

**DOE Course**  
August 18-22, 2008

**Laboratory exercise**

Section I Alditol Acetate (AA) composition / Dr. Scott Snyder

Section II Methyl glycosides (TMS) composition / Dr. Radnaa Naran

Section III Partially Methylated Alditol Acetate (PMAA) linkage/Dr. Zhirui Wang

**Analytical Techniques for Carbohydrate Structure Determination (Aug 18-22, 2008)**  
**Sample schedule**

**Monday, August 18**

9:00-9:15      **Welcome and Introduction** - Dr. Parastoo Azadi

**Laboratory and Lecture:**

This week you will be performing the following analyses:

- a) Alditol acetate (AA) composition.....Section I  
(Dr. Scott Snyder)
  - b) Methyl glycosides (TMS) composition .....Section II  
(Dr. Radnaa Naran)
  - c) Partially Methylated Alditol Acetate (PMAA) linkage .....Section III  
(Dr. Zhirui Wang)
- 9:15-9:30      Hydrolysis of AA sample ..... Section I  
(Dr. Scott Snyder)
- Preparation of the PMAA sample..... Section III  
(Dr. Zhirui Wang)
- 9:30-11:15      **Lecture:** Dr. Parastoo Azadi: “*Glycosyl composition analysis and glycosyl linkage analysis*”
- 11:15-12:15      Remove AA sample from heat and dry down with nitrogen.  
Sodium borodeuteride reduction of AA sample. ..... Section I  
(Dr. Scott Snyder)
- 12:15-1:15      **LUNCH**
- 1:15-2:15      Neutralization and drying of AA sample  
Acetylation of AA sample ..... Section I  
(Dr. Scott Snyder)
- 2:15-3:45      **Lecture:** Dr. Geert-Jan Boons (TBA)
- 3:45-5:00      Drying, Extraction and injection of AA sample ..... Section I  
(Dr. Scott Snyder)
- Dissolve PMAA sample in DMSO overnight..... Section III  
(Dr. Zhirui Wang)
- Overnight methanolysis of Methyl glycosides (TMS) sample..... Section  
II  
(Dr. Radnaa Naran)

**Tuesday, August 19**

9:00-9:15      Addition of dimsyl anion to the PMAA ..... Section III  
(Dr. Zhirui Wang)





**Friday, August 22**

**Molecular Modeling Module or NMR Module or Mass Spectrometry Module**

**Molecular Modeling Module**

9:00-12:00    **Lecture and Demonstration** – Lachele Foley and Austin Yongye:  
*“Introduction to Molecular Modeling of carbohydrates”*

12:00-1:00            **LUNCH**

*Afternoon*        **Demonstration and data interpretation**

**NMR Module**

9:00-12:00    **Lecture** – Dr. John Glushka: *“Introduction to NMR of glycoproteins and carbohydrates”*.

12:00-1:00            **LUNCH**

*Afternoon*        **Demonstration and data interpretation**

**Mass Spectrometry Module**

9:00-10:00    **Lecture:** Dr. Parastoo Azadi: *“Introduction to mass spectrometry of glycoproteins and carbohydrates”*

10:00-10:15    **BREAK**

10:15-11:00    **Lecture:** Dr. Parastoo Azadi: *“Introduction to mass spectrometry of glycoproteins and carbohydrates” (continued)*

11:00-12:00    **Lecture:** Dr. Lance Wells (TBA)

12:00 -1:00    **LUNCH**

1:00-3:00        **Demonstration and data interpretation**

## **Course summary, Course evaluation, Final Questions & Answers**