ChE 4133 **Industrial Catalysis** **January 10, 2017**
Written part due: April 20, 2017
(the last class day)

Class Presentation & Report Selection

Each student in the class needs to select one topic for their class report and presentation. Written parts are due on the last class day as a hardcopy. Oral presentations will be scheduled later in the semester, and will last about 10-15 minutes each. The oral presentation will be a synopsis of the written report.

Some Possible Catalytic Processes for Your Paper

Choose a topic from the list given below, or if you have an interest not on the list, discuss it with Dr. Price for his approval. An undergraduate's report should be 5 or so 8½ x 11 pages; graduate student's papers should be 10 pages or so. Your report on the process would generally begin with an introduction that summarizes the process, the uses of the product, worldwide demand for the product, etc. A schematic of a typical process would usually be included. A description of the catalyst(s) for the process would follow. Some information you might include: 1) What catalysts are in vogue? 2) Is there any interesting history in the development? 3) How are they prepared, activated, utilized, and regenerated? 4) What are the operating conditions and are there typical problems that must be dealt with? 5) Are there alternative catalysts?

a. Dehydrogenation of Alcohols to Aldehydes and Ketones
b. Light Paraffin Aromatization
c. Dehydration of Alcohols to Olefins
d. Deacon Process (HCl to Cl_2)
e. Claus Process (sulfur removal)
f. Ammonia to Nitric Acid
g. Olefin Disproportionation
h. Trace Acetylene removal from Ethylene
i. Oxidation of Benzene to Maleic Anhydride
j. Oxidation of Butenes to Butadiene
k. Acrylonitrile Synthesis
l. Xylene Isomerization
m. Ethylbenzene to Styrene
n. Ethylbenzene from Benzene and Ethylene
o. Methanol to Gasoline
p. SO_2 to SO_3
q. Hydroisomerization of Paraffins
r. Catalytic Cracking
s. Hydrodesulfurization
t. Naphtha Reforming
u. Automobile Exhaust Treatment
v. Ethylene to Ethylene Oxide
w. Ammonia Synthesis