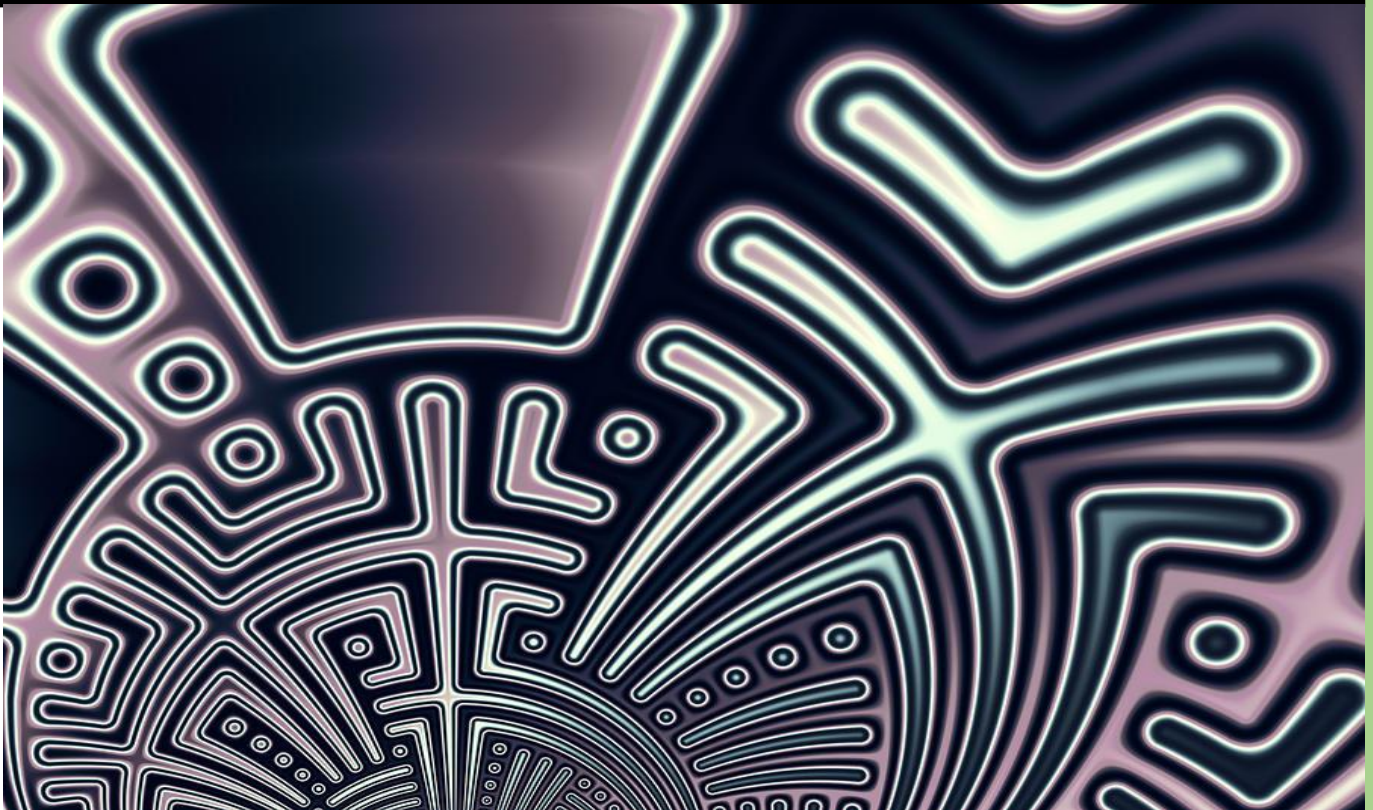# 2017

QUANTITATIVE REASONING ASSESSMENT REPORT

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Summary

Report on the Spring 2017 Assessment on Quantitative Reasoning Ability

During the spring 2017 semester, the Assessment Committee implemented a set of questions prepared by members of the committee. The questions were administered to students enrolled in Interdisciplinary courses and high level courses.

The instrument was designed to measure students' ability to apply aspects of quantitative reasoning to analyze a situation and solve a real-life problem.

The purpose of the research was to compare the performance of these two groups of students at different levels of their college education. The data consisted of 116 students enrolled in the College Success seminar and 224 students enrolled in higher level courses. The total enrollment at the College during spring 2017 semester was 5,189 students. The data represented 7% of the total enrollment. The demographic profile of the respondents closely matched that of the full student body with respect to gender, academic status, etc.

The following research questions guided the study:

- Is there a difference between the score of students enrolled in College Success seminar and students enrolled in higher level courses?
- Do students in higher level courses tend to do better on each question?

The results did not show a significant statistical difference between the groups in both research questions.

We will analyze further the results from this assessment to address areas we still to understand how to provide additional support to our students.

Participants by Course

Course	Count
Bio-227	18
MICROBIO-233	38
MICROBIO-233 EX	11
MICROBIO-233 FH	9
POL SCI	11
Psych-107	1
Psych-201-B	30
Psych-201-H	29
Psych-207	22
Psych-307	2
Psych-407	1
SOC-202	12
SOC-205	17
Speech-101	5
Theater	18
Grand Total	**224**

Group 1: College Success

Option	Frequency	Percent
1	50	43%
2	39	34%
3	18	16%
4	9	8%
Total	116	100%

Option	Frequency	Percent
1	21	18%
2	21	18%
3	60	52%
4	14	12%
Total	116	100%

Option	Frequency	Percent
1	3	3%
2	95	82%
3	13	11%
4	5	4%
Total	116	100%

Group 2: Other Courses

Option	Frequency	Percent
1	104	46%
2	71	32%
3	36	16%
4	13	6%
Total	224	100%

Option	Frequency	Percent
1	39	17%
2	47	21%
3	115	51%
4	23	10%
Total	224	100%

Option	Frequency	Percent
1	15	7%
2	169	75%
3	29	13%
4	11	5%
Total	224	100%

Comparing Groups

	Group 1	Group 2
Option 1	43%	46%
Option 2	34%	32%
Option 3	16%	16%
Option 4	8%	6%

	Group 1	Group 2
Option 1	18%	17%
Option 2	18%	21%
Option 3	52%	51%
Option 4	12%	10%

	Group 1	Group 2
Option 1	3%	7%
Option 2	82%	75%
Option 3	11%	13%
Option 4	4%	5%

Graphs

Question 1

Option 1: Group 1 43%, Group 2 46%
Option 2: Group 1 34%, Group 2 32%
Option 3: Group 1 16%, Group 2 16%
Option 4: Group 1 8%, Group 2 6%

Group 1 Group 2

Question 2

Option 1: Group 1 18%, Group 2 17%
Option 2: Group 1 18%, Group 2 21%
Option 3: Group 1 52%, Group 2 51%
Option 4: Group 1 12%, Group 2 10%

Group 1 Group 2

Question 3

	Option 1	Option 2	Option 3	Option 4
Group 1	3%	82%	11%	4%
Group 2	7%	75%	13%	5%

Group 1   Group 2
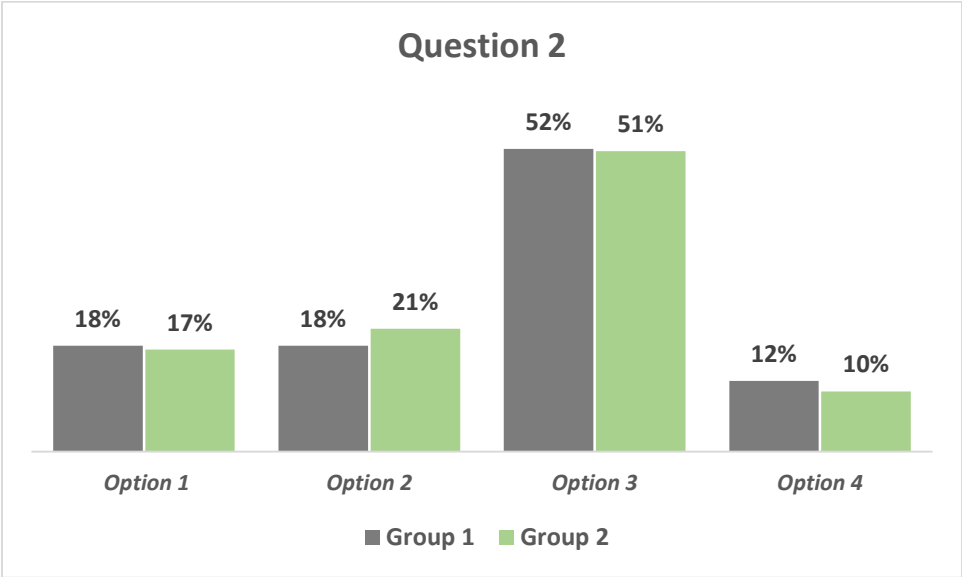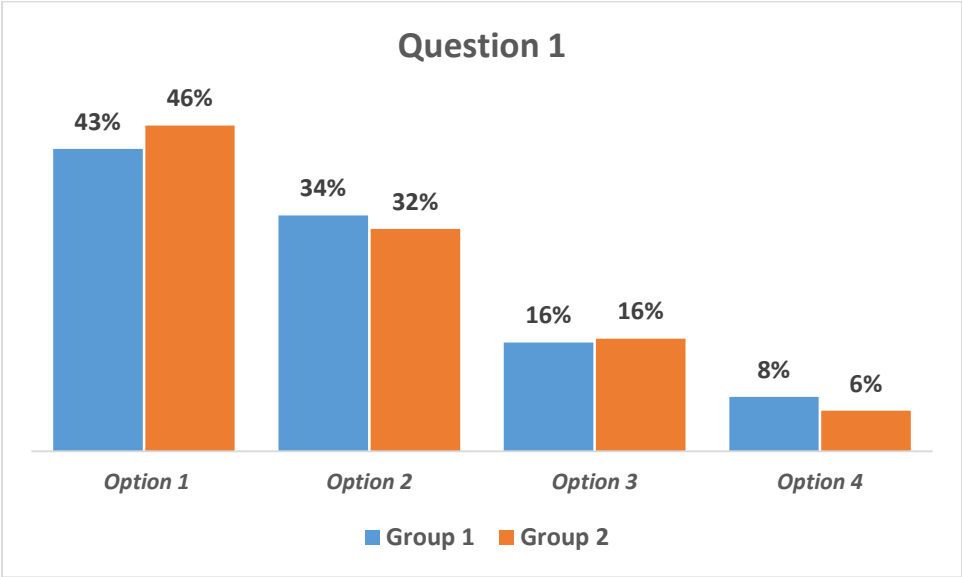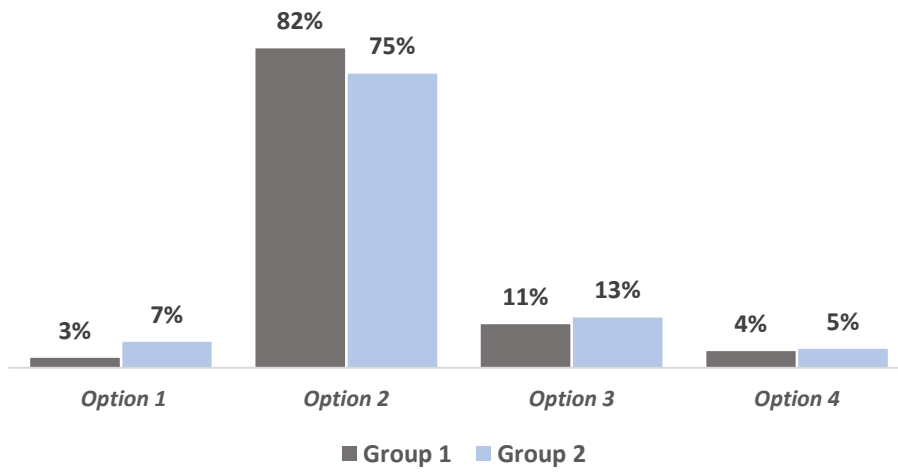
Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Q1	1	116	1.88	.943	.088
	2	224	1.81	.909	.061
Q2	1	116	2.58	.925	.086
	2	224	2.54	.897	.060
Q3	1	116	2.17	.532	.049
	2	224	2.16	.607	.041

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Q1	Equal variances assumed	.004	.953	.634	338	.526	.067	.105	-.140	.274
	Equal variances not assumed			.627	225.271	.531	.067	.107	-.143	.277
Q2	Equal variances assumed	.066	.797	.318	338	.751	.033	.104	-.171	.237
	Equal variances not assumed			.315	226.734	.753	.033	.105	-.173	.239
Q3	Equal variances assumed	1.187	.277	.176	338	.861	.012	.067	-.119	.143
	Equal variances not assumed			.183	261.176	.855	.012	.064	-.114	.138

Differences are not statistically significant.

APPENDIX: Instrument

1. The hemoglobin A1c (HbA1c) test measures average blood sugar levels for the 2-3-month period before blood is drawn. A HbA1c of 6% is equal to an average blood sugar of about 120 units. If your average blood sugar in the past 3 months is 270 units, approximately what is your HbA1c? (an increase of 1 % in HbA1c is equivalent to an increase of 30 units).

   O   11
   O   18
   O   27
   O   30

2. According to the Institute of Medicine, children and adults should consume 45 to 65 percent of their calorie intake as carbohydrates, and at least 128 grams of carbs per day. The nutritional facts of the only sources of carbs available for you are shown below. **How many cups** of pasta, carrots, and bags of chips, respectively, will give you the **exact** daily minimum requirement of carbs?

Pasta

Nutrition Facts
Serving Size 1 cup (228g)
Serving Per Container 2

Amount Per Serving

Calories 250   Calories from Fat 110

% Daily Value*

Total Fat 12g	18%
Saturated Fat 3g	15%
Cholesterol 30mg	10%
Sodium 470mg	20%
Total Carbohydrate 31g	10%

* Percent Daily Values are based on a 2,000 calorie diet. Your Daily Values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Carrots

Nutrition Facts
Serving Size 1 cup (85g) (3 oz.)

Servings per container 2.5

Amount per serving

Calories 45   Calories from Fat 0

% Daily Value*

Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 55 mg	2%
Total Carbohydrate 10g	3%
Dietary Fiber 3g	12%
Sugars 5g	
Protein 1g	

Vitamin A 360% • Vitamin C 8% • Calcium 2% • Iron 0%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily value may be higher or lower depending on your calorie needs.

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat. Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate	Less than	300mg	375mg
Dietary Fiber	Less than	25g	30g

Calories per gram: Fat 9 • Carbohydrate 4 • Protein 4

Ingredients: Carrots.

Chips

Nutrition Facts
Serving Size 1 cup (28g/About 11 chips)

Amount Per Serving

Calories 140   Calories from Fat 70

% Daily Value*

Total Fat 7g	11%
Saturated Fat 1g	6%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 270mg	11%
Total Carbohydrate 18g	6%
Dietary Fiber 1g	5%
Sugars less than 1g	
Protein 2g	

Vitamin A 2%	•	Vitamin C 0%
Calcium 2%	•	Iron 2%

* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9   •   Carbohydrate 4   •   Protein 4

   O   3, 2, 1

O   3, 2, 2
O   2, 3, 2
O   1, 2, 3

3. You test your blood sugar 3 times a day. You purchase a prescription of 100 testing strips on March 5th. You use 1 strip per test. Of the dates below, by when will you need to buy new strips?

    O   March 21st
    O   April 7th
    O   April 21st
    O   May 21st

4. Use the graph below to determine whether or not the following statement is true or false:

<u>The smaller the city, the higher its murder rate.</u>

Explain your answer using evidence from the graph as needed.

Source: https://www.thetrace.org/2016/07/crime-rates-american-cities-murder-inequality/
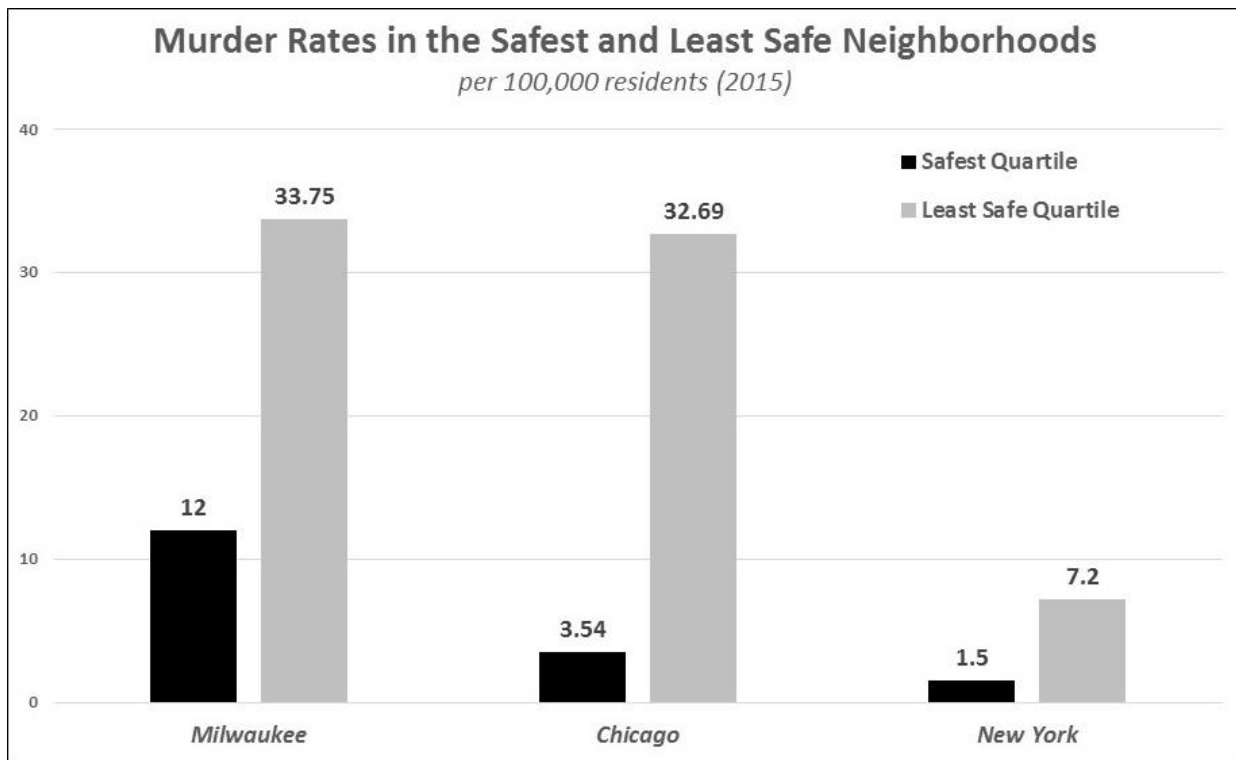
(Cities are ordered by their size, from least to most populated from left to right.)