MA111 Project

In this course, we have studied several topics which are both relevant to everyday life and mathematically interesting. This project is designed to allow you to apply your understanding of compensation to a real world situation. The project will be completed in groups of 2 or 3 students.

Deadlines

- **Wednesday, November 13** – One person from each group must send me an email telling me who is in the group. Please copy your partner on the email.
- **Monday, November 25** – Each group must email me a rough draft of their project. Please send only one email for each group.
- **Friday, December 6** – Each group must turn in a hardcopy of the completed project in class, and **each student individually** must upload their group’s project to the MA 111 Blackboard page (specific instructions will be given).

For this project, you will need to describe a difficult situation which could be resolved using the techniques of Compensation and Division. This could be a real-life situation (modern or historical) involving property distribution or territory disputes, or it could be an invented situation. There should be only two parties involved, but they must be dividing a resource with at least 5 distinct parts. The example should not be a copy or close approximation of any example we did in class. The project will have 4 parts:

1. **Scenario** – Describe the situation. Who are the two parties, and what are they like? How did they get into a situation where they both have a claim on some resource? What does each party want out of an arrangement? Are they friendly or hostile?

2. **Ineffective Resolution** – Tell the story of a mediator (real or fictional) who creates an arrangement that is unsatisfactory for one or both parties. How was each party’s preferences determined? What was the reasoning behind the arrangement? What are the mathematical reasons that this arrangement is unsatisfactory?

3. **New Proposal** – Craft your own arrangement based on the Adjusted Winner Method. Make sure to include the bids of the parties and describe each step of the process. In the end, who gets which resources? There should be one item that is shared; how will they share it appropriately?

4. **Evaluation** – Why is your arrangement better than the previous one? What specific mathematical criteria does your method satisfy, and why? Conclude the story based on your new proposed arrangement.

**Grading** The project will be graded out of 30 points, distributed as follows:

- 10 points for Mathematical Content
- 5 points for Writing Quality
- 5 points for Creativity
- 5 points for Rough Draft submission
- 5 points for Blackboard submission

There will be a more detailed rubric posted in the near future. *Late projects will be penalized 3 pts (10%) for each day that they are late.*