**Homework 1**

**IMSE 991**

1. (5 points) In class, we discussed several “Rules” pertaining to laying the groundwork for a problem. Select three of the rules, describe the rule and provide an example of the rule in a real world situation.
2. (10 points) A five step process is described for developing decision criteria and metrics. A high-tech manufacturing company would like to use this process to provide a clearer strategic direction to the activities of the company. Use the five step process discussed in class to develop the decision criteria and metrics for the company. (Note: You do not need to use group decision making to develop the weights for the objectives and decision criteria.) Your answer should include goals and objectives with definitions, decision criteria with definitions, specific metrics and whether or not they are objective or subjective metrics.
3. (10 points) You are looking to open a small business while you are getting your graduate degree to help support the cost of your education. You know that you will not be able to work on this business full-time, but you will have time each week to work at the business. You have a maximum of $1000 to invest in the business, upfront. You need to earn at least $200 per week to make the effort worthwhile. If possible, you’d like to also continue this business through graduate school and potentially expand on it after you graduate.
   1. Develop 3 to 5 decision criteria to use in your evaluation. Provide the rationale for the selection of the decision criteria.
   2. Provide 3 to 5 alternatives for the selection.
   3. Develop the decision matrix to perform the selection, populated with data that you would use in the analysis. Discuss any considerations and/or analysis around the data that you use in the decision matrix.