CEM 845 NMR TRAINING OUTLINE

All students enrolled in CEM 845 are expected to go through extensive training for the NMR instruments. You need to demonstrate complete competence in order to be 'checked-out' on the instruments and be allowed to operate these spectrometers. At the same time you need to develop the skills necessary to produce high quality spectra. This is gained only through practice. Do not be shy in signing up and running samples. The instruments are available 24 hrs a day, which means you probably need to sign up for odd hours, since you need extended times to practice. The length of time blocks during the day is shorter, since experienced users can get their data very quickly. The typical 10 to 20 min time block (sufficient for an experienced user to acquire 2-3 data sets) is not long enough when you get started. Obviously, the unwise thing to do is to wait until the last days to accomplish what you need; remember there are many students in CEM 845, you are competing for time with the whole department. Dr. Dan Holmes and Dr. Li Xie have invested a great deal of time in providing the department with an efficient and smoothly operating NMR facility. They also have and will invest many hours in your training. Thus, it is imperative that you meet the deadlines listed below and attend their training sessions as scheduled. The following is the user ID and password; to be used only when working with the data stations (not computers connected directly to the NMRs). The data stations are located in room B-8 (south wall, two computers). They are first-come-first-serve. The user ID and password are case sensitive. The printer is located in B7 near the entrance.

User ID: process
Password: MSUProcess

IMPORTANT: All NMR Experiments must be run by you on the subbasement NMR spectrometers. Any data not from these instruments will not be accepted. All completed assignments should be submitted to the TA.

I. Students read 'NMR Basics' and complete quiz. (**due 9/6**)

II. Students complete 'Plotting Practice' using data stations. (**due 9/13**)

III. Routine and advanced 1D NMR group workshop. (**tentatively, week of 9/9**)

IV. Group practice (2 per group) of 1D NMR acquisition. Staff or TA monitored (2 hours each, **9/9 – 9/27**)

V. Each person determines T_1's and acquires an integrated ^{1}H NMR spectrum of a simple organic compound (your preparation) in $CDCl_3$ and a ^{13}C NMR spectrum of the same compound in acetone-d_6. Register for time online. (**9/11 – 10/4**)

VI. Students complete '2D Plotting Practice' using data stations. (**due 10/9**)

VII. 2D NMR group workshop. (**tentatively, week of 10/7**)

VIII. Individual practice of 2D NMR acquisition. Staff or TA monitored (2 hours each, **10/7 – 10/18**)

IX. Each person acquires a gCOSY and gHSQC of an organic compound. You will prepare the sample. Register for time online. To be completed after 2D practice session. **(10/7 – 11/1)**. You will be able to get your unknown only by turning in your 2D spectra.