## Detailed Psychological Constructs v5.6 (ABC)

| Construct                                     | Subconstruct  | # of  |   | items  |                  |     | pulse checks pulse checks |           |  |                      |           |           |  |  | pulse checks         |            |  |  |  |       |
|---|---|-------|---|--|------------------|-----|---------------------------|-----------|--|----------------------|-----------|-----------|--|--|----------------------|------------|--|--|--|-------|
|   | (if applicable)   | items |   |  |                  | ch1 | ch2                       |           |  |                      |           |           |  |  |                      |            |  |  |  | pos   |
| Expectancy                                    | (pulse check)   | 1     |   | I am confident in what I have learned in the previous chapter  |                  |     | exp_pulse2                |           |  |                      |           |           |  |  |                      |            |  |  |  |       |
| ntrinsic Value                                |   | 1     |   | I think the previous chapter was interesting   |                  |     | iv nulse?                 |           |  |                      | iv pulse5 | iv pulse6 |  |  |                      | iv pulse10 |  |  |  |       |
| Itility Value                                 |   | ,     |   | I think what I have learned in the previous chapter  |                  |     | Cooking and               | uv pulse3 |  |                      |           |           |  |  |                      |            |  |  |  |       |
| itility value                                 |   |       |   | is useful  |                  |     | uv_puisez                 |           |  |                      |           |           |  |  |                      |            |  |  |  |       |
| ost   |   | 1     |   | I was unable to put in the time needed to do well in the previous chapter  |                  |     | cost_pulse2               |           |  |                      |           |           |  |  |                      |            |  |  |  |       |
|   |   |       |   | I am confident i can learn the material in this  |                  |     |                           |           |  |                      |           |           |  |  |                      |            |  |  |  |       |
| Expectancy                                    |   | 2     | 1 | course.  | expl_l           |     |                           |           |  |                      |           |           |  |  |                      |            |  |  |  | exp   |
|   |   |       | 2 | I expect to do well in this class.   | exp2_1           |     |                           |           |  |                      |           |           |  |  | exp2_3               |            |  |  |  | exp:  |
| Values  | Utility Value<br>(for Future)                                 |       | 1 | What I'm going to learn in this class will be useful in the future (pre)/What I am learning in this class will be useful in the future (mid & post)  | uv_f1_1          |     |                           |           |  |                      |           |           |  |  |                      |            |  |  |  | uv_f  |
|   | Utility Value<br>(for Daily Life)                             | 4     | 2 | What I'm going to learn in this class will be relevant to my everyday life (pre)/ What we learn in this class is relevant to my everyday life (mid/post)   | uv_d1_1          |     |                           |           |  |                      |           |           |  |  | uv_d1_3              |            |  |  |  | uv_ď  |
|   | Intrinsic value   |       |   | I think this class will be interesting (pre) I think this class is interesting (mid/post)  | iv1_1            |     |                           |           |  |                      |           |           |  |  | iv1_3                |            |  |  |  | iv1_  |
|   | Intrinsic value   |       | 4 | I will like this class (pre) I like this class (mid/post)  | iv2_1            |     |                           |           |  |                      |           |           |  |  | iv2_3                |            |  |  |  | iv2.  |
| Cost  | Opportunity<br>Cost   |       | 1 | I think I will have to give up too much to do well in<br>this class (pre); I have to give up too much to do<br>well in this course (mid/post)  | cost2_1          |     |                           |           |  |                      |           |           |  |  |                      |            |  |  |  | cost  |
|   | Psychological<br>Cost   | 2     |   | I think this course is going to be too stressful for<br>me (pre); This course is too stressful for me<br>(mid/post).   | cost3_1          |     |                           |           |  |                      |           |           |  |  | cost3_3              |            |  |  |  | cost  |
| Programming<br>Sentiment                      |   | 1     | 1 | In this course, you will use r (a programming language) to analyze data. how do you feel about this? (t1) / In this class, you are using R to analyze data. How do you feel about this? (t2/t3); In this class, you used R to analyze data. How do you feel about this now? (t4) | sent_pro_1       |     |                           |           |  |                      |           |           |  |  |                      |            |  |  |  | sent_ |
| Confidence                                    | Confidence in R   | 1     | 1 | How confident are you in your R skills?  | conf_1           |     |                           |           |  | conf_2               |           |           |  |  | conf_3               |            |  |  |  | con   |
| Anxiety                                       | Math Anxiety  | 1     | 1 | In general, i tend to feel very anxious about mathematics.   | anx_ma_1         |     |                           |           |  |                      |           |           |  |  |                      |            |  |  |  | anx_r |
| Course<br>challenges                          |   | 1     | 1 | What, if anything, made it hard to succeed in this class?  |                  |     |                           |           |  |                      |           |           |  |  |                      |            |  |  |  | obs   |
| Behavioral<br>intention                       | Future interest   |       | 1 | I look forward to learning more about math, statistics, or data science.   | f1_1             |     |                           |           |  |                      |           |           |  |  | f1_3                 |            |  |  |  | f1.   |
|   |   | 3     |   | I want to take more math, statistics, or data<br>science classes in the future.<br>I would be interested in having a job someday   | f2_1<br>f3_1     |     |                           |           |  | f2_2<br>f3_2         |           |           |  |  | f2_3<br>f3_3         |            |  |  |  | f2.   |
|   |   |       |   | that involves things like math, science, statistics, or data science.  |                  |     |                           |           |  | 13_2                 |           |           |  |  | 13_3                 |            |  |  |  |       |
| TEM Identity                                  | STEM identity   | 1     |   | I see myself as a statistics person.   | identity_1       |     |                           |           |  |                      |           |           |  |  |                      |            |  |  |  | iden  |
| elonging                                      | Class belonging   | 2     |   | I matter as a student in this class I belong in this class   | blc1_1<br>blc2_1 | -   |                           |           |  |                      |           |           |  |  |                      |            |  |  |  | blo   |
| ourse advice                                  |   | 1     |   | What advice would you give to future students who want to do well in this course?  | -5/62_1          |     |                           |           |  | adv_2                |           |           |  |  |                      |            |  |  |  | - 510 |
| Student<br>mindset<br>beliefs                 | Student<br>Statistics fixed<br>mindset belief                 |       | 1 | You can learn new things, but you can't really change your statistics ability  | msl_l            |     |                           |           |  |                      |           |           |  |  | msl_3                |            |  |  |  | m:    |
|   |   | 2     | 2 | My statistics ability is something about me that I can't change very much  | ms2_1            |     |                           |           |  |                      |           |           |  |  |                      |            |  |  |  | ms    |
| Perceived<br>Instructor<br>mindset<br>beliefs | Perceived<br>instructor<br>statistics fixed<br>mindset belief | 2     | 1 | My instructor seems to believe that students have a certain amount of statistics ability, and they really can't do much to change it (reverse code)  |                  |     |                           |           |  |                      |           |           |  |  |                      |            |  |  |  | in    |
|   |   | _     | 2 | My instructor seems to believe that students can learn new things, but they can't really change their statistics ability   |                  |     |                           |           |  |                      |           |           |  |  |                      |            |  |  |  | im    |
| Class Learning<br>& Interest                  | Class Learning  | 1     |   | Was there an activity, lesson, or data set from your class thus far that helped you learn? If so, tell us about it.  |                  |     |                           |           |  | learning_<br>open_t2 |           |           |  |  | learning_<br>open_t3 |            |  |  |  |       |
|   | Class Interest  | 1     |   | We'd like to incorporate your interests and ideas into future class activities. Is there a topic you'd like to explore further using data?   |                  |     |                           |           |  | interest_<br>open_t2 |           |           |  |  | interest_<br>open_t3 |            |  |  |  |       |