# 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

<table>
<thead>
<tr>
<th>College</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>361</td>
</tr>
<tr>
<td>Architecture, Planning &amp; Design</td>
<td>39</td>
</tr>
<tr>
<td>Arts and Sciences</td>
<td>1467</td>
</tr>
<tr>
<td>Business Administration</td>
<td>509</td>
</tr>
<tr>
<td>Education</td>
<td>7</td>
</tr>
<tr>
<td>Engineering</td>
<td>212</td>
</tr>
<tr>
<td>Human Ecology</td>
<td>196</td>
</tr>
<tr>
<td>Total</td>
<td>2791</td>
</tr>
</tbody>
</table>

### Respondents by College of Student Major

<table>
<thead>
<tr>
<th>College</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>593</td>
</tr>
<tr>
<td>Architecture, Planning &amp; Design</td>
<td>48</td>
</tr>
<tr>
<td>Arts and Sciences</td>
<td>559</td>
</tr>
<tr>
<td>Business Administration</td>
<td>495</td>
</tr>
<tr>
<td>Education</td>
<td>55</td>
</tr>
<tr>
<td>Engineering</td>
<td>638</td>
</tr>
<tr>
<td>Human Ecology</td>
<td>383</td>
</tr>
<tr>
<td>Technology and Aviation</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>2791</td>
</tr>
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</table>

## Course Designation

<table>
<thead>
<tr>
<th>Designation</th>
<th>Count</th>
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<tbody>
<tr>
<td>Empirical and Quantitative Reasoning Only</td>
<td>1180</td>
</tr>
<tr>
<td>Multiple Areas</td>
<td>1611</td>
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## Student Classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>334</td>
</tr>
<tr>
<td>Sophomore</td>
<td>722</td>
</tr>
<tr>
<td>Junior</td>
<td>696</td>
</tr>
<tr>
<td>Senior</td>
<td>1039</td>
</tr>
</tbody>
</table>

## Response Rates

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responses (Res.)</td>
<td>2440</td>
</tr>
<tr>
<td>Population (Pop.)</td>
<td>14490</td>
</tr>
<tr>
<td>Response Rate (R.R.)</td>
<td>19.3%</td>
</tr>
</tbody>
</table>

## Table of Contents

<table>
<thead>
<tr>
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<th>Page</th>
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<td>Graphs</td>
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<td>Results Tables</td>
<td>3</td>
</tr>
<tr>
<td>Demographic Comparisons</td>
<td>4</td>
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</tbody>
</table>
Senior Survey

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)

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 quite a bit
- Learned a lot

Applying observation, experimentation, and/or quantitative (mathematical) concepts and skills to solve real-world problems.

<table>
<thead>
<tr>
<th>Year</th>
<th>None</th>
<th>Little</th>
<th>Some</th>
<th>A Lot</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>9.4%</td>
<td>20.9%</td>
<td>43.3%</td>
<td>26.4%</td>
</tr>
<tr>
<td>2016</td>
<td>7.4%</td>
<td>22.9%</td>
<td>44.7%</td>
<td>25.1%</td>
</tr>
</tbody>
</table>

Learning to gather and evaluate information to make decisions.

<table>
<thead>
<tr>
<th>Year</th>
<th>None</th>
<th>Little</th>
<th>Some</th>
<th>A Lot</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>12.8%</td>
<td>22.3%</td>
<td>31.0%</td>
<td>27.7%</td>
</tr>
<tr>
<td>2015</td>
<td>13.9%</td>
<td>22.4%</td>
<td>30.0%</td>
<td>27.4%</td>
</tr>
<tr>
<td>2016</td>
<td>14.8%</td>
<td>26.1%</td>
<td>28.8%</td>
<td>21.3%</td>
</tr>
</tbody>
</table>

Recognizing when available evidence is inadequate to draw a conclusion.

<table>
<thead>
<tr>
<th>Year</th>
<th>None</th>
<th>Little</th>
<th>Some</th>
<th>A Lot</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>12.7%</td>
<td>15.9%</td>
<td>22.4%</td>
<td>24.1%</td>
</tr>
<tr>
<td>2015</td>
<td>14.8%</td>
<td>26.1%</td>
<td>28.8%</td>
<td>21.3%</td>
</tr>
<tr>
<td>2016</td>
<td>13.2%</td>
<td>21.2%</td>
<td>28.6%</td>
<td>29.3%</td>
</tr>
</tbody>
</table>

Recognizing the value of using research methods.

<table>
<thead>
<tr>
<th>Year</th>
<th>None</th>
<th>Little</th>
<th>Some</th>
<th>A Lot</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>12.7%</td>
<td>15.9%</td>
<td>22.4%</td>
<td>24.1%</td>
</tr>
<tr>
<td>2015</td>
<td>14.8%</td>
<td>26.1%</td>
<td>28.8%</td>
<td>21.3%</td>
</tr>
<tr>
<td>2016</td>
<td>13.2%</td>
<td>21.2%</td>
<td>28.6%</td>
<td>29.3%</td>
</tr>
</tbody>
</table>

Developing problem-solving abilities to help make sense of real-world problems.

<table>
<thead>
<tr>
<th>Year</th>
<th>None</th>
<th>Little</th>
<th>Some</th>
<th>A Lot</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>12.7%</td>
<td>15.9%</td>
<td>22.4%</td>
<td>24.1%</td>
</tr>
<tr>
<td>2015</td>
<td>14.8%</td>
<td>26.1%</td>
<td>28.8%</td>
<td>21.3%</td>
</tr>
<tr>
<td>2016</td>
<td>13.2%</td>
<td>21.2%</td>
<td>28.6%</td>
<td>29.3%</td>
</tr>
<tr>
<td>2017</td>
<td>12.3%</td>
<td>21.2%</td>
<td>28.6%</td>
<td>29.3%</td>
</tr>
</tbody>
</table>
Please indicate how much you learned about the five possible learning outcomes listed below for Empirical and Quantitative Reasoning?

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

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?

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>Little</th>
<th>Some</th>
<th>A Lot</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015-16</td>
<td>9.4%</td>
<td>20.9%</td>
<td>43.3%</td>
<td>26.4%</td>
</tr>
<tr>
<td>2015-16</td>
<td>7.4%</td>
<td>22.9%</td>
<td>44.7%</td>
<td>25.1%</td>
</tr>
</tbody>
</table>

Senior Survey

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

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>Little</th>
<th>Some</th>
<th>A Lot</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>3.1%</td>
<td>7.6%</td>
<td>44.0%</td>
<td>45.3%</td>
</tr>
<tr>
<td>2015</td>
<td>1.7%</td>
<td>8.9%</td>
<td>42.6%</td>
<td>46.7%</td>
</tr>
<tr>
<td>2016</td>
<td>1.2%</td>
<td>10.8%</td>
<td>40.5%</td>
<td>47.4%</td>
</tr>
<tr>
<td>2017</td>
<td>2.0%</td>
<td>12.3%</td>
<td>41.0%</td>
<td>44.7%</td>
</tr>
</tbody>
</table>
## Empirical and Quantitative Reasoning

### By College

<table>
<thead>
<tr>
<th>Courses taken within Student's College</th>
<th>Courses taken outside of Student's College</th>
<th>Courses tagged in empirical and quantitative issues only</th>
<th>Courses tagged in multiple K-State 8 Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Applying observation, experimentation, and/or quantitative (mathematical) concepts and skills to solve real-world problems.</strong></td>
<td><strong>Mean</strong> (Out of 5)</td>
<td><strong>Count</strong></td>
<td><strong>Mean</strong></td>
</tr>
<tr>
<td></td>
<td>3.65</td>
<td>1552</td>
<td>3.5</td>
</tr>
<tr>
<td><strong>Learning to gather and evaluate information to make decisions.</strong></td>
<td></td>
<td>3.72</td>
<td>1548</td>
</tr>
<tr>
<td><strong>Recognizing when available evidence is inadequate to draw a conclusion.</strong></td>
<td></td>
<td>3.46</td>
<td>1547</td>
</tr>
<tr>
<td><strong>Recognizing the value of using research methods.</strong></td>
<td></td>
<td>3.46</td>
<td>1548</td>
</tr>
<tr>
<td><strong>Developing problem-solving abilities to help make sense of real-world problems</strong></td>
<td></td>
<td>3.69</td>
<td>1550</td>
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### By Student Classification

<table>
<thead>
<tr>
<th>By Student Classification</th>
<th>Freshman</th>
<th>Sophomore</th>
<th>Junior</th>
<th>Senior</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (Out of 5)</td>
<td>Count</td>
<td>Mean</td>
<td>Count</td>
</tr>
<tr>
<td><strong>Applying observation, experimentation, and/or quantitative (mathematical) concepts and skills to solve real-world problems.</strong></td>
<td>3.52</td>
<td>334</td>
<td>3.61</td>
<td>722</td>
</tr>
<tr>
<td><strong>Learning to gather and evaluate information to make decisions.</strong></td>
<td>3.51</td>
<td>334</td>
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<td>333</td>
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<td>333</td>
<td>3.14</td>
<td>720</td>
</tr>
<tr>
<td><strong>Developing problem-solving abilities to help make sense of real-world problems</strong></td>
<td>3.46</td>
<td>334</td>
<td>3.58</td>
<td>719</td>
</tr>
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