

6 January 2020
To: ChE 312 Class
From: Professor Koretsky
Subject: Homework #1

Below is the first homework assignment of the quarter. Please conform to the format described in the class syllabus. This assignment is due on 9 January 2019 at 1 PM on GradeScope. Please also bring a hard copy of your solution to your studio section. If you have any questions, feel free to see me or one of the other instructors during office hours or by appointment.

1. The instructional team would like to get to know names early in the term. To help us please provide a portrait picture of yourself with your name underneath. An example is shown below.



Milo Koretsky

2. You have a friend who volunteers at an urban youth sports center who is excited at the success of the center, but concerned about an increase in injuries and the increasing costs of supplies to treat them. Knowing you are an engineer, that friend has approached you to design a portable cold pack that they could make to treat injuries in the field. This is often accomplished by containing a salt in one compartment of a plastic container and water in another separated by a thin membrane. When it is needed in the field, the membrane is punctured the water and salt mix.

As a minimum, your design should include the following:

- A. A sketch of the cold pack
- B. Its physical dimensions
- C. The salt you will use, and the amount.
- D. The amount of water that is contained.
- E. Your estimate of the minimum temperature that can be achieved.

When submitting your design, please also list the important design decisions that you made and cite any references you used to get information.