

## Organic Chemistry II Course Outline – Over 50 hours of video

### I. Aldehydes and Ketones – 6 hours of video

- General Introduction – 15 minutes of video
- General Reaction Concepts – 25 minutes of video
- Nomenclature – 35 minutes of video
- Carbon Nucleophile Reactions – 50 minutes of video
- Hydrogen Nucleophile Reactions – 10 minutes of video
- Oxygen Nucleophile Reactions – 1hr 20 minutes of video
- Nitrogen Nucleophile Reactions – 40 minutes of video
- Wittig Reaction – 35 minutes of video
- Oxidation/Reduction Reactions – 35 minutes of video
- Mega Review – 40 minutes of video

### II. Carboxylic Acid – 2hrs and 30 minutes of video

- General Introduction – 15 minutes of video
- Nomenclature – 15 minutes of video
- Properties – 20 minutes of video
- Preparation of Carboxylic Acids – 15 minutes of video
- Reduction of Carboxylic Acids – 15 minutes of video
- Fischer Esterification – 20 minutes of video
- Acyl Halide Formation – 15 minutes of video
- Decarboxylation – 10 minutes of video
- Mega Review – 20 minutes of video

### III. Carboxylic Acid Derivatives – 7 hours of video

- General Introduction – 5 minutes of video
- Nomenclature – 30 minutes of video
- General Mechanism – 15 minutes of video
- Reactivity Considerations – 1hr 20 minutes of video
- Acyl Halides – 1 hour of video
- Acid Anhydrides – 30 minutes of video
- Esters – 1hr 10 minutes of video
- Carboxylic Acids – 40 minutes of video
- Amides – 40 minutes of video
- Nitriles – 10 minutes of video
- Reduction Reactions – 25 minutes of video
- Organometallic Reagents – 45 minutes of video

#### **IV. alpha Substitution and Condensation – 7hrs and 30 minutes of video**

- General Introduction – 5 minutes of video
- Alpha Acidity and Tautomerization – 1 hour of video
- General Reaction Mechanism – 15 minutes of video
- Alpha Halogenation – 40 minutes of video
- Alpha Alkylation and Acylation – 40 minutes of video
- Enamine Alkylation and Acylation – 30 minutes of video
- Aldol Reactions – 1 hour of video
- Claisen Condensation – 1 hour of video
- Malonic Ester Synthesis – 35 minutes of video
- Acetoacetic Ester Synthesis – 10 minutes of video
- Alpha Beta Unsaturated Carbonyl – 20 minutes of video
- Michael Reaction – 35 minutes of video
- Robinson Annulation – 40 minutes of video

#### **V. Aromatic Compounds – 7 hours of video**

- General Introduction – 5 minutes of video
- The Structure of Benzene – 25 minutes of video
- Nomenclature of Benzene Derivatives – 30 minutes of video
- Criteria for Aromaticity and Antiaromaticity – 1hr and 45min of video
- Electrophilic Aromatic Substitution – 15 minutes of video
- Five Major Reactions – 45 minutes of video
- Substituent Effects on Reactivity – 1hr and 20 minutes of video
- Synthetic Application of Benzene Derivatives – 50 minutes of video
- Side Reactions – 40 minutes of video
- Phenols – 30 minutes of video

#### **VI. Amines – 4hr and 30 minutes of video**

- General Introduction – 5 minutes of video
- Nomenclature – 25 minutes of video
- Properties – 1hr and 10 minutes of video
- Preparation of Amines – 45 minutes of video
- Reactions with Nitrous Acid – 50 minutes of video
- Hofmann and Cope Elimination – 50 minutes of video
- Mega Review – 40 minutes of video

#### **VII. Conjugated Systems – 5hrs and 30 minutes of video**

- General Introduction – 55 minutes of video
- Orbital Description – 25 minutes of video
- 1,2 and 1,4 Addition – 1 hour of video
- Diels-Alder Reaction – 2 hours of video

- Claisen and Cope Rearrangement – 20 minutes of video
- UV-Visible Spectroscopy – 25 minutes of video

### **VIII. Carbohydrates – 4 hours of video**

- General Introduction – 10 minutes of video
- Classification of Carbohydrates – 40 minutes of video
- Oxidation and Reduction – 1 hour of video
- Cyclic Structure of Carbohydrates – 1 hour of video
- Properties of Monosaccharides – 15 minutes of video
- Glycosides – 40 minutes of video
- Alkylation and Acylation – 10 minutes of video
- Periodic Acid – 15 minutes of video
- Adding and Removing One Carbon – 10 minutes of video

### **IX. Lipids – 2 hours of video**

- Introduction – 10 minutes of video
- Fatty Acids, Triacylglycerides, and Waxes – 30 minutes of video
- Phospholipids – 25 minutes of video
- Terpenes – 40 minutes of video
- Steroids – 20 minutes of video

### **X. Polymers – 1hr 30 minutes of video**

- General Introduction – 20 minutes of video
- Step-Growth Polymers – 30 minutes of video
- Chain-Growth Polymers – 40 minutes of video
- Biological Polymers – 10 minutes of video