Project

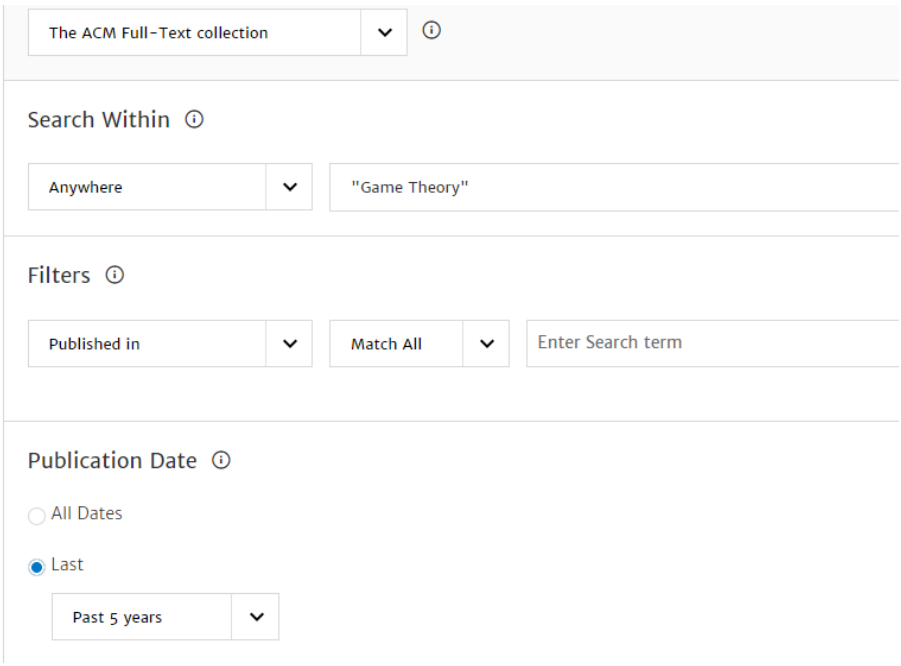
This team research project is intended to be **several weeks in preparation**. Students may work in groups of two or three. In this project, you will improve your skills in reading current research, identifying directions for future research, and limiting the focus of your project to something that is small enough to be doable but large enough to be challenging. Ideally, students are expected to pick a topic which is suitable for publication (if one were to add several more months of work).

Each 6110 student will submit a five page paper research proposal to identify how the work they have done in their group could be extended to something publishable. This research proposal will have sections such as (a) introduction (b) previous work (c) proposed work (d) expected conclusions. (e) bibliography.

Components

1. Pick your topic: You have access to ACM digital library as part of your tuition. From off campus, use "Global Protect" to log on to the USU system.

   From the digital library search for "Game Theory" (include the quotes) articles in the last five years. See below.



   Pick an article for which you can reproduce their results (or add your own results) by programming. You will work with one or two other people on this project. You will likely need to utilize (or acquire) skills not taught in this class. There are a host of interesting applications of game theory. Pick one that you are

excited about. Once partners have been selected, it imposes a serious problem when a student drops. Thus, we will delay official forming of group until midterm, but you are encouraged to start finding projects now.

2. Form teams. You are allowed to work in teams of 2-3. Use Canvas Groups to identify your team.
3. Elevator Speech (10 points): a four-minute verbal presentation of your proposal plus a one-page abstract of proposal idea (submitted via canvas). This will be done in your groups. There will also be a one-minute question period.
4. Team Meeting Observance (5 points) : Sign up for a time when you hold your zoom team meeting with me.
5. Results (60 points): This consists of several parts.
    a. Experiments (code)
    b. Code significance (2-page document)
    c. 10-minute Group Video describing your project and showing results.
6. Evaluation of each person on your team (submitted via canvas).
    a. Unique contribution of each team member
    b. Take note of any positive or negative outliers.
    c. Self-Evaluation
    d. Goal Attainment
    e. Identify Issues

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Elevator Speech (see canvas for dates)[10 points] The elevator speech is based on the research paper selected and will be given by the team.

Team Meetings

Make sure your groups is formed in canvas under "Project Groups". Record your meetings through clear agendas, meeting minutes, and other note-taking tools. At the end of the semester, you will be asked to rate the contributions of each team member, so records of team meetings help keep track of contributions.
Documenting meetings helps you:

- Acknowledge contributions from different team members so they feel heard.
- Keep track of decisions, assignments, and action items.
- Maintain a record of the discussion to refer back to in the future.
- Relay key info to people who didn't attend the meeting.
- Engage team members in the discussion.
- Facilitate effective brainstorming and collaboration among the group.
- Increase meeting efficiency by keeping everyone on track and reducing repetition or circular discussions.

Suggestions:

1. Collaborate in one shared document
2. Document decisions and action items in real time
3. Identify meeting attendees

4. Use an agenda

Implementation [60 points]

Submit the code you have produced. Include a two-page document which outlines:

- The objective of the code
- Significance of the output
- Ten-minute video clip showing the results

**Requirements for each 6110 student:

Turn in a separate document which identifies future work. This may include designing experiments and even giving projected results.

How to Do Research

1. Reading research papers is hard work. They were not written for students, but for those who are already experts in the field. Be prepared to carefully select the papers on which you base your research.
2. Be efficient. There will be lots of articles to pick from. Read the abstract and conclusion first to determine if the paper is one you want to read.
3. Plan on reading most things only once. Detailed material will require you to go back and reread it (perhaps several times), but lots of things can be summarized fairly well with one reading. If you have a paper copy of the article, highlighting key phrases is helpful. If you have an electronic copy of the paper, creating a file of notes for each paper (giving complete reference, basic ideas, and your reaction to them) can save a lot of time. To increase engagement and efficiency, summarize as you read. Write down the strengths and weaknesses of each paper after you read it. Also, jot down ideas that you have for improving upon the work.
4. What makes a good topic? I would go for something that is interesting to you. Other criteria are: understandable (something you have the background to read), lends itself to implementation, something you have your own ideas about. Don't just pick the easiest article to understand. Pick something that has potential to be a good research project
5. Have a plan. Ask yourself, "How would I demonstrate to others that my ideas are valid? If I could show these results, why would anyone care?" Pick an area that is important for some reason.