**Reilly - Capstone Planning Document**

1. **Team Members** – Dan Reilly
2. **Problem Statement**

The Division of Student Affairs at the University of Missouri, currently does not have a clear understanding of which of its key performance measures contribute to student success, retention and graduation. While they have access to five potential key performance measures (Sense of Belonging, Level of University Engagement, Thoughts of Leaving School, Resiliency, and Satisfaction), they have yet to incorporate these measurements into analysis which identifies which constructs most strongly predict success, retention and/or graduation. Additionally, we have access to several other measures which may strongly predict desired outcomes which have yet to be incorporated and tested in the model.

1. **Schedule of Milestones**

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| **Week of:** | **Milestone** |
| February 5 | Obtain three datasets which include this information |
| February 12 | Clean datasets and perform dimension reduction |
| February 19 | Perform unsupervised machine learning to see if useful constructs emerge |
| February 26 | Confirm with stakeholders that the dimension reduction and any of the constructs identified from unsupervised machine learning would provide utility. |
| March 5 - 19 | Perform machine learning process starting with linear regression, decision trees, SVM and finishing with neural networks. |
| March 26 | Share results with stakeholders, seek recommendations for further analysis |
| April 2 | Perform additional analysis |
| April 9 | Present findings to data science faculty |
| April 16 | Present findings to Student Affairs Assessment Committee |

1. **Define output and stakeholder benefits:** 
   1. Division of Student Affairs Assessment Committee - Coordinator of Division Affairs Assessment – Ashli Grabau
   2. Business Intelligence –
      1. Data driven support for strategic plan.
      2. Establish baseline for future assessment.
      3. Provide ability to identify students at risk such that intervention activities can take place.

**Feedback from Dr. Goggins 2/10/18 Capstone Experience Sharing Call**

1. Ask top three things clients identify as important before I do analysis
2. Test their important things to what the analysis identifies to detect any cognitive bias
3. Work more on how to package the report so invites credibility rather than just provide a page full of numbers. Utilize aspects of Visualization courses with this.