**Preliminary Product Production Plan for Execution on 11/01/2015**

**Due 10/28/2015**

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| **Team:** | 6 |
| **Team Members:** | Kathryn Atherton |
|  | Celine Chang |
|  | Tony Hoch |
|  | Sarah Reichstetter |
|  | Hongji Zhang |

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| **Product Description** |
| The product decided upon is a rice ball filled with ingredients from various cuisines to create a nutritious, bite-sized snack to eat on-the-go. Ideas for cuisines to include inside the rice ball are Chinese/Japanese, Indian, and Mediterranean. Inside, the ball will contain such ingredients as hummus, feta, and vegetables (Mediterranean), tofu, ginger, and vegetables (Chinese/Japanese), hummus, Indian spices, garlic, and onion (Indian). |

Amounts below are per batch. One batch should make 8 servings.

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| **Required Ingredients (add additional lines as necessary)** | |
| **Ingredient** | **Amount Required**  **(g or mL)** |
| Rice (white or brown—for sushi, if possible) | 4 cups = 800g |
| Water | 5.5 cups = 1301.24g |
| Salt | ¼ teaspoon = 0.5g |
| Sugar | ¼ cup = 50g |
| Dry Fish Flakes (optional) | ¼ cup = 6.4g |
| Seaweed | 2 sheets = 5g |
| Rice paper | 2 sheets = 5g |
| Sesame Seeds (optional) | 2 tablespoons = 4.5g |
| Vinegar (optional) | 2 tablespoons = 29.8g |
| Lettuce | 8 leaves = 40g |
| Hummus (plain &/or red pepper) | 8 tablespoons = 120g |
| Carrots | 1 small = 50g |
| Celery | 1 stalk = 60g |
| Green Bell Peppers | 1 = 200g |
| Red Bell Peppers | 1 = 200g |
| Feta | 4 cubic inch = 68g |
| Sundried tomatoes | 32 pieces = 32g |
| Lemon | 1 = 85g |
| Spinach | 8 leaves = 80g |
| Flavorless gelatin | 1 package = 28g |
| Egg or egg whites | 1 large egg’s worth of egg white = 33g |
| Vegetable oil (spray) | 2 tablespoons = 28g |
| Tofu Skin -- if possible | 1 serving = 30g |

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| **Required Equipment (add additional lines as necessary)** | |
| **Name** | **Specifications (if any)** |
| Stovetop |  |
| Mixing bowls x 3 | Quart or larger volume |
| Measuring spoons | 1 tsp to 1 tbl, one each |
| Balance |  |
| Ricecooker or Saucepan with top | 1 pint or larger volume |
| Plastic wrap |  |
| Aluminum foil |  |

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| **Procedure** |
| 1. Cook rice with rice cooker or saucepan 2. Mix the desired fillings and form into a ball shape using the Nori seaweed sheet. 3. Coat rice with the desired water-activity control method. 4. Cover the fillings with a water barrier (options listed in purchase requests). 5. With a small amount of rice in hands, form the rice around the fillings to completely cover them. 6. Use a sheet of nori seaweed to wrap up ball of rice (optional). 7. Sprinkle some sesame seeds or cut up shiso leaves to put on rice for extra flavor (optional). |

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| **Variants (list variants you will try and how your changes affect the procedure)** |
| 1. We will vary the ingredients included in the center to create different flavors for the rice balls (Step 2). 2. We will vary the method to control the water activity between the rice and the central flavors (painting inside with egg whites, spraying center with vegetable oil, painting a thin layer of flavorless gelatin, using rice paper to wrap central ingredients) (Step 3). 3. We will vary the ratio of the mass of the rice to the total mass of the internal ingredients to produce the healthiest and sturdiest rice ball possible (Steps 1 and 2). |

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| **Data Collection Plan** (**List what data, how it will be collected, and how it will be used)** |
| 1. The mass of each ingredient will be measured before it is added to the mixing bowl. This will be used for our mass balance and for determining the nutritional information using our spreadsheet. 2. After baking, one rice ball of each cuisine type will be examined visually and physically for structural integrity, and tasted by the team members. Descriptions of the flavor and texture will be recorded. These data will be used to refine and optimize the recipe and the baking time. The other rice ball will be wrapped up and stored in refrigerators and/or at room temperature (temperature will be recorded) by team members. After one day, the structural integrity and taste of this rice ball will be recorded again. 3. Photographs will be taken of rice balls at each step of the process. 4. The different water activity prevention methods will be evaluated by determining how “mushy” the structure of the inside and the outside of the rice balls have become after one day. 5. The nutritional value of each iteration will be determined after lab (once the exact amounts of ingredients is determined) and the various iterations will be evaluated. |