Background: Welcome to Organic Chemistry! You are about to embark on an epic adventure of epic epicness. About 1/3 of the people who take Gen Chem 1 take Gen Chem 2. About 1/3 of them take Organic Chem. You are now among the chemical elite! From now on, when you say "I am in Organic Chemistry" you should pause for an audible "Oooooh" from the people around.

Unlike other varieties of Chemistry, this course doesn't do a lot with math. This exercises another part of your brain, and involves a lot of spatial reasoning. There will be some math, I am not going to lie, but it will be minor in comparison to what you've already been through.

We will start Organic Chemistry with a brief review of some important topics from first semester general chemistry. The important stuff there is the electronic nature of the covalent bond. We will need to recall things like valence electrons, dipole moments, and orbitals to make sense of our new world.

The real new material will be hybridized molecular orbitals. These handy things are the reason why carbon has a tetrahedral shape. The hybridization of one 's' orbital with three 'p' orbitals creates a new set of four 'sp^3' orbitals. We will want to be able to recognize the hybridization of various atoms in bonds, so this will be an important topic for us. This will link to things like molecular geometry which is similarly important.

Double and triple bonds which are prevalent in organic chemistry are the result of different kinds of hybridized orbitals (sp^2 or sp). This effects the length and strength of the bond, as well as its geometry. Finally, we will look at applications of this to some rarer forms of carbon such as radicals, cations, and anions.

This week will be like a return to the gym after Thanksgiving, Christmas, and New Years' binging. You'll want to stretch afterwards.

Outcomes: Upon successful completion of the week, students should be able to:

1. Give the electron configuration for various elements.
2. Draw Lewis Structures for various molecules.
3. Identify compounds as polar or non-polar.
4. Discern between sigma and pi bonds.
5. Use hybrid orbitals to justify molecular shapes.
6. Identify the hybridization of atoms in bonds.

Recommended Problems:

1.49, 1.51, 1.56, 1.60, 1.63, 1.64, 1.68, 1.71