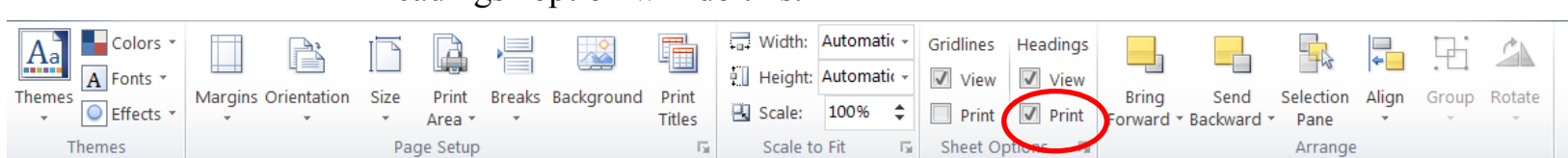


## **Optimization for Decision Making DNSC6251**

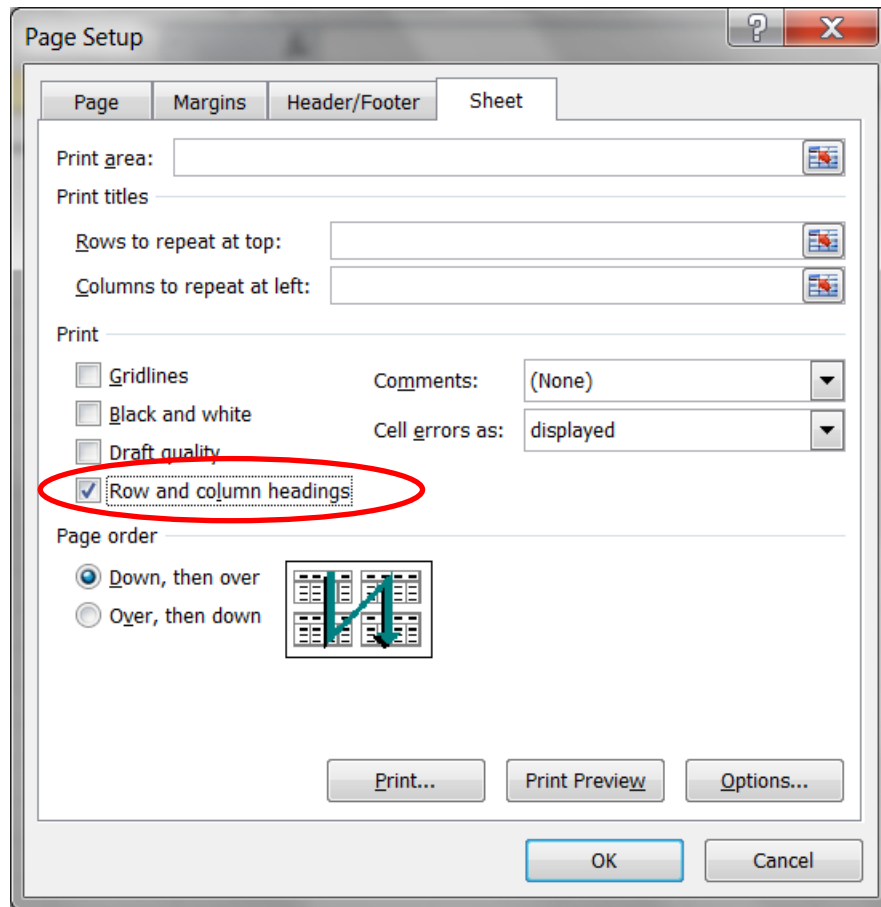
### **Homework Formatting Instructions**

You are required to follow the following instructions for formatting your turned-in homework. All homework assignments must be submitted through Blackboard.

1. You must provide the formulations of the optimization models (i.e. algebraic form of constraints, objective, and variable definitions), as well as answers to short answer questions. You can type them, or written them down and scan them (as long as your handwriting is clearly legible). Graphs must be clearly legible. For example, axes should be clearly labeled and be roughly to scale.
2. Please use the provided Excel file (if any) to begin solving the questions that make use of Excel. In many cases, the data will already be laid out in a useful way to start you off. Sometimes, the problem will already be partially solved, to lead you in the right direction.
3. You will need to print out each Excel spreadsheet that you update/create as part of the homework that you hand in. Please follow the following instructions to produce printouts that help your work to be properly graded:
  - a. Make sure to always “Print Headings” of the spreadsheet so that the column labels (e.g. A, B, C) and row labels (e.g. 1, 2, 3) are visible on the printout. In Excel 2007, 2010, and 2013, clicking the Page Layout tab of the ribbon and then placing a check mark in the “Print Headings” option will do this.



If you are using Excel 2003, click the File menu, then Page Setup, go to the Sheet tab, and place a check mark in the “Print Row and Column Headings” box (as seen below).



- b. Please print each spreadsheet twice. Once with all cells showing their respective formulas (“formula view”), and once with the “normal view” where the cells show the numbers that the formulas evaluate to. In Excel 2007, 2010, and 2013, you can switch between the “formula” view and “normal” view by clicking the Formulas tab and then clicking the “Show Formulas” button. Alternatively, Clicking Ctrl+` also toggles between “formula” and “normal” view (hold down the Ctrl key and press the button with the ~ symbol on it to the left of the 1 key). Make sure that column widths are large enough so that any formulas which are seen in the “formula view” can be fully seen on-screen (and in your printout!). Additional help on how to do this is here: <http://www.mrexcel.com/articles/show-formulas-in-cells.php>
- c. For each spreadsheet you solve, please copy-and-paste the Excel Solver settings into a MS Word document which gets handed in with your assignment. To do this, click Alt-[Print Screen] to take a picture of the Solver settings and Paste the resulting picture in MS Word. For example, the following is a screen capture using this method.

**Solver Parameters**

Set Objective:

To: ☐ Max ☒ Min ☐ Value Of:

By Changing Variable Cells:

Subject to the Constraints:

☒ Make Unconstrained Variables Non-Negative

Select a Solving Method:

**Solving Method**  
 Select the GRG Nonlinear engine for Solver Problems that are smooth nonlinear. Select the LP Simplex engine for linear Solver Problems, and select the Evolutionary engine for Solver problems that are non-smooth.

- d. Highlight or circle the important quantities (i.e. cells that contain the optimal solution and/or optimal value)

Once you will have done the above, build a **single pdf file** and submit it through **Blackboard** and the link associated with the corresponding assignment.