**CHE 2060: Summary of key concepts Module 4, Overview: organic rxns**

* You should be confident in interpreting and using the **curved arrow** drawing convention for showing two-electron movement.
  + Given a set of curved arrows describing a reaction step, you should be able to draw the product indicated by the arrows.
  + Alternatively, given the starting structure and a product for a reaction step, you should be able to draw the curved arrows showing how bonds were broken and formed.
  + You need not understand (yet) the chemistry behind these steps, you just need to be able to use the drawing formality.
* You should be able to recognize **three reaction mechanism types**: an acid-base reaction, a one-step nucleophilic substitution, and a two-step nucleophilic substitution.
  + Given an example reaction, you should be able to identify a **nucleophile**, **electrophile**, and in many cases a **leaving group**.
  + Given an example reaction mechanism, you should be able to recognize one or more **reaction intermediates**.
* Given a **reaction coordinate diagram** for a hypothetical reaction, you should be able to recognize whether the reaction is **endergonic** or **exergonic**, and whether the **equilibrium constant** is greater than or less than 1.
  + You should be able to identify the point(s) on the diagram corresponding to **transition state**(s) and **reaction intermediate**(s).
  + In a multi-step reaction diagram, you should be able to identify the **rate determining step**.
  + Given a detailed reaction process showing starting reactant(s), intermediate(s), and product(s) with associated curved arrows, you should be able to sketch a reaction coordinate diagram that that is consistent with the details of the reaction mechanism.
* You should be able to explain the role of a **catalyst** in a reaction.
* You should be able to list the **major differences** between a typical biological reaction and a typical laboratory reaction.