Chemistry 211 Laboratory
Fractional Distillation

In this experiment fractional distillation will be performed in order to separate ethanol from water. Also, a comparison should be discussed with the simple distillation experiment performed previously. Assemble the apparatus as shown in the diagram. To construct the distillation column, take the air condenser and fill up with glass beads. Add 20 mL of the ethanol-water solution and a boiling stone to the distillation flask. Begin the heating with the hot plate. Since water is relatively a high-boiling (low vapor pressure) substance, it maybe appropriate to initiate the heating on the maximum voltage setting. Watch the distillation flask to see that it does not boil so vigorously that the liquid runs over the top. On the other hand, if due to inefficiency of heating, the vapors do not reach the take-off point in order to be distilled, a wrapping of the column and the distillation flask is advised. This is to transport additional heat from the heat source onto the higher points of the apparatus. Distillation should be dropwise. Record the temperature on the thermometer for every 0.5 mL of the distillate received. Later, make a graph (in your laboratory notebook) of temperature versus the volume of the distillate. Continue distillation until 15 mL of distillate is collected.