

## 1.4 The Laboratory Organization and Schedule

### **A. Experiments**

There are four experiments in Chemistry 5.33. Completion of all experiments is required.

<u>Expt. No.</u>	<u>Experiment</u>
1	Molecular Spectroscopy of Acetylene and Methane
2	Magnetic Resonance Spectroscopy & ESR Spectroscopy
3	Time-Resolved Electronic Spectroscopy
4	Nitrogen Scission by a Molybdenum(III) Xylidene Complex

### **B. Laboratory Partners**

All experiments will be done in groups of three students.

**The importance of having lab partners with whom you can work compatibly and communicate conveniently cannot be overemphasized.**

At the Check-In on **Wednesday, September 7**, you will sign up for groups (A, B, or C – see schedule which follows), identify two lab partners, and tell us their names. During check-in you will be assigned a desk and a schedule for doing the experiments as scheduled. You will be asked for the names of the other students who will form your group. Be sure there is not a conflict in your schedules for working together on the spectroscopy experiments.

The term is divided into three parts. The students in 5.33 are divided into three Groups, viz., A, B, and C, to work through the semester in the laboratory. During each part you will do experiments according to the schedule on the following pages. The Report schedule is included with the Lab Schedule.

All Experiments will require that you sign up in advance with the TAs to use the analytical instruments, computer, or glove box. Your cooperation in arranging efficient use of the available facilities in consultation with the TAs is urged.

**Sign-up sheets for all instrumentation will be posted regularly on the bulletin board outside 4-471, the NMR lab**

Please help us all to keep things running smoothly by being conscientious in showing up promptly for time when you have signed up (at the beginning of the lab), and by letting the TAs know in advance when you are unable to use time for which you have signed up so that someone else can use the instrument. Instrument time for several of the instruments will be very tight; significant abuses of sign-up privileges cannot be tolerated.

### C. Working Hours

Regular lab hours are 12:30 PM until 5 PM, Monday through Friday. The assigned units for 5.33 are 2-13-6, indicating that on the average you should expect to spend the equivalent of three full afternoons a week in the lab. In some experiments more than this amount of time will be needed, and less in others. Allotted time for the work for each three-week part of the term totals 17 lab periods. In some experiments, however, it may be possible for parts of the analysis, calculations, and discussion to be done outside of the lab. The additional six hours a week credit may be regarded as time to be ALLOTTED to **reading about the experiments in advance** (absolutely essential in 5.33). There will undoubtedly be times when you will want a reaction to proceed during a period other than the scheduled laboratory. This is allowed IF you pick up, read and complete an **OVERNIGHT REACTION** form available in 4-454. You should also be aware that most equipment seems to have a curious habit of developing high vapor pressure during the night, and will generally have completely evaporated by the following morning. Therefore, if at all possible, you should securely fasten your equipment. Flexible rubber (black) cooling water tubing must be secured to water inlets and condensers with or hose clips, which are available in your desk.

### D. Returnable Equipment:

All equipment checked out for a specific experiment must be returned by the end of that experiment. If this is not done, TAs will adjust your techniques grade on the lab write-up.

**E. 5.33 LABORATORY SCHEDULE  
FALL SEMESTER 2005**

		<b>GROUP A</b>	<b>GROUP B</b>	<b>GROUP C</b>
W 9/7		<b>LABORATORY CHECK-IN 1:00 PM</b>		
		<b>Begin First Rotation</b>		
<b>Th 9/8</b>	(#1)	<b>NITROGEN</b>	<b>Laser &amp; NMR/ESR</b>	<b>IR</b>
F 9/9	(#2)			
M 9/12	(#3)			
T 9/13	(#4)			
W 9/14	(#5)			
Th 9/15	(#6)			
F 9/16	(#7)			
M 9/19		<b>MIT Holiday – No Classes</b>		
T 9/20	(#8)			
W 9/21	(#9)			
Th 9/22	(#10)		<b>Lecture – Electronic Spectroscopy</b>	
F 9/23	(#11)			
M 9/26	(#12)			<b>Lecture – Analysis of IR Spectra</b>
T 9/27	(#13)			
W 9/28	(#14)			
Th 9/29	(#15)			
F 10/1	(#16)			
M 10/3		<b>OPEN LAB</b>		
T 10/4	(#17)		<b>Laser Written Report Due Time: 1:10 P.M. Place: Lab 5.33 Box</b>	<b>Presentation Practice Meetings</b>
W 10/5	(#18)			<b>Presentation Practice Meetings</b>
<b>Th 10/6</b>		<b>POSTER REPORT (NITROGEN)</b>	<b>ORAL REPORT (NMR/ESR)</b>	<b>POWER POINT PRESENTATION (IR)</b>
<b>F 10/7</b>		<b>POSTER REPORT (NITROGEN)</b>	<b>ORAL REPORT (NMR/ESR)</b>	<b>POWER POINT PRESENTATION (IR)</b>

<b>M10/10</b> <b>T 10/11</b>		<b>COLUMBUS DAY VACATION</b>		
<b>Begin Second Rotation</b>				
W 10/12	(#1)	<b>Laser &amp; NMR/ESR</b>	<b>IR</b>	<b>NITROGEN</b>
Th10/13	(#2)			
F 10/14	(#3)			
M10/17	(#4)			
T 10/18	(#5)			
W10/19	(#6)			
Th10/20	(#7)			
F 10/21	(#8)			
M 10/24	(#9)			
T 10/25	(#10)			
W 10/26	(#11)			
Th10/27	(#12)			
F 10/28	(#13)			
M 10/31	(#14)			
T 11/1	(#15)			
W 11/2	(#16)			
Th 11/3	(#17)	<u><b>Laser Written Report Due Time: 1:10 P.M. Place: in Lab 5.33 Box</b></u>	<b>Presentation Practice Meetings</b>	
F 11/4	(#18)		<b>Presentation Practice Meetings</b>	
<b>M 11/7</b>		<b>ORAL REPORT (NMR/ESR)</b>	<b>POWER POINT PRESENTATION (IR)</b>	<b>POSTER REPORT (NITROGEN)</b>
<b>T 11/8</b>		<b>ORAL REPORT (NMR/ESR)</b>	<b>POWER POINT PRESENTATION (IR)</b>	<b>POSTER REPORT (NITROGEN)</b>

<b>Begin Third Rotation</b>				
<b>W11/9</b>	<b>(#1)</b>	<b>IR</b>	<b>NITROGEN</b>	<b>Laser &amp; NMR/ESR</b>
Th11/10	(#2)			
F11/11	<b>VETERANS DAY HOLIDAY</b>			
M 11/14	(#3)			
T 11/15	(#4)			
W 11/16	(#5)			
Th11/17	(#6)			
F 11/18	(#7)			
M11/21	(#8)			
T 11/22	(#9)			
W 11/23	(#10)			
Th11/24 F 11/25	<b>THANKSGIVING VACATION</b>			
M 11/28	(#11)			
T 11/29	(#12)			
W 11/30	(#13)			
Th 12/1	(#14)			
F 12/2	(#15)			
M 12/5	(#16)			
T 12/6	(#17)	<b>Presentation Practice Meetings</b>		<b><u>Laser Written Report Due Time: 1:10 P.M. Place: in Lab</u></b>
W 12/7	(#18)	<b>Presentation Practice Meetings</b>		
<b>Th 12/8</b>		<b>POWER POINT PRESENTATION (IR)</b>	<b>POSTER REPORT (NITROGEN)</b>	<b>ORAL REPORT (NMR/ESR)</b>
<b>F 12/9</b>		<b>POWER POINT PRESENTATION (IR)</b>	<b>POSTER REPORT (NITROGEN)</b>	<b>ORAL REPORT (NMR/ESR)</b>
<b>M 12/12</b>		<b>LAB CHECK-OUT</b>		

**Sign-up sheets for presentation of oral reports will be posted on the bulletin board in 4-454.**

“It looked insanely complicated, and this was one of the reasons why the snug plastic cover it fitted into had the words DON’T PANIC printed on it in large friendly letters”  
-- D. Adams, “The Hitchhikers Guide to the Galaxy”