



Empirical and Quantitative Reasoning

Introduction

Survey offered to all students who took a course in this K-State 8 area in the Spring of 2017. The survey was sent via email at the beginning of May 2017 and remained open until mid-May of 2017.

Demographics

Respondents by College of K-State 8 Course

| | Count |
|--------------------------------|-------|
| Agriculture | 361 |
| Architecture, Planning & Desig | 39 |
| Arts and Sciences | 1467 |
| Business Administration | 509 |
| Education | 7 |
| Engineering | 212 |
| Human Ecology | 196 |
| Total | 2791 |

Respondents by College of Student Major

| | Count |
|--------------------------------|-------|
| Agriculture | 593 |
| Architecture, Planning & Desig | 48 |
| Arts and Sciences | 559 |
| Business Administration | 495 |
| Education | 55 |
| Engineering | 638 |
| Human Ecology | 383 |
| Technology and Aviation | 20 |
| Total | 2791 |

Course Designation

| | Count |
|---|-------|
| Empirical and Quantitative Reasoning Only | 1180 |
| Multiple Areas | 1611 |

Student Classification

| | Count |
|-----------|-------|
| Freshman | 334 |
| Sophomore | 722 |
| Junior | 696 |
| Senior | 1039 |

Response Rates

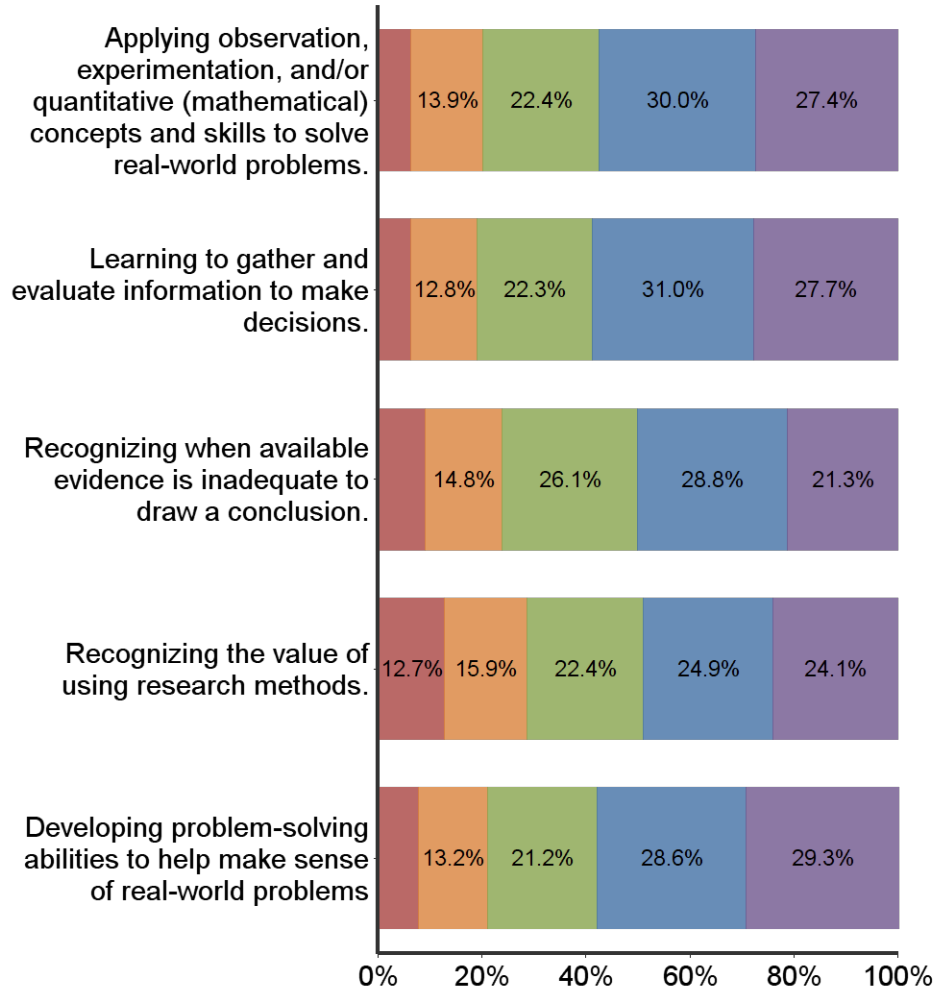
| | Respondents |
|-----------------------|-------------|
| Responses (Res.): | 2440 |
| Population (Pop.): | 14490 |
| Response Rate (R.R.): | 19.3% |

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Please indicate how much you learned about the five possible learning outcomes listed below for **Empirical and Quantitative Reasoning**?

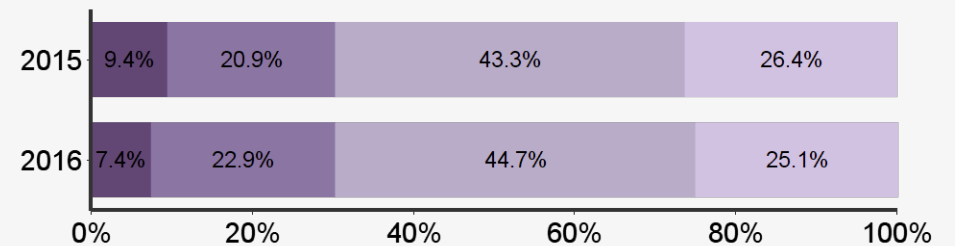
■ Topic wasn't covered
 ■ Learned a little bit
 ■ Learned some
■ Learned quite a bit
 ■ Learned a lot



Alumni Survey

To what extent did the K-State area **Empirical and Quantitative Reasoning** contribute to your understanding of your profession and/or the world around you? (2015-16 graduates)

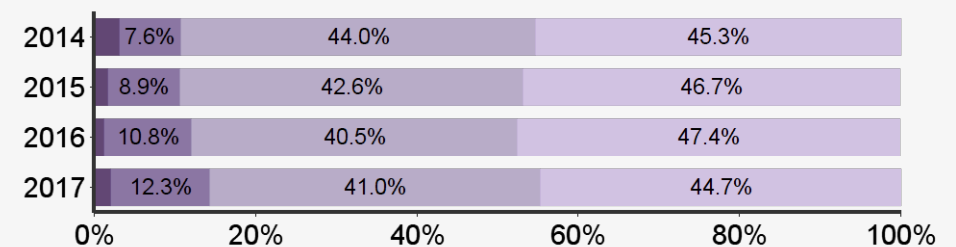
■ None
 ■ Little
 ■ Some
 ■ A Lot



Senior Survey

3-Year Trend: Progress made in **Empirical and quantitative Reasoning** (2014, 2015, 2016 and 2017 Graduates)

■ None
 ■ Little
 ■ Some
 ■ A Lot



Please indicate how much you learned about the five possible learning outcomes listed below for Empirical and Quantitative Reasoning?

| | Topic wasn't covered | Learned a little bit | Learned some | Learned quite a bit | Learned a lot | Mean (Out of 5) |
|---|----------------------|----------------------|--------------|---------------------|---------------|-----------------|
| Applying observation, experimentation, and/or quantitative (mathematical) concepts and skills to solve real-world problems. | 6.3% | 13.9% | 22.4% | 30.0% | 27.4% | 3.58 |
| Learning to gather and evaluate information to make decisions. | 6.2% | 12.8% | 22.3% | 31.0% | 27.7% | 3.61 |
| Recognizing when available evidence is inadequate to draw a conclusion. | 9.0% | 14.8% | 26.1% | 28.8% | 21.3% | 3.39 |
| Recognizing the value of using research methods. | 12.7% | 15.9% | 22.4% | 24.9% | 24.1% | 3.32 |
| Developing problem-solving abilities to help make sense of real-world problems | 7.8% | 13.2% | 21.2% | 28.6% | 29.3% | 3.58 |

Alumni Survey

To what extent has each of the following K-State 8 (general education) area contributed to your understanding of your profession and/or the world around you?

| | None | Little | Some | A Lot |
|----------------|------|--------|-------|-------|
| 2015-16 | 9.4% | 20.9% | 43.3% | 26.4% |
| 2015-16 | 7.4% | 22.9% | 44.7% | 25.1% |

Senior Survey

How much progress do you feel you have made in the following K-State 8 learning outcome: Empirical and Quantitative Reasoning?

| | None | Little | Some | A Lot |
|-------------|------|--------|-------|-------|
| 2014 | 3.1% | 7.6% | 44.0% | 45.3% |
| 2015 | 1.7% | 8.9% | 42.6% | 46.7% |
| 2016 | 1.2% | 10.8% | 40.5% | 47.4% |
| 2017 | 2.0% | 12.3% | 41.0% | 44.7% |



Empirical and Quantitative Reasoning Demographic Comparisons

| | By College | | | | By K-State 8 Tag | | | |
|---|--|-------|--|-------|--|-------|--|-------|
| | Courses taken within Student's College | | Courses taken outside of Student's College | | Courses tagged in empirical and quantitative issues only | | Courses tagged in multiple K-State 8 Areas | |
| | Mean (Out of 5) | Count | Mean | Count | Mean | Count | Mean | Count |
| Applying observation, experimentation, and/or quantitative (mathematical) concepts and skills to solve real-world problems. | 3.65 | 1552 | 3.5 | 1239 | 3.59 | 1180 | 3.58 | 1611 |
| Learning to gather and evaluate information to make decisions. | 3.72 | 1548 | 3.48 | 1238 | 3.6 | 1176 | 3.62 | 1610 |
| Recognizing when available evidence is inadequate to draw a conclusion. | 3.46 | 1547 | 3.29 | 1236 | 3.36 | 1178 | 3.4 | 1605 |
| Recognizing the value of using research methods. | 3.46 | 1548 | 3.14 | 1237 | 3.14 | 1177 | 3.45 | 1608 |
| Developing problem-solving abilities to help make sense of real-world problems | 3.69 | 1550 | 3.45 | 1232 | 3.62 | 1176 | 3.56 | 1606 |

| | By Student Classification | | | | | | | |
|---|---------------------------|-------|-----------|-------|--------|-------|--------|-------|
| | Freshman | | Sophomore | | Junior | | Senior | |
| | Mean (Out of 5) | Count | Mean | Count | Mean | Count | Mean | Count |
| Applying observation, experimentation, and/or quantitative (mathematical) concepts and skills to solve real-world problems. | 3.52 | 334 | 3.61 | 722 | 3.67 | 696 | 3.53 | 1039 |
| Learning to gather and evaluate information to make decisions. | 3.51 | 334 | 3.57 | 721 | 3.68 | 694 | 3.63 | 1037 |
| Recognizing when available evidence is inadequate to draw a conclusion. | 3.33 | 333 | 3.33 | 720 | 3.47 | 693 | 3.38 | 1037 |
| Recognizing the value of using research methods. | 3.23 | 333 | 3.14 | 720 | 3.46 | 695 | 3.37 | 1037 |
| Developing problem-solving abilities to help make sense of real-world problems | 3.46 | 334 | 3.58 | 719 | 3.64 | 694 | 3.6 | 1035 |