Goal: The purpose of this assignment is to practice your writing skills in the context of the classic model:
   Idea → Write → Do research (and repeat this cycle)

Your will execute this model during your Ph.D. studies (DRP and dissertation) and throughout an academic career. We will divide the class into 3 person research teams to do this assignment but all writing will be done individually.

The IDEA: Secure Airplane Boarding
Part I: The Research Proposal (due Jan 28)

The research problem your team is tackling is the development of a new scheme (or schemes) for boarding passengers onto an airplane. Your boarding scheme must be efficient [Steffen 2012]. In addition, the new scheme(s) must meet TSA requirements to minimize the risk of a security breach before takeoff. Each passenger will have a security rating of either lower risk (TSA pre-check) or higher risk. The proposed boarding scheme(s) must strive to maximize the percentage of lower risk passengers on the plane at any given time (since they are more likely to alert the flight crew in the event of a security problem) while minimizing total boarding time. Note: you have no control over seat assignment for any of the passengers.


After you have read the background paper by Steffen and perused some other online sources (need not be rigorous scientific sources), your team should get together to come up with proposed schemes, the criteria/metrics for evaluating the performance of the new boarding schemes, and a set of proposed experiments. Keep this simple so that your team can actually do some quick simulations for Part II assignment.

Each member of your team will separately write his/her own research proposal for the development of innovative secure airplane boarding methods. You can use the ideas generated as a group, but the writing assignment is to be done individually without consulting your classmates. The research proposal is limited to a maximum of 6 pages and should adhere to the pseudo NSF Grant Proposal Guide (GPG) attached below.
Part II: Do Research (due Feb 4). Each group will then conduct a small set of experiments and share the result within your group. Keep this simple.

Part III: Write the Research Paper (due Feb 11). Each individual will write a paper on their research into secure airplane boarding schemes. Clearly, you will re-use/rewrite portions of your research proposal and integrate them into your paper. You will submit your paper to the 2015 CIS 640 Conference on Secure Aviation by emailing it to the conference chair -- Prof. Lo, lo@cs.uoregon.edu by the conference deadline (2:00 PM Feb 11). Please also turn in two printed copies.

Part IV (due Feb 18): The Review Process. Each individual will write a critique of the paper written by a class member outside their own group using paper reviewing guidelines provided later. The chair of the conference will announce the Best Paper Award on Feb 25.

Part V (due Feb 25): The Research Presentation. Each research group will select one member of their group to give a 5 minute (8 slides) presentation of their research results.

Guidelines:
Overall:
Part I: Research proposal – 6 pages max, single spaced, 11 pt with 1” margins. Use the pseudo-NSF GPG.
Part III: Research paper – 8 pages max, single spaced, 11 pt with 1” margins. Use the format of a research paper – abstract, introduction, body, results, related work, conclusions, references. Minimize related work and references as I do not want you to spend too much time reading the literature in this area.

There will be a lot of in-class discussion in research teams as well as among the whole class. The results of these discussions will be used to refine the problem description to a reasonable set of parameters. Be sure you know what refinements have been decided on at the end of each class,

Important notes:
(1) This assignment is a work-in-progress, so it will be refined as we go – to clarify as well as to simplify.
(2) The focus of your efforts should be on writing, not on the development of airplane boarding methods, nor on the experiments. We will do weekly in-class exercises on writing sections of the proposal and the paper, as well as look at good and bad examples of each.