Assessing Core Competencies: Results of Quantitative Literacy and Reasoning Assessment

Graduating Seniors
2021 Fanuchånan (Fall)

UNIVERSITY OF
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Quantitative Literacy and Reasoning Assessment 2021 Fanuchånan (Fall) Highlights

The Quantitative Literacy and Reasoning Assessment (QLRA), an online multiple-choice test, developed by Dr. Eric Gaze at Bowdoin College is a tool for assessing quantitative literacy among US four-year colleges and universities. The University's Mathematics Department began using this instrument in 100 and 400 level Math courses since 2014. The University Assessment Committee adopted the QLRA in 2017 as the Institutional Instrument for Institutional-Level assessment.

Possible scores for this assessment range from 0% through 100%. Of the 147 graduating seniors who took the assessment across all disciplines, the average score was **42.8%.**

Average QLRA Scores
Graduating Seniors 2021 Fanuchånan

CLASS (n=34) 37.8; CNAS (n=62) 55.7; SBPA (n=94) 41.3; SOE (n=24) 42.7; SOEG (n=12) 59.6; SOH (n=62) 34.9

College/School — UOG Total (n=147)
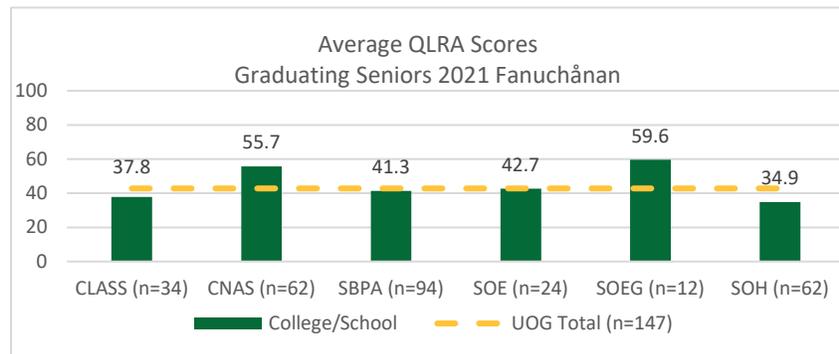
This average score remained the same when compared to 2021 Fañomnåkan. This graph compares the average scores of students in each college/school with the UOG average of 42.8**%** denoted by the broken yellow line. This report includes more detailed results of scores disaggregated by Major, and by College/School. Results were not reported at the program level for majors with less than 3 students, however, the results were included in the college and institution level figures.

To serve as a factor in the analysis of results, students were asked if they took the following courses at UOG: MA-085: Fundamentals of Math, MA-110: Basic Mathematical Applications, and MA-151: Introductory Statistics.

49% of seniors indicated that they had taken MA-085 and received an average score of **40.6%** while the students who did not take MA-085 scored an average of **51.0%.** While this course is not required, students who are placed into developmental math must pass this course before proceeding with MA-110 or higher.

57% of seniors indicated they took MA-110 and received an average score of **38.2%.** The **43%** who did not take MA-110 received an average score of **48.9%.** Although MA-110 is a general education requirement, students may opt to take an equivalent course or higher. Students who are required to take 200 or 300 level math courses may opt take MA 115 in lieu of MA 110.

64% of seniors had taken MA-151 and their average score was **41.9%.** Those who did not take the course received an average score of **44.3%**. Following last semester's pattern, *the average score of students who took Introductory Statistics were lower than those who did not take the course.*

It is important to note that in response to safety measures implemented due to COVID-19, testing was no longer held in a proctored environment on campus. Seniors were permitted to complete this assessment online at a time of their own choosing off campus.

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Quantitative Literacy and Reasoning Assessment - Graduating Seniors Average Scores

	AY18-19		AY19-20		AY20-21		AY21-22		Four Year Trend
	2018 Fall Fanuchånan	2019 Spring Fañomnåkan	2019 Fall Fanuchånan	2020 Spring Fañomnåkan	2020 Fall Fanuchånan	2021 Spring Fañomnåkan	2021 Fall Fanuchånan	2022 Spring Fañomnåkan	
Count	173	286	142	252	124	276	147		200
Avg Grade	35.7	41.3	34.8	40.0	39.0	42.8	42.8		39
Std Dev	17.2	17.9	16.7	18.3	18.0	20.6	19.3		18
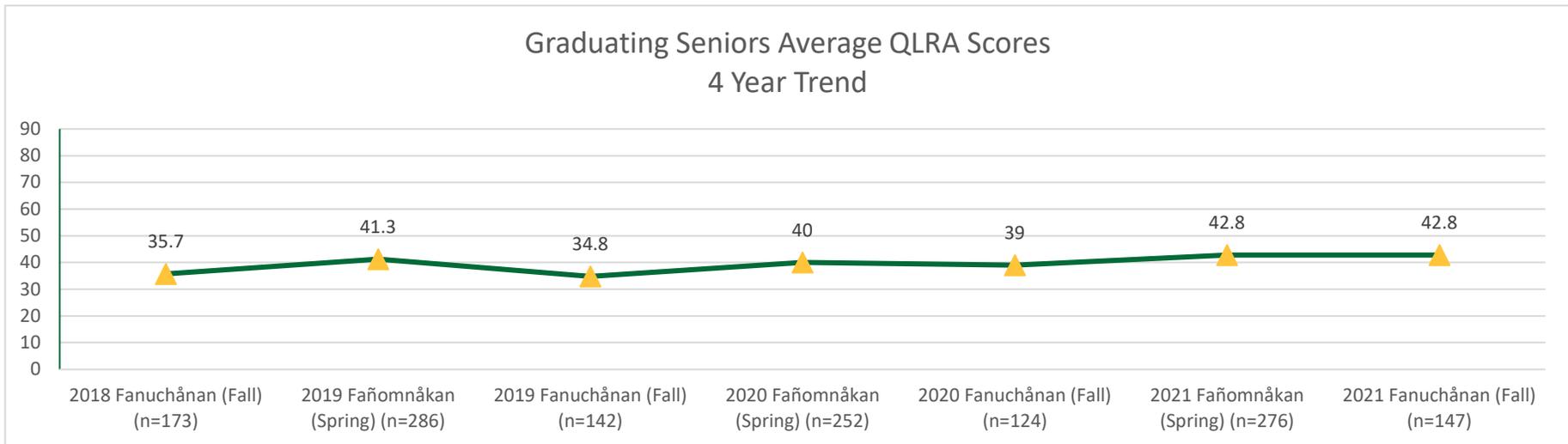
Graduating Seniors Average QLRA Scores
4 Year Trend

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2021 Fanuchånan Quantitative Literacy and Reasoning Assessment (QLRA) Average Scores by Course for Graduating Seniors

	Total	Took MA 085?		Took MA 110?		Took MA 151?	
		Yes	No	Yes	No	Yes	No
Count	147	72	75	84	63	94	53
Percent	100%	49%	51%	57%	43%	64%	36%
Avg Grade	42.8	40.6	44.9	38.2	48.9	41.9	44.3
Std Dev	19.3	17.7	20.6	16.8	20.7	17.1	22.7

Average QLRA Scores for Graduating Students who have taken
MA 085, MA 110, and MA 151

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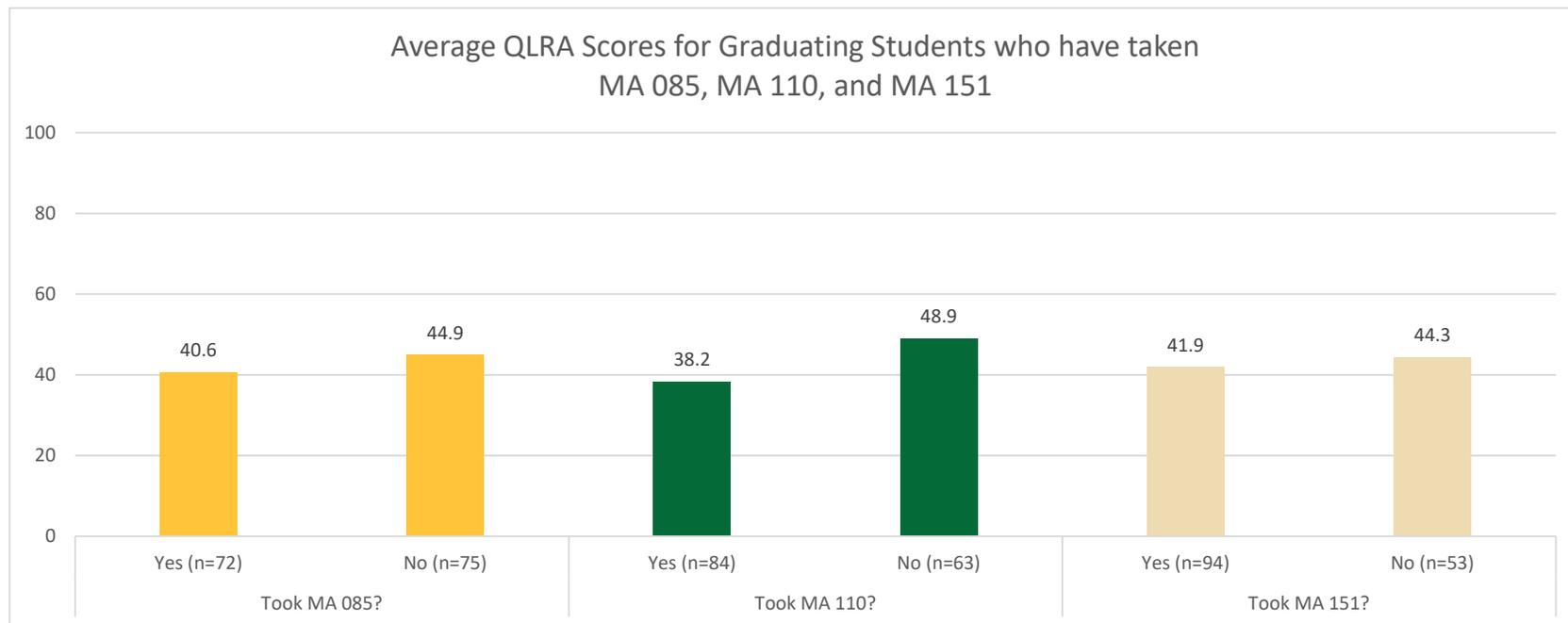
2021 Fanuchånan Quantitative Literacy and Reasoning Assessment (QLRA) Average Scores by Gender for Graduating Seniors

	Total	Gender		
		Male	Female	Declined response
Count	147	60	84	3
Percent	100%	41%	57%	2%
Avg Grade	42.8	46.1	40.7	36.7
Std Dev	19.3	22.2	16.9	15.3

Average QLRA Scores by Gender
Graduating Seniors 2021 Fanuchånan

	46.1	40.7	36.7
	Male (n=60)	Female (n=84)	Declined Response (n=3)

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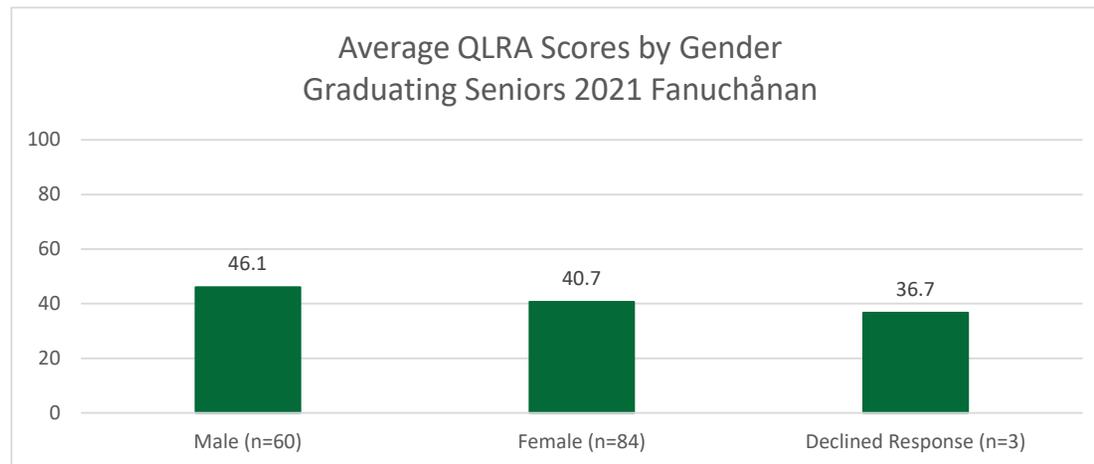
2021 Fanuchånan Quantitative Literacy and Reasoning Assessment Math Attitudes - Indirect Assessment

Statement	Response	Count	Percent
Numerical information is very useful in everyday life	Strongly Agree	97	35%
Numbers are not necessary for most situations	Strongly Disagree	30	11%
Quantitative information is vital for accurate decisions	Strongly Agree	73	26%
Understanding numbers is as important in daily life as reading and writing	Strongly Agree	98	36%
It is a waste of time to learn information containing a lot of numbers	Strongly Disagree	73	26%

Relationship between QLRA Test Scores and Math Attitude

$y = 0.3021x + 36.376$
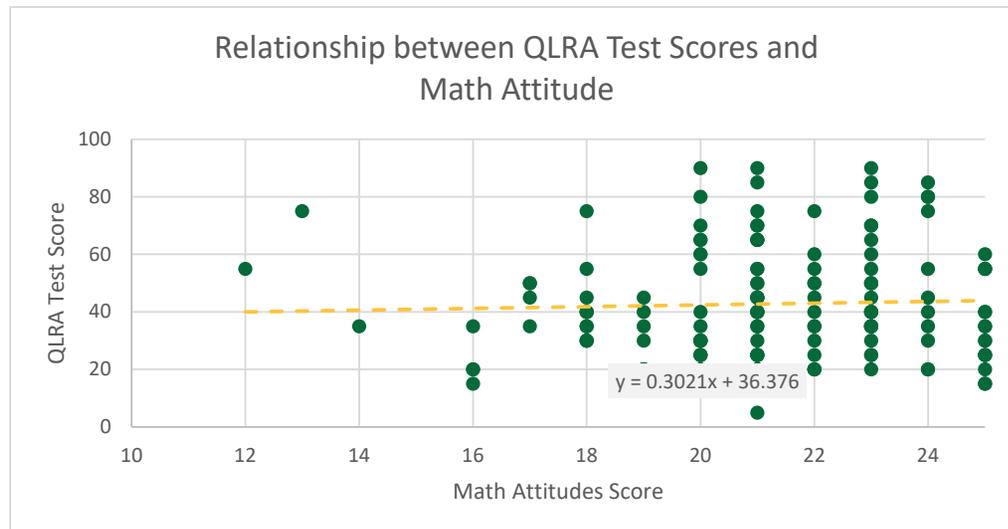
Higher Math Attitudes Scores correspond to more positive attitudes towards Math. The highest possible Math Attitude Score is 25.

The QLRA has been administered to graduating seniors as a requirement for graduation since Spring 2017.

Every semester since then has shown a positive relationship between math attitudes and QLRA test scores with the exception of the 2020 Fanuchånan semester.

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2021 Fanuchånan Quantitative Literacy and Reasoning Assessment Average Scores by College/School

College/School	AVERAGE GRADE	STDEV
College of Liberal Arts and Social Sciences - CLASS (n=21)	37.8	19.3
College of Natural and Applied Sciences - CNAS (n=20)	55.7	20.4
School of Business and Public Administration - SBPA (n=65)	41.3	19.7
School of Education - SOE (n=20)	42.7	18.7
School of Engineering - SOEG (n=12)	59.6	23.4
School of Health - SOH (n=9)	34.9	17.9
UOG Total (n=147)	42.8	19.3
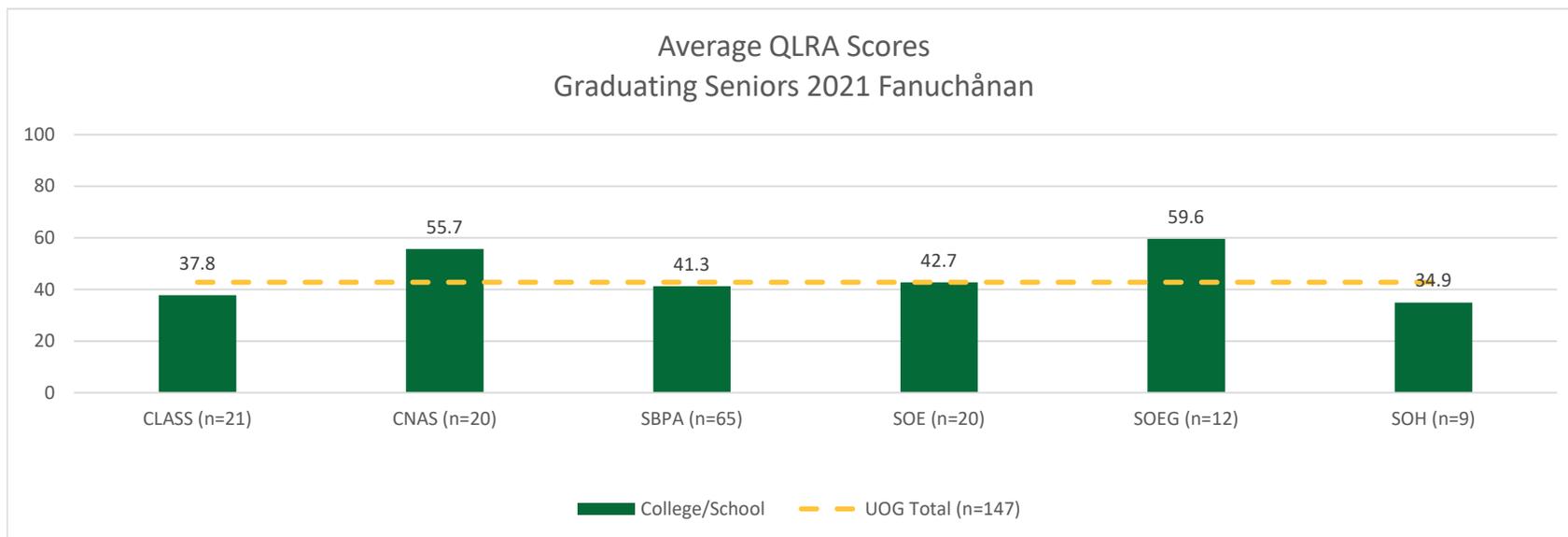
Average QLRA Scores
Graduating Seniors 2021 Fanuchånan

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2021 Fanuchånan Quantitative Literacy and Reasoning Assessment Average Scores by Major - CLASS

MAJOR	AVERAGE GRADE	STDEV
English (n=8)	36.3	11.3
Psychology (n=7)	38.6	12.2
CLASS Subtotal (n=21)	37.4	12.2
UOG Total (n=147)	42.8	19.3

Average QLRA Scores - CLASS
Graduating Seniors 2021 Fanuchånan

36.3   38.6

English (n=8)   Psychology (n=7)

■ Major   ■ ■ CLASS Subtotal (n=21)   ── UOG Total (n=147)
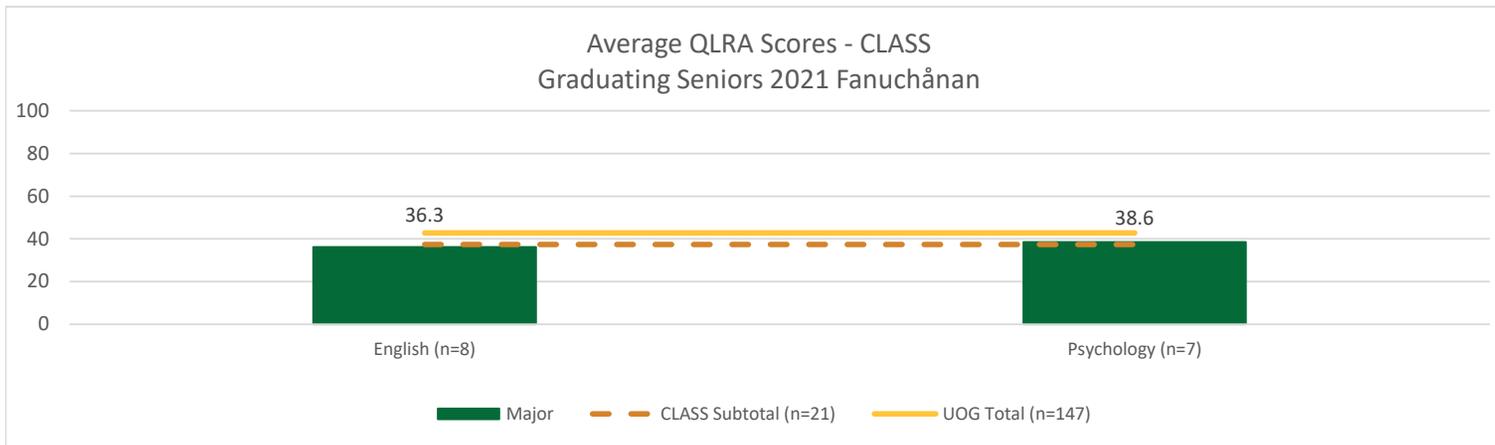
*The following majors did not have enough data to report: Anthropology,Fine Arts, History, Pacific Asian Studies & Sociology.

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2021 Fanuchånan Quantitative Literacy and Reasoning Assessment Average Scores by Major - CNAS

MAJOR	AVERAGE GRADE	STDEV
Agriculture And Life Sciences (n=9)	47.8	20.0
Computer Info System (n=4)	42.5	24.0
Computer Science (n=3)	70.0	22.9
CNAS Subtotal (n=20)	54.5	22.5
UOG Total (n=147)	42.8	19.3

Average QLRA Scores - CNAS
Graduating Seniors 2021 Fanuchånan

- Agriculture And Life Sciences (n=9): 47.8
- Computer Info System (n=4): 42.5
- Computer Science (n=3): 70.0
- Mathematics (n=2): 77.5

Legend: Major, CNAS Subtotal (n=20), UOG Total (n=147)
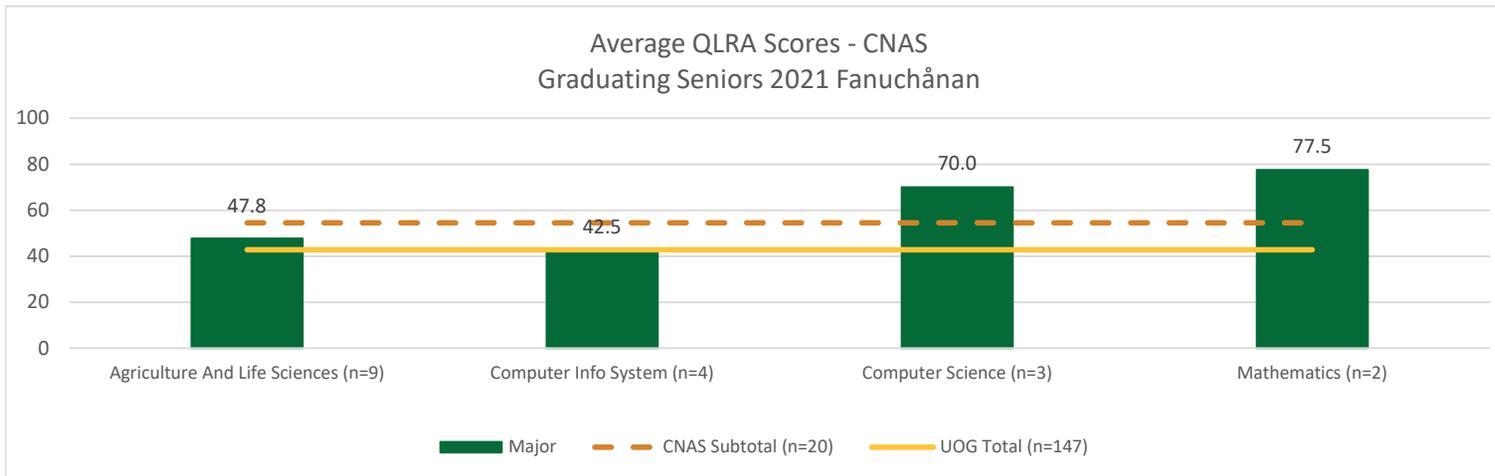
*The following majors did not have enough data to report: Biology & Mathematics.

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2021 Fanuchånan Quantitative Literacy and Reasoning Assessment Average Scores by Major - SBPA

MAJOR	AVERAGE GRADE	STDEV
Accounting (n=9)	40.0	20.0
Business Administration (n=40)	44.1	17.2
Criminal Justice (n=12)	37.5	19.0
Public Administration (n=4)	31.3	20.6
SBPA Subtotal (n=65)	41.5	18.1
UOG Total (n=147)	42.8	19.3
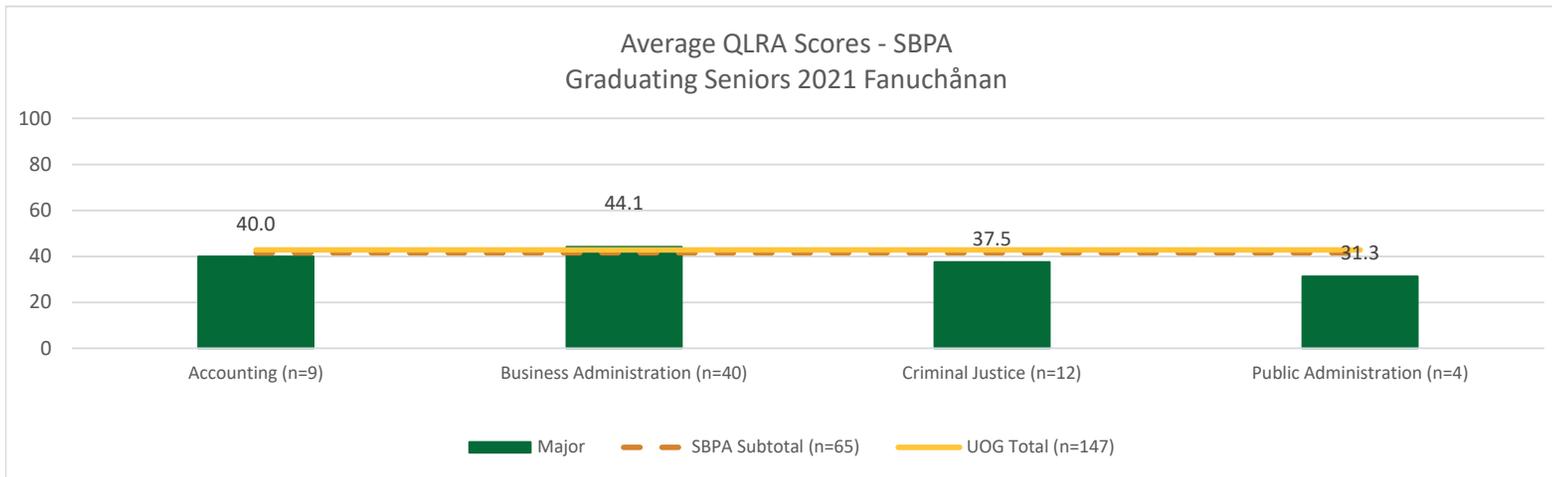
Average QLRA Scores - SBPA
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2021 Fanuchånan Quantitative Literacy and Reasoning Assessment Average Scores by Major - SOE

MAJOR	AVERAGE GRADE	STDEV
Elementary Education (n=5)	29.0	6.5
Secondary Education (n=14)	35.0	17.2
SOE Subtotal (n=20)	33.0	14.9
UOG Total (n=147)	42.8	19.3

Average QLRA Scores - SOE
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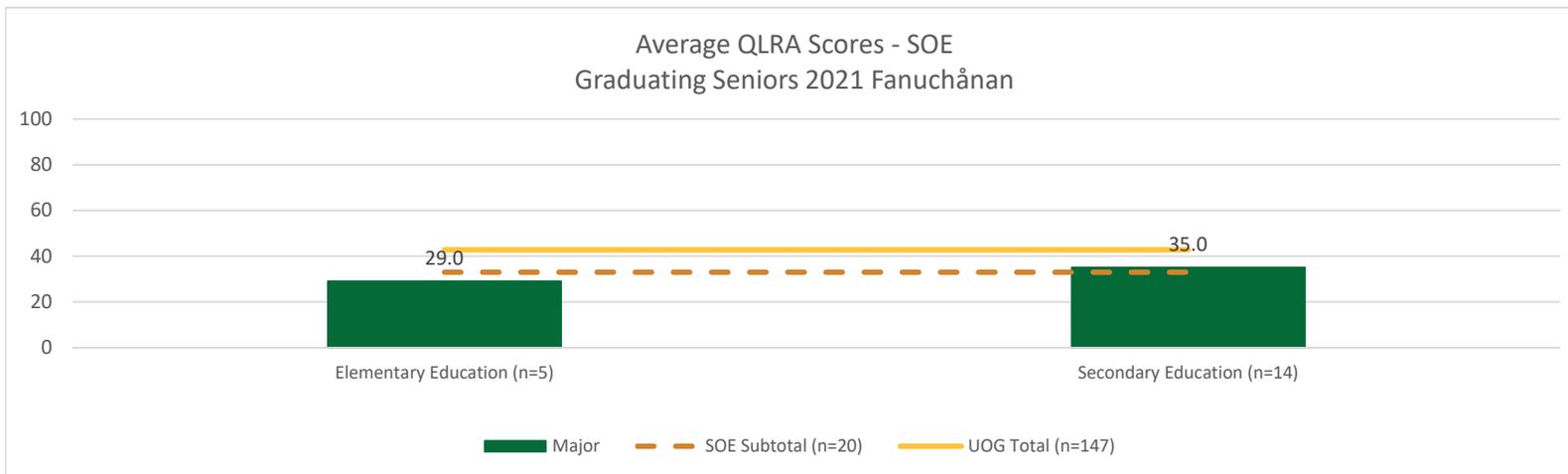
*Physical Education/School Health did not have enough results to report.

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2021 Fanuchånan Quantitative Literacy and Reasoning Assessment Average Scores by Major - SOEG

MAJOR	AVERAGE GRADE	STDEV
Civil Engineering (n=12)	59.6	23.4
SOEG Subtotal (n=12)	59.6	23.4
UOG Total (n=147)	42.8	19.3
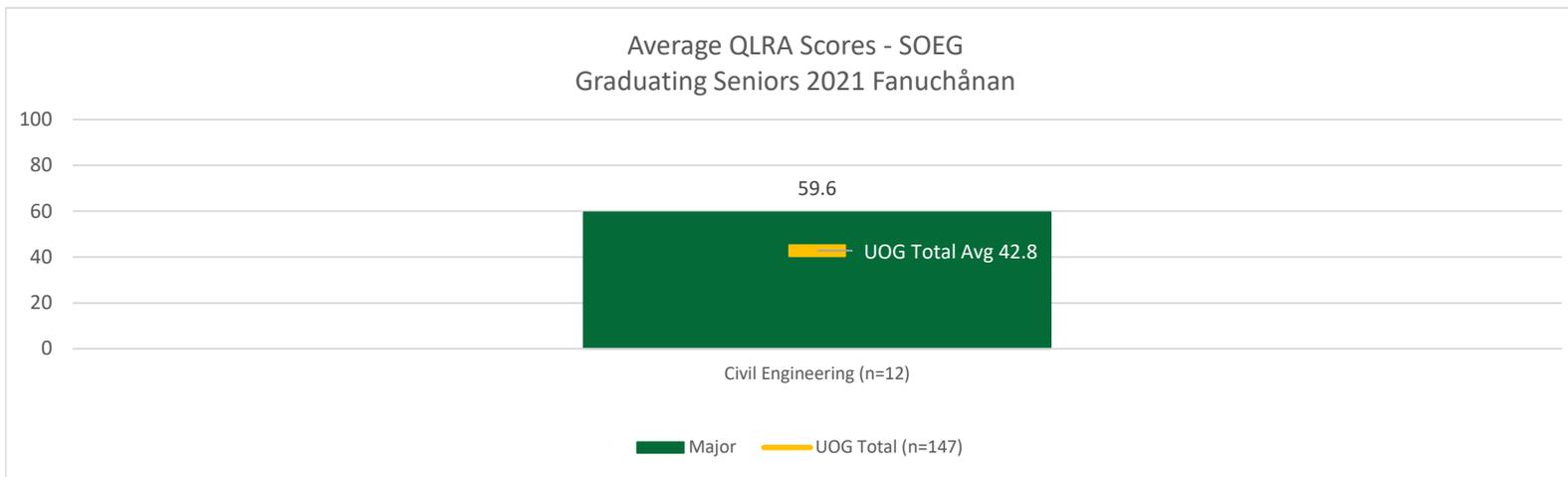
Average QLRA Scores - SOEG
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2021 Fanuchånan Quantitative Literacy and Reasoning Assessment Average Scores by Major - SOH

MAJOR	AVERAGE GRADE	STDEV
Health Science (n=7)	40.0	13.8
SOH Subtotal (n=9)	37.8	13.7
UOG Total (n=147)	42.8	19.3

Average QLRA Scores - SOH
Graduating Seniors 2021 Fanuchånan
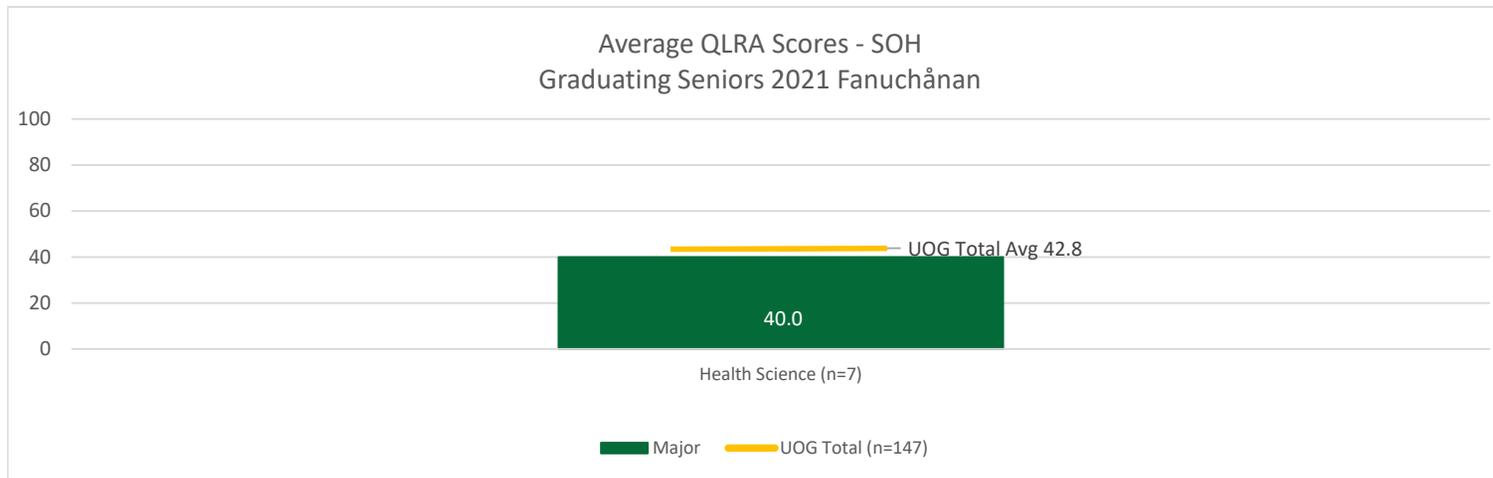
*Social Work did not have enough data to report.