COSC150: Scientific Investigations Using Computation
Final project Guidelines
Spring 2021

Expectations:
1. As described in the Course Syllabus, there is a final project expected of all students. This project will count as 20% of your final grade, and will take approximately 10-15 hours *per person* spread over three weeks for you to produce a quality effort.

2. The "deliverable" is a 7-10 page paper/report, on a topic of your own choosing, that demonstrates your understanding of the basic science topic and how computation enhances a scientific investigation of that topic. ***This paper and accompanying model(s) must be turned in no later than Thursday 5 PM 8 April 2021.***

3. You may work alone or in a small group of 2 or 3 persons, as long as the tasks are clearly defined for each person, and each person contributes substantially to the project (this paper will be pledged). More will be expected, naturally, of group projects.

4. The paper should follow this basic structure:
    a. Introduction of the topic and clear statement of your driving question(s);
    b. Description of the computational model(s) used in your exploration to answer your driving question(s);
    c. Presentation of typical runs of the model(s) varying different key parameters;
    d. Discussion of lessons learned in trying to answer your driving question(s);
    e. Discussion of the limitations and possible extensions of your model(s);
    f. Conclusions you have drawn about what you have learned in your exploration

5. ***Lab time on 23 March for model guidance, topic shaping, and team building.***

6. The following project progress checkpoints should be met:
    a. **Thursday 25 March**: A ***written project proposal*** consisting of one or two paragraphs submitted ***before 9:30 am class time,*** to include:
        i.   Topic of your investigation and proposed title
        ii. Model(s) to be used/modified/built and identify which modeling tool(s) you will be using (*e.g.* Excel, Vensim, NetLogo, AgentCubes, Tools from Interactivate, other?)
        iii. Proposed team working on this project including specific roles to be fulfilled by each team member
        iv. Projected need to meet with instructor for guidance and help

        You will present your project proposal ideas to the class over Zoom during class time.

    b. **Tuesday 29 March**: ***Written progress report***, ***before 9:30 am class time,*** to include
        i.   Any modifications to your project proposal
        ii. Description of progress made in background research and
        iii. Description of the model(s) you have identified/used/modified/built
        iv. Projected need to meet with instructor for guidance and help

Be prepared to present a short, 3-5 minute progress report over Zoom during class time.

Lab time on 29March for team work and help.

c. **Thursday 1 April**: *Written progress report*, *before 9:30 am class time,* to include:
   i. Any modifications to your project proposal
   ii. Draft of your Introduction and Background text
   iii. Description of progress made in background research and model(s) identified/used/modified/built
   iv. Projected need to meet with instructor for guidance and help

   Be prepared to present a short, 3-5 minute progress report over Zoom during class time.

7. I will schedule as much time and as many meetings as needed on Zoom with the project teams (or you, if you are working alone) during all open time all week and even on weekends (Except from Holy Thursday evening through Easter Sunday), including the normal lab time on Tuesday 29 March, up to and including 8 April. You and your team must schedule specific zoom sessions for help through e-mail. All members of your team should be available to meet during these help sessions. This is *your* project but I am willing to help as much as needed.

8. Questions, comments, concerns?

Some suggestions:

a) **Excel starting models: http://www.shodor.org/talks/ncsi/excel**

b) **Vensim starting models: http://www.shodor.org/talks/ncsi/vensim**

c) **Netlogo: web or download a copy** https://netlogoweb.org/ (extensive models library)

d) **AgentCubesOnline: search for models at http://agentcubesonline.com**