

# Synopsis of Experiments # 1-5 and Report Due Dates

Chemistry 2312  
Honors Organic Chemistry Laboratory

Tuesday, September 3, 2019  
T. R. Hoye

## Course Outline: Experiments # 1-5.

1. Ketone Reduction by Sodium Borohydride:  
*3-Nitroacetophenone to 1-(3-Nitrophenyl)-1-ethanol and 9H-Fluoren-9-one to 9H-Fluoren-9-ol*
2. Ozonolysis and Hydrogenation of Naturally Occurring Alkenes:  
*Nopinone from  $\beta$ -Pinene and Menthone from Pulegone*
3. Reactions of Carboxylic Acid Derivatives:  
*Enolate Alkylation, Ester Hydrolysis, and EDCI-Coupling in the Preparation of Phenyl-N-(1-phenylethyl)propanamide*
4. Catalysis: *Palladium Coupling of an Alkyne with an Aryl Halide, Enzymatic Kinetic Resolution of a Chiral Alcohol, and Mosher Ester Analysis of Absolute Configuration*
5. Diels-Alder Cycloaddition Reaction, Photochemical 2+2 Cycloaddition, and Diketone Reduction: *Preparation of a Starting Material for Synthesis of Analogues A and B, Natural Antitumor Agents*

<b>Points</b>	Experiment 1	110 points
	Experiment 2	220 points
	Experiment 3–5	330 points each

**Due Dates** (all due **by lab closing time** in a collection box in 491 Kolthoff)

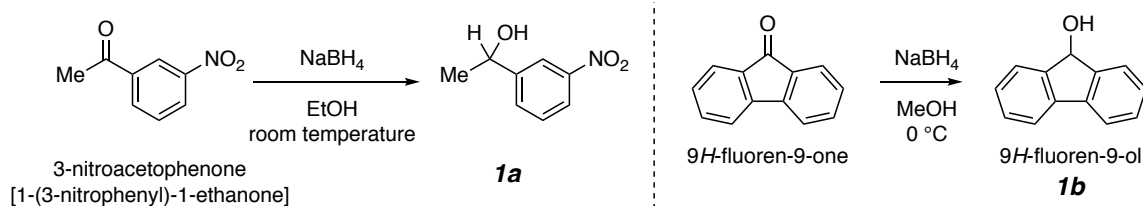
<b>Report 1.</b>	Experiment 1	Thursday, September 19, 2019
<b>Report 2.</b>	Experiment 2	Saturday, October 5, 2019
<b>Report 3.</b>	Experiment 3 (or 4 or 5)	Saturday, October 26, 2019
<b>Report 4.</b>	Experiment 4 (or 5 or 3)	Saturday, November 16, 2019
<b>Report 5.</b>	Experiment 5 (or 3 or 4)	Wednesday, December 11, 2019

**Late Penalty** *A 10% penalty will be assessed for each week (or portion thereof) that a report is turned in late.*

## Graphical Synopsis of Experiments # 1-5

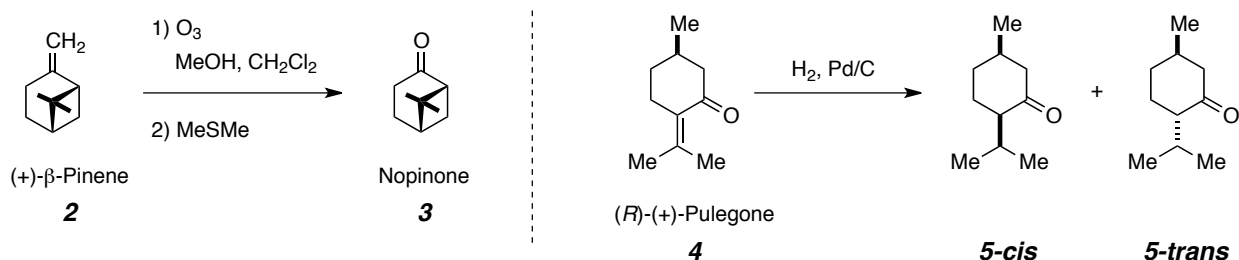
### 1. Ketone Reduction by Sodium Borohydride:

*1-(3-Nitrophenyl)-1-ethanol (1a) and 9H-Fluoren-9-ol (1b)*

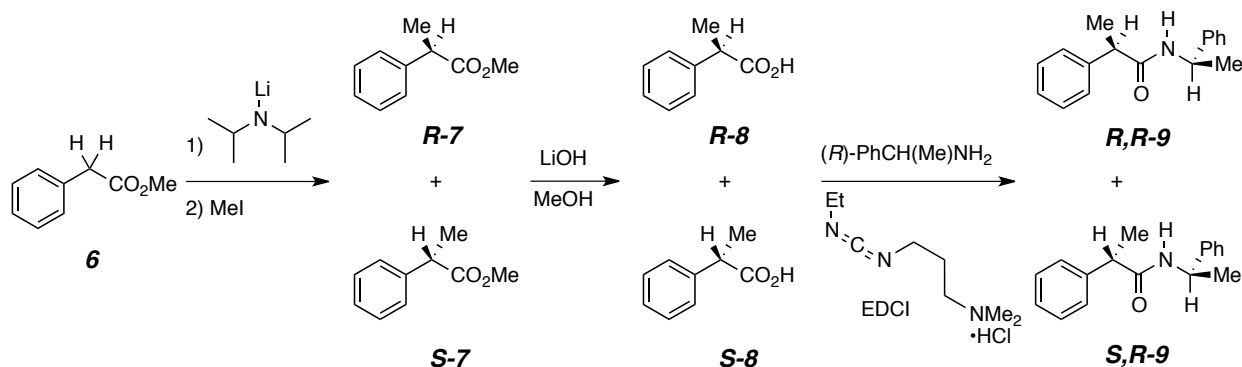


### 2. Ozonolysis and Hydrogenation of Naturally Occurring Alkenes:

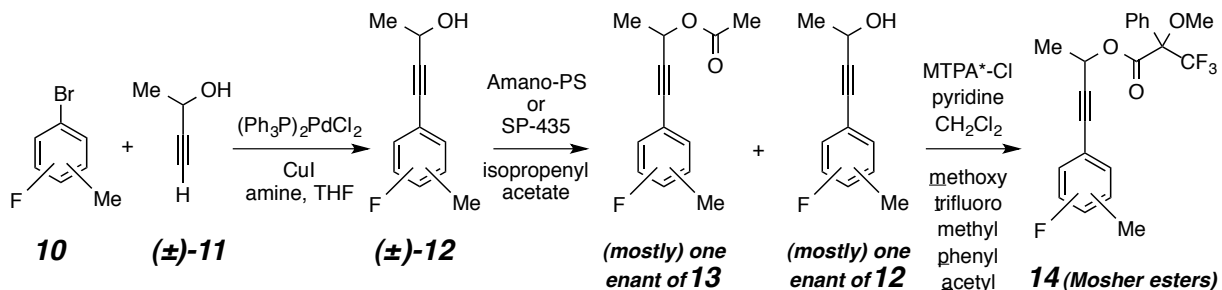
*Nopinone (3) from  $\beta$ -Pinene (2) and Menthone Diastereomers (5) from Pulegone (4)*



### 3. Reactions Relevant to Bioorganic Chemistry: Enolate Alkylation, Ester Hydrolysis, and EDCI-Coupling in the Preparation of Phenyl-N-(1-phenylethyl)propanamide (9)



### 4. Catalysis: Palladium Coupling of an Alkyne (11) with an Aryl Halide (10), Enzymatic Kinetic Resolution of a Chiral Alcohol (12 to 13), and Mosher Ester Analysis of Absolute Configuration



### 5. Diels-Alder Cycloaddition, Photochemical 2+2 Cycloaddition, and Diketone Reduction

