Chem 228 **Paper #1-Overview of Ester Flavors/Fragrances** WS2012
Due week of 2/22/12 - 2/24/12

Choose an ester to prepare based on its fragrance.

Limits on ester choices for synthesis:

Allyl, bornyl, geranyl, linalyl and terpenyl esters may NOT be chosen due to unavailability of starting alcohols.

Topics to Research:

Multiple prep reactions for same product.

Fisher esterification, catalyst selection, general procedure
Acid chlorides (Schotten Bauman)-requires prep of acid chloride from acid first
Transesterification-start with methyl ester and exchange with higher boiling alcohol

Naming of esters: for each of the routes above, write out the reactions needed to form your chosen ester with the proper IUPAC and common name for the starting materials and products.
Catalysts: Heterogenous vs homogenous
Relative rates vs structures of reactants
Side products (eg. elimination vs esterification)
Isolation/purification of product ester
Neutralization of residual acid catalyst in product-how & why
Drying of product (selection of proper drying agent)
Fractional Distillation
Dean-Stark Traps-purpose of, what do they look like, how do they work
Azeotropes

Suggested sources for general info on esters:

Aldrich Catalog of Flavors & Fragrances (on class reserve at MST library circulation desk)

Wikipedia: ester- general overview of esters

Google: ester + fragrance or flavor. Numerous lab experiments are on the web. Most only detect the odor of the ester and do not actually try to quantitatively isolate the ester, so they are mostly just useful for general info about which esters have desirable odors.

Ullmann's Encyclopedia of Industrial Chemistry,. "Flavors & Fragrances" and "Esters, Organic" provide useful info on properties of various esters. MST reference, TP9.U57 2003

Encyclopedia of Chemical Technology, MST reference TP9.K54 2004

Plagiarism: Paper should be in your own words. All references should be cited. Direct quotes should be bracketed within quotation marks, with a reference to source.