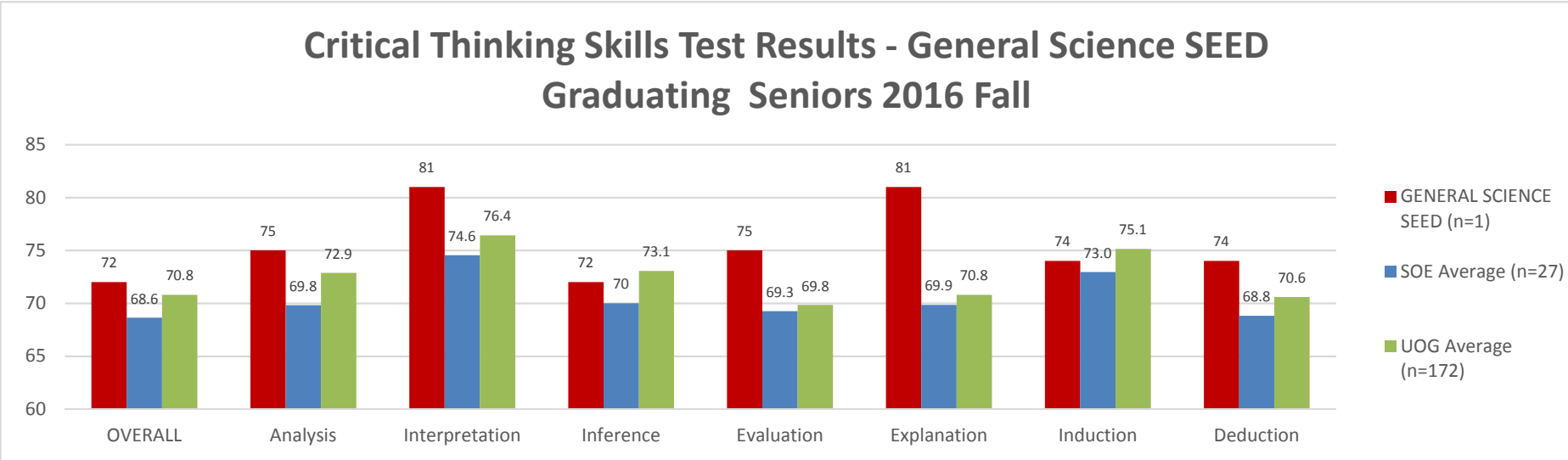

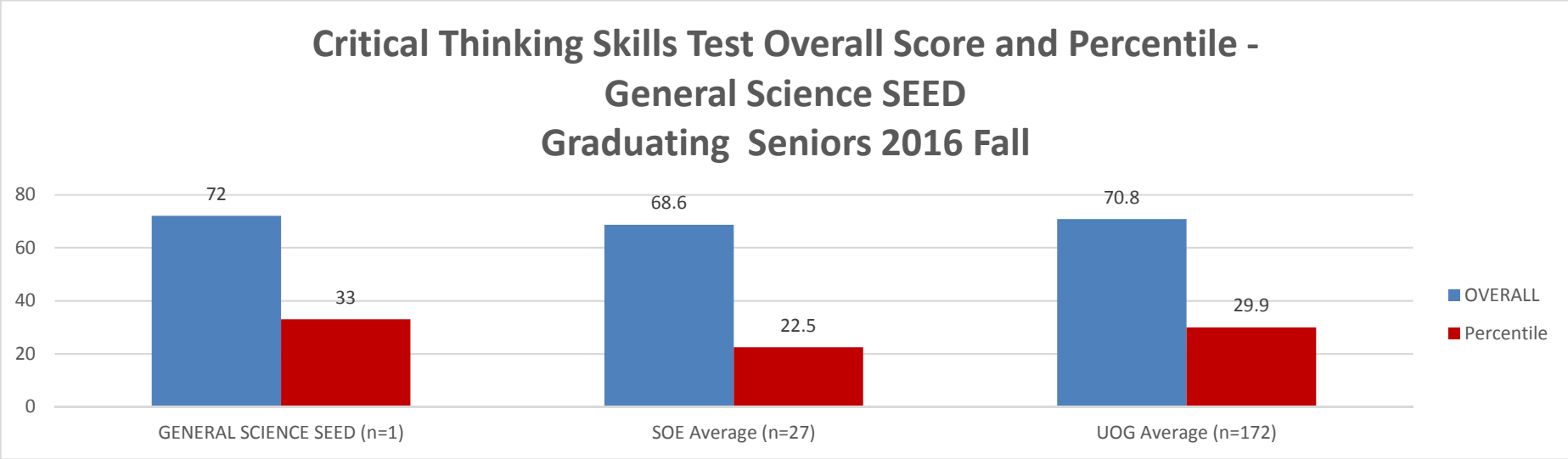

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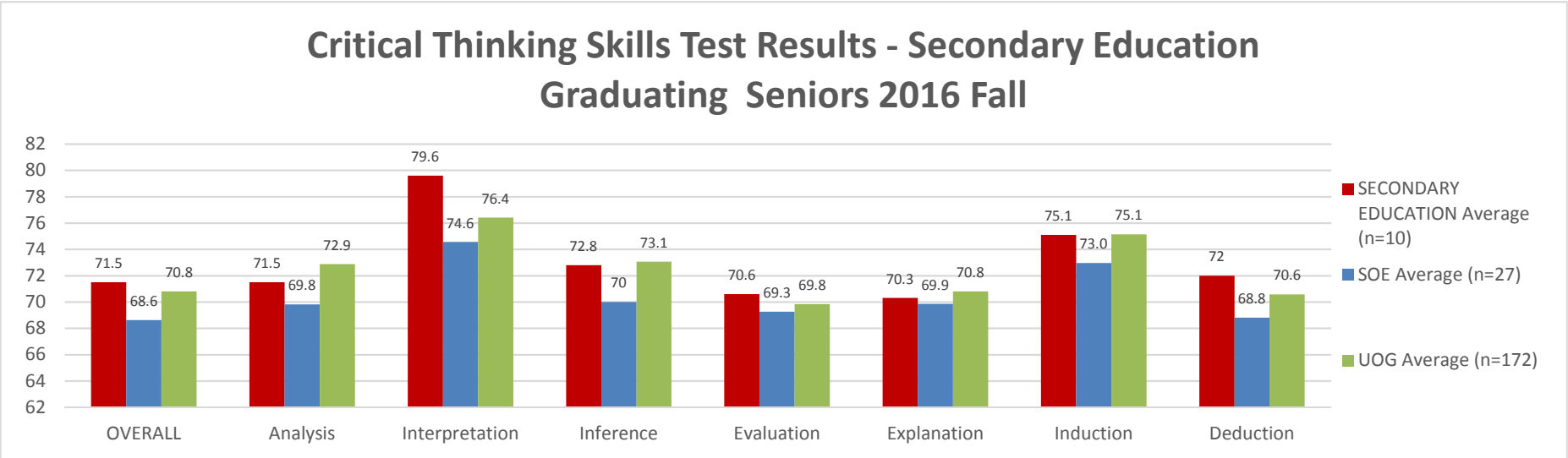

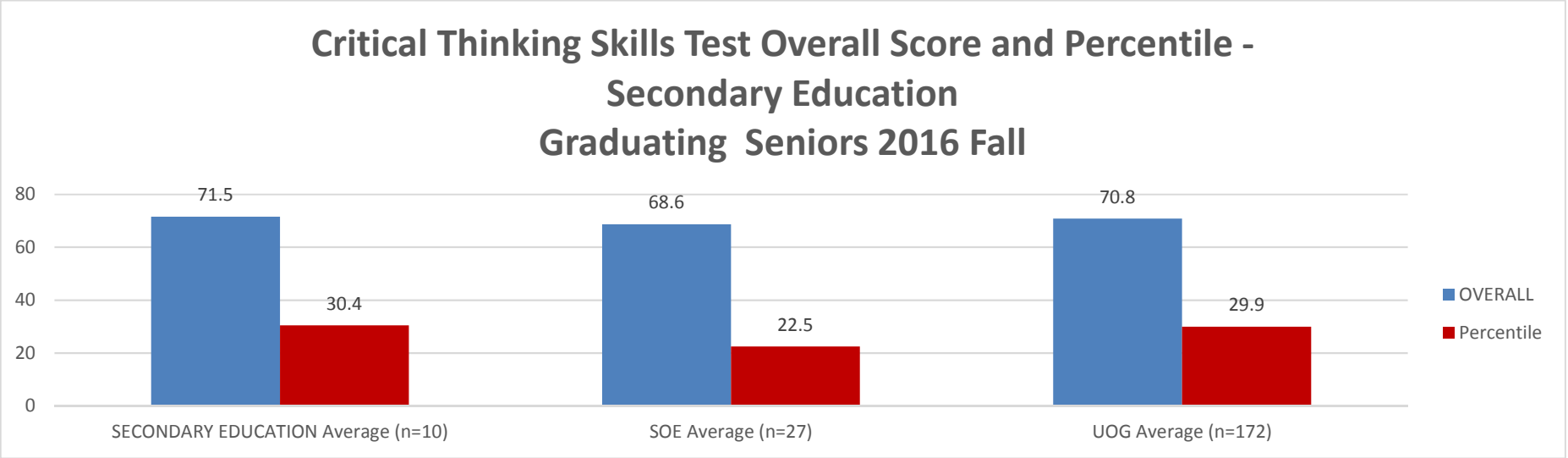

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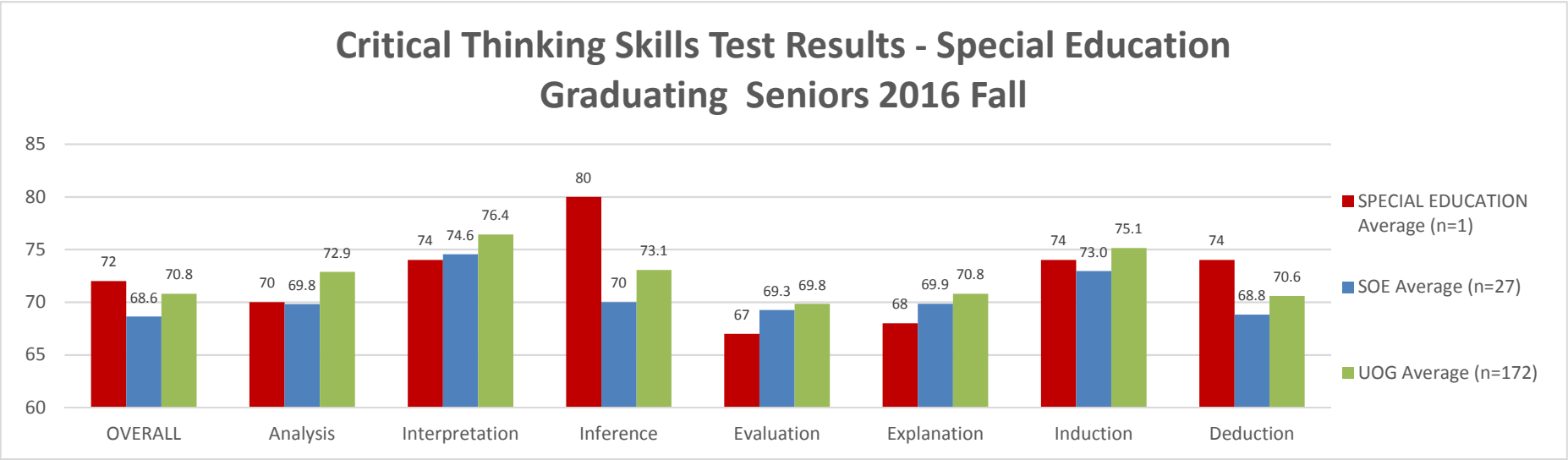

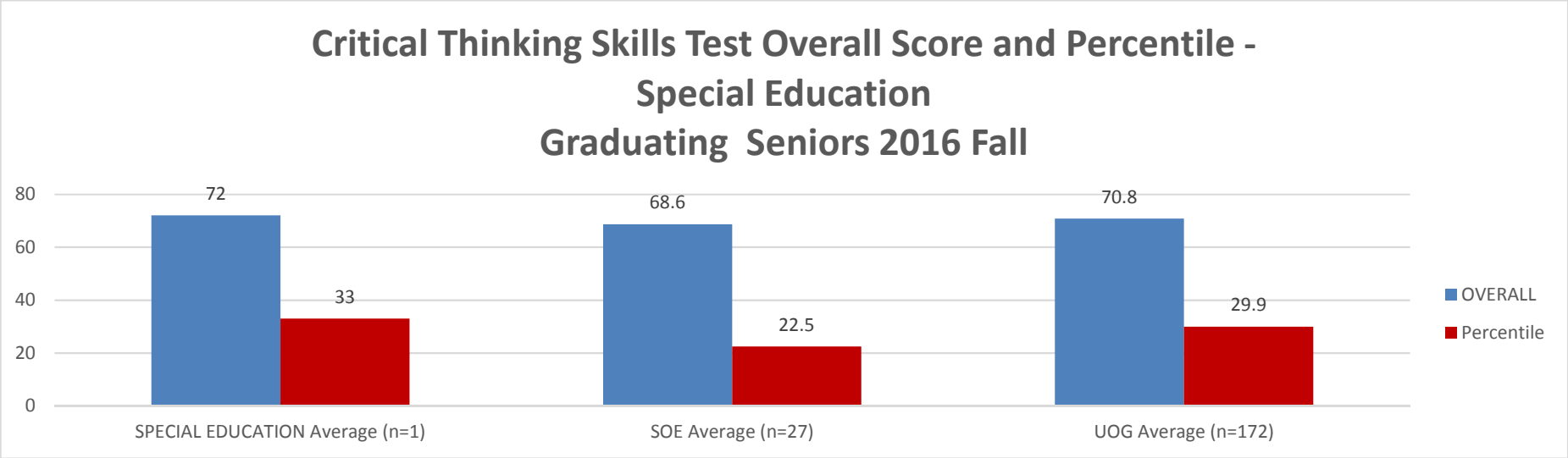

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ANALYSIS. Analytical reasoning skills enable people to identify assumptions, reasons and claims, and to examine how they interact in the formation of arguments. We use analysis to gather information from charts, graphs, diagrams, spoken language and documents. People with strong analytical skills attend to patterns and to details. They identify the elements of a situation and determine how those parts interact. Strong interpretation skills can support high quality analysis by providing insights into the significance of what a person is saying or what something means.

INTERPRETATION. Interpretative skills are used to determine the precise meaning and significance of a message or signal, whether it is a gesture, sign, set of data, written or spoken words, diagram, icon, chart or graph. Correct interpretation depends on understanding the message in its context and in terms of who sent it, and for what purpose. Interpretation includes clarifying what something or someone means, grouping or categorizing information, and determining the significance of a message.

INFERENCE. Inference skills enable us to draw conclusions from reasons and evidence. We use inference when we offer thoughtful suggestions and hypotheses. Inference skills indicate the necessary or the very probable consequences of a given set of facts and conditions. Conclusions, hypotheses, recommendations or decisions that are based on faulty analyses, misinformation, bad data or biased evaluations can turn out to be mistaken, even if they have been reached using excellent inference skills.

EVALUATION. Evaluative reasoning skills enable us to assess the credibility of sources of information and the claims they make. And, we use these skills to determine the strength or weakness of arguments. Applying evaluation skills we can judge the quality of analyses, interpretations, explanations, inferences, options, opinions, beliefs, ideas, proposals, and decisions. Strong explanation skills can support high quality evaluation by providing the evidence, reasons, methods, criteria, or assumptions behind the claims made and the conclusions reached.

EXPLANATION. Explanatory reasoning skills, when exercised prior to making a final decision about what to believe or what to do, enable us to describe the evidence, reasons, methods, assumptions, standards or rationale for those decisions, opinions, beliefs and conclusions. Strong explanatory skills enable people to discover, to test and to articulate the reasons for beliefs, events, actions and decisions.

DEDUCTION. Decision making in precisely defined contexts where rules, operating conditions, core beliefs, values, policies, principles, procedures and terminology completely determine the outcome depends on strong deductive reasoning skills. Deductive reasoning moves with exacting precision from the assumed truth of a set of beliefs to a conclusion which cannot be false if those beliefs are true. Deductive validity is rigorously logical and clear-cut. Deductive validity leaves no room for uncertainty, unless one alters the meanings of words or the grammar of the language.

INDUCTION. Decision making in contexts of uncertainty relies on inductive reasoning. We use inductive reasoning skills when we draw inferences about what we think must probably be true based on analogies, case studies, prior experience, statistical analyses, simulations, hypotheticals, and familiar circumstances and patterns of behavior. As long as there is the possibility, however remote, that a highly probable conclusion might be mistaken, the reasoning is inductive. Although it does not yield certainty, inductive reasoning can provide a solid basis for confidence in our conclusions.

OVERALL. The Reasoning Skills Overall score describes overall strength in using reasoning to form reflective judgments about what to believe or what to do. High Overall scores are attained by test takers who excel in the sustained, focused and integrated application of core thinking skills measured on this test, including analysis, interpretation, inference, evaluation, explanation, induction and deduction. The Overall score predicts the capacity for success in educational or workplace settings which demand reasoned decision making and thoughtful problem solving.

PERCENTILE. A note of interpretation: A score that falls in the 60th percentile indicates that out of one hundred test takers, roughly 40 would earn a higher score and 60 a lower score. A percentile score is not an indication of the percent correct, but of relative ranking. Percentile approximations are suggested for advisory purposes only.

UNIVERSITY OF GUAM
UNIBETSEDÅT GUAHAN

Academic & Student Affairs
Office of Academic Assessment and Institutional Research

July 26, 2016

Dear «FIRST» «LAST»,

Hafa Adai and congratulations on your upcoming graduation this semester! *We need your assistance!* In 2008, the University established the following expected student learning outcomes for all its students who receive a degree from the University of Guam:

- Mastery of critical thinking and problem solving
- Mastery of quantitative analysis
- Effective oral and written communication
- Understanding and appreciation of culturally diverse people, ideas and values in a democratic context
- Responsible use of knowledge, natural resources, and technology
- An appreciation of the arts and sciences
- An interest in personal development and lifelong learning

As an **administrative requirement for your bachelor's degree and to comply with accreditation requirements**, this semester we are measuring critical thinking skills of graduating seniors using the Internet-based California Critical Thinking Skills Test ("CCTST"). The results from this 45-minute multiple-choice test will provide the University with information directly from students to help us improve our curriculum and student success with the mastery of critical thinking skills.

Lab 107B in the Computer Center on campus has been reserved on the following dates for you to choose from to stop in and take the test:

August 08-12, 2016	Monday-Friday, 8am-7pm
August 13, 2016	Saturday, 9am-3pm
August 15-19, 2016	Monday-Friday, 8am-7pm
August 20, 2016	Saturday, 9am-3pm
August 22-26, 2016	Monday-Friday, 8am-7pm
August 27, 2016	Saturday, 9am-3pm
August 29-September 02, 2016	Monday-Friday, 8am-7pm
September 03, 2016	Saturday, 9am-3pm
September 06-09, 2016	Tuesday-Friday, 8am-7pm

September 10, 2016	Saturday, 9am-3pm
September 12-16, 2016	Monday-Friday, 8am-7pm
September 17, 2016	Saturday, 9am-3pm

Come to the Computer Center on **one** of these date and expect to stay for 50 minutes to take the test. Using the Internet, we will have you log into the test then you will be asked a series of multiple choice questions within a **45 minute time allotment.** For control purposes, **a photo ID is required**.

Individual results will be **confidential** and will not be publicly reported, although you will receive a printout of your results at the end of the test so that you will know how you scored. The results of this test **will not** be used to influence or impact any grade for any of the classes you are taking. Taking this test is an **administrative requirement for graduation** but we do ask that you extend your best effort and attention when taking this test.

More information about the CCSTS is available at www.insightassessment.com

If you have any questions about this study or our interest in using the results, please e-mail me at deborah@uguam.uog.edu or call 735-2585.

Thank you very much for participating in this study.

Biba UOG!

Deborah Leon Guerrero
Director for Academic Assessment and Institutional Research
University of Guam