Linear Optimization (Spring 2023): Homework 7

- The total points (given in parentheses) add up to 155. You will be graded for 145 points (with the possibility of getting up to 10 points as extra credit).
- BT-ILO stands for the text (Bertsimas and Tsitsiklis: Introduction to Linear Optimization).
- **You must email your submission as a folder to kbala@wsu.edu**. Include the **PDF file with answers to proof problems** as well as all **files for the AMPL problems** in this folder.
- **Your folder name should identify you in the following manner. If you are Prince Of Canada, you should name your submission folder PrinceCanada_Hw7. If you want to add more bits to the title, e.g., Math464, you could name it PrinceCanada_Math464_Hw7, for instance. But start the folder name with PrinceCanada; and NOT "Prince Canada" or "Prin_Canada" or ...**
- Name your **PDF file** as **PrinceCanada_Hw7.pdf**.
- **Begin the SUBJECT of your email submission with the same `FirstnameLastname`, e.g., "PrinceCanada Hw7 submission".**
- **This homework is due by 4:59 PM on Thursday, March 9**.

1. (30) Write an AMPL model file and a data file for the LP formulation of BT-ILO Problem 1.16 (BT-ILO pages 37–38, discussed in Homework 2). Solve the LP in AMPL, and record the optimal solution and the optimal objective function value. Your submission must include the model and data files, as well as the output from the AMPL run. **Include the output from AMPL in the main PDF file submitted for this homework.**

2. (40) Write an AMPL model file and a data file for the LP formulation of Problem 1.15 (BT-ILO page 37, discussed in Homework 2 and Homework 4). Solve the LP in AMPL, and record the optimal solution and the optimal objective function value. Then modify the original files to solve the modification given in part **(b)-(i)**. Your submission must include model and data files, as well as the output from the AMPL run. **Include all output from AMPL in the main PDF file submitted for this homework.**

3. (30) BT-ILO Problem 3.2 from page 129.

4. (30) BT-ILO Problem 3.3 from page 129.

5. (25) BT-ILO Problem 3.6 **(a)** from page 129.