

# Organic Chemistry 2016-17 Syllabus

## Mr. Castagno (1 Semester)

### Marking Period 1

#### **Unit 1 – Alkanes**

- Nomenclature of Organic Compounds
- Modeling Organic Compounds
- Structure and Properties of Alkanes

#### **Unit 2 – Reactions of Alkanes and Radicals**

- Stability of Alkanes
- Curved Arrow Notation
- Reactions with Alkanes
- Reactivity-Selectivity Principle
- Stereochemistry
- Radical Reactions

#### **Unit 3 - Alkenes**

- Formulas and Nomenclature
- Structure and Nomenclature
- Structure and Properties
- Reactions and Curved Arrow Notation
- Thermodynamics and Reactions
- Kinetics and Reactions

### Marking Period 2

#### **Unit 4 – Reactions of Alkenes**

- Addition of Halides
- Carbocations and Stability
- Transition States
- Regioselectivity and Markovnikov
- Carbocation Rearrangement
- Reactions without Carbocations
- Radical Reactions with Alkenes
- Hydrogenation of Alkanes

#### **Unit 5 – Alkynes and Reactions**

- Nomenclature and Models
- Structure and Properties
- Compare Alkynes to Alkanes/Alkenes
- Addition of Water (& Tautomerization)
- Hydroboration-Oxidation
- Hydrogenation of Alkynes
- Effect of Catalysts of isomerization
- Multi-step Synthesis

#### **Unit 6 – Infrared Spectroscopy**

- Electromagnetic Spectrum
- Properties of Light
- Infrared Spectrometer
- Functional vs Fingerprint
- Common Absorption Bands
- Analyzing IR Spectra

**Labs:** There is no dedicated lab period for this course. So laboratory investigations can occur on any day. Advanced notice will be given if possible. Please advise Mr. Castagno if you are to be absent. Full Lab Reports are not expected on **all** labs.

**Projects:** Expect at least one long-term project on either a) Multi-Step Synthesis of b) Analyzing IR Spectra to be assigned and completed in Marking Period 2.

\*Order of topics within unit may change slightly

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