1) Have any data been collected for this study already?
No, no data have been collected for this study yet.

2) What’s the main question being asked or hypothesis being tested in this study?
Can we replicate the findings of Klein and Boals (2001) which found that negative life event stress is negatively correlated with working memory capacity? If so, does mind wandering, the valence of mind wandering, or the tendency to ruminate account for common variance between life event stress and working memory capacity. Additionally, does trait level mindfulness moderate the association between life event stress and working memory capacity?

3) Describe the key dependent variable(s) specifying how they will be measured.
Working memory capacity - a composite formed by averaging z-scores from two shortened complex span tasks (operation and symmetry span). The complex span task will be scored with partial-credit scoring (Conway et al., 2005). No accuracy criterion will be used in these tasks. Participants will complete 1 block of each span task.

Mind wandering propensity- Mind wandering will be measured using probes embedded in the SART. All probe responses > 3 (i.e., off-task responses will be considered mind wandering). A subject’s mind wandering propensity will be their proportion off-task thoughts relative to the total number of thought probes.

Mind wandering valence- Rates for positive, negative, and neutral TUTs will be calculated by summing each off-task response option.

Mind wandering depth- Following thought probes, subjects will be asked about how off or on-task they were on a 5-point Likert scales (1 = completely on-task, 5= completely off-task).

From the SART, response time standard deviation (from non-target trials), d’ (for target trials), target accuracy, and the RTSD from the 4 trials preceding a target will be collected. For the RTSD for the four trials preceding the target, we will only use sequences were 4 nontarget trials happen between targets, and responses are made to all 4 of these trials. We will exclude subjects from this analysis if they have 5 or less of these 4-trial RTSDs.

Life Event Stress- will be measured using the Life Experiences Scale (LES; Sarason, Johnson, & Seigal, 1978). A total LES score will be calculated by summing the impact ratings from each event described as having a negative impact. Additionally, the impact of events will also be analyzed temporally by summing “negative” events that occurred 0-6 months, 7 months-1 year, and over 1 year ago. We will create 2 negative life event scores, one that is just for recent events in the last 6 months and another that is for overall negative life event stress.

Mindfulness- will be assessed using the Five Facet Mindfulness Questionnaire – Short Form (FFMQ-SF; Bohlmeijer, ten Klooster, Fledderus, Veehof, & Baer, 2011). An overall score will be obtained by summing all responses, and the five facet scores will be calculated the same way.

Rumination- will be assessed using the Ruminative Response Scale (RRS; Treynor, Gonzalez, & Nolen-Hoeksema, 2003). Scores are obtained by summing all responses with higher scores indicating higher levels of rumination.

4) How many and which conditions will participants be assigned to?
In this quasi-experimental study there is only one condition to which all subjects will be assigned.

5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.
1. Correlations among working memory capacity, life event stress (both temporal versions), mind wandering propensity, mind wandering valence, rumination, and dispositional mindfulness (Overall and facet levels).

2. In separate models, we will test if either overall mind wandering propensity, the sum of negatively-valenced thought reports, or rumination statistically mediates the relation between negative life events and working memory capacity. Nonparametric bootstrapping method (5000 samples) will be used to provide estimates for both the direct and indirect effects. In these mediation models, if the indirect path between negative life events and working memory capacity is statistically significant (using an alpha of .05) we will claim statistical mediation. Separate models will be run for both temporal variants of life event stress.

3. A linear model with negative life event stress, mindfulness (overall score), and their interaction predicting working memory capacity. If the interaction parameter estimate is statistically significant (using an alpha of .05) we will claim statistical moderation. Separate models will be run for both temporal
variants of life event stress.

4. Following the mediation models above, we will test moderated-mediation models where overall mindfulness is being tested as the potential moderator. Because we have no a priori conviction of which specific path will be moderated, we will run these models twice. Once where the path between negative life event stress and the mediator is moderated and the other where the path between the mediator and working memory capacity is moderated. Separate models will be run for both temporal variants of life event stress. Nonparametric bootstrapping method (5000 samples) will be used to provide estimates for both the direct and indirect effects.

6) Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.

Without looking at their data, subjects will be excluded from analysis if experimenters judge them to be noncompliant with task instructions (e.g., sleeping, obviously not following task instructions).

We will exclude subjects from all analyses if their SART response time variability (from nontarget trials) or SART dprime falls more than 3x the interquartile range (IQR) away from the upper/lower hinges of a boxplot.

7) How many observations will be collected or what will determine sample size? No need to justify decision, but be precise about exactly how the number will be determined.

Analyses for a thesis project will be conducted with data that is collected during the Fall 2018 semester. We hope to collect data from 150 usable subjects. Additional data will be collected in the Spring 2019 semester. Because the goal with this study is a precise estimate, we will stop data collection at the end of a semester in which we have at least 225 subjects.

8) Anything else you would like to pre-register? (e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)

1. To test if negatively-valenced mind wandering is more disruptive to performance relative to positively-valenced and neutral mind wandering by conducting linear-mixed models using only trials where mind wandering was indicated with the predictor of valence-type predicting target accuracy and 4-trial RTSD in the SART task. Subjects will be entered as random variables. These models will be random intercept and slope.

2. To determine if negatively valued probes are associated with a greater depth of mind wandering than positive or neutral probes, a linear-mixed model looking at only affirmative mind wandering responses with valence predicting depth will be conducted. Subjects will be entered as random variables. This model will be random intercept and slope.

3. Finally, we will conduct mediation analyses (like those above) on the relation between valence of mind-wandering and 4-trial RTSD and accuracy using only trials where mind wandering was indicated by the subject. The mediator will be depth of the reported mind wandering.