**GB740 Project Plan**

1. **Marketing Strategy Proposal**
   1. **Message:**
      1. “Jump Start Your Actuarial Career with the Wisconsin Actuarial Science Capstone Certificate”
      2. A large problem for many people trying to become an actuary is the long drooling process of countless exams and exam preparation. All of this takes endless time and money to accomplish just to have the chance of passing the exam. The Wisconsin Actuarial Science Capstone Certificate gives students of any background the chance to pass these hard and costly exams by taking a series of courses and earning exam credits by being successful in the courses.
      3. We will focus on these aspects of time and cost saving in our messaging and gather success stories from alumni of the program.
   2. **Medium:**
      1. Our medium will be displaying ads on social media platforms such as Meta and LinkedIn in the hope to target people interested in fields like actuarial science, risk management, math, or insurance. Social media will also allow us to target a younger audience. If we still have a strong connection with online learning platforms such as EdX, we will send out target emails to people that are trying to self-learn these exact topics.
   3. **Audience:**
      1. We hope to reach individuals that are either already in the field of finance, math, economics, or engineering or those that are currently studying these fields in their last years of undergrad because these types of people are the most likely to want to participate in our program. We would want to target the younger demographic as well because they are more likely to be in search of career advancements or complete shifts in careers.
      2. **Finding and Reaching the Target Audience**
         1. Using advance audience targeting tools on platforms such as meta and LinkedIn to cluster users based on demographics, interests, and professional background. An example of this would be to identify users who are a part of actuarial science groups/clubs or ones that follow insurance-related pages/people on social media.

1. **Experimental Design**
   1. **Units of Randomization**
      1. The units of randomization will be the dividing of potential people of interest into randomized groups for the targeted ads. One group could see simple ads that focus on the programs impact on actuarial careers while the other group sees ads related to the cost saving and exam-skipping.
      2. **Linking Outcomes to Unit of Randomization**
         1. A very basic approach could be to add a brief survey at the application stage that asks the applicant how they learned about the program and whether or not they saw an ad campaign.
         2. Another slightly more advanced approach could be to use unique tracking code on the URLs of the ads that connect visits and application directly to an ad group. This would ensure a clearer idea of the randomization to outcomes.
   2. **Treatments** 
      1. Treatment 1: The first treatment group will see ads that highlight the programs benefits for actuarial science careers.
      2. Treatment 2: The second treatment group will see ads that highlight the ability to skip the big exams and save time a money.
      3. Pure Control Group: The pure control group will not receive any ads which will help determine the baseline application rate in the absence of marketing efforts.
         1. If budget makes it difficult to have a large enough control group, we believe that it would be okay to allocate a smaller portion of the budget to the control group as long as it is still statistically significant to compare with treatment groups.
         2. The additional cost of including a control group would likely provide valuable insights into the baseline performance and will demonstrate if advertising is cost-effective in driving applications.
   3. **Outcome Metrics** 
      1. Click Rate on Ads
      2. Interactions on social media posts (likes, comments, shares)
      3. Users visiting the programs home page
      4. Applications to the program
      5. Interest forms filled out
      6. We can measure these outcomes through social media platform tools that can track the user interactions. The programs admission team can also track who has filled out applications or interest forms.
2. **Evaluative Approach**
   1. This experiment can be thought of as a policy evaluation experiment because we will be examining marketing techniques effectiveness in increasing program interest and enrollment. The idea is to actually end up using whichever method we find more effective to continue growing the program.
   2. Number of applications is our main outcome metric and it aligns perfectly with the stakeholder goals and gives a very clear idea of the effectiveness of the ads. The other outcome metrics will give good indicators to see engagement at different stages of the application process.
   3. Our Null Hypothesis is that the is no significant difference in the effectiveness of the two different types of advertisements on increasing engagement with the capstone program
   4. Our Alternative hypothesis would then be that ads focusing on cost/time saving would result in higher engagement than the career focused ads.
   5. We will use a statistical test to calculate a t-statistic or run a regression to see the difference between the means of the two treatment groups.
3. **Challenges**
   1. The people targets for the ads may not be completely randomized because of social media platforms prioritizing showing the ads to people already with the specific interest or demographic characteristics. This would lead to slight sampling bias.
      1. To mitigate this challenge, we could refine our targeting criteria to ensure that the treatments groups are as similar as possible. We could also collect certain demographic data from the user’s initial interaction.
   2. Over time, people could see an ad several times which we have found through personal experience and research that this can reduce the effectiveness of the ad. People may ignore ads after seeing it multiple times or even completely block/unfollow these types of ads.
      1. We could deal with this by monitoring the engagement rate so that we can detect early if it decreases over time. If this is the case, we can minimize the amount these people are seeing the ad. We could also use ad rotation strategies to ensure users are seeing different creative ads over time. We can use varying ad formats such as video ads to keep engagement high.
   3. Lastly, running constant ads can be expensive, and with our limited funds we may need to use a smaller sample size which can affect the overall results
      1. To solve this problem, we could start with a smaller sample and run an initial test in order to see if the experiment would be successful. If this is the case, then we could expand the experiment. Using the insights from the initial test will allow us to refine targeting and messaging the maximize the return for the full campaign.
4. **Power Calculation**
   1. In order to test if our sample size is large enough to get a meaningful difference between the two treatment groups in our key metric of applications, we must run a power calculation.
   2. For Example, if we were the estimate from preliminary experiments that we expect ads focused on time and cost saving with lead to a 10% increase in applications compared to the other ads, then 10% will be our effect size.
   3. We will set the significance level at .05 as usual
   4. We could then use a power of .80 which means that there is an 80% chance of a true positive of rejecting the null.
   5. We believe that from the sample size calculation; to get meaningful results from our experiment, we need more than 10,000 participants for each treatment arm. This is not an unreasonable sample size and would be very attainable. The cost per participant in an online ad usually depends on the medium used. We found that the typical cost per click for targeted ads could range between $1 and $3. Using this estimate, we believe that it could be difficult to accomplish this experiment with meaningful results with the $5000 budget that we are given. It would be possible if we overestimated our cost per click or our sample size required.