

ME:330.712: "Introduction to Glycobiology"

9-10:30a; 612 Physiology Building; JHUSOM

| <u>DATE</u> | | <u>LECTURE</u> | <u>FACULTY</u> |
|-------------|-----|--------------------------------------|----------------|
| ONLINE | | Saccharides & The Glyco World | Dr. R. Schnaar |
| Mar 19 | WED | Glycoproteins I | Dr. N. Zachara |
| Mar 21 | FRI | Glycoproteins II | Dr. N. Zachara |
| Mar 25 | TUE | Glycolipids and GPI anchors | Dr. R. Schnaar |
| Mar 27 | THR | Carbohydrate Engineering | Dr. K. Yarema |
| Mar 31 | MON | O-GlcNAc | Dr. G. Hart |
| Apr 2 | WED | Glycomics (Analytical Glycobiology) | Dr. G. Hart |
| Apr 4 | FRI | Glycans and Disease | Dr. G. Hart |
| Apr 8 | TUE | Hyaluronan and Proteoglycans | Dr. N. Zachara |
| Apr 10 | THR | Protein-Glycan Recognition (Lectins) | Dr. R. Schnaar |
| Apr 14 | MON | Glycan Binding Protein Functions | Dr. R. Schnaar |

Contacts:

Course co-directors:

Ronald Schnaar (schnaar@jhu.edu)

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Additional Lecturers:

Gerald Hart (gwhart@jhmi.edu)

Kevin Yarema (kyarema1@jhu.edu)

Texts of interest:

Introduction to Glycobiology, Third Edition (2011) M.E Taylor & K. Drickamer, Oxford University Press, New York.

Essentials of Glycobiology, Second Edition (2009) A. Varki, et al., Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY. Content freely available at: <http://www.ncbi.nlm.nih.gov/books/NBK1908/>

COURSE OBJECTIVES

Learn the basic language of glycobiology

- Monosaccharides (vertebrate)
- Glycans (glycoproteins, glycolipids, proteoglycans)

Learn of diverse glycan functions

- Glycans in glycoprotein activity, folding, trafficking
- O-GlcNAc-mediated regulation
- Glycolipids in membrane recognition & regulation
- Proteoglycans in the extracellular matrix
- Glycan binding proteins in cell & molecular recognition

Learn the basic concepts of glycan biosynthesis

Learn the basic tools of glycomics (analysis)

COURSE EVALUATION

- Take home exam for students taking the course for credit
- A choice of published papers will be provided. Students will choose one and write a critical review discussing how the work in that paper: (i) arose to extend prior knowledge in the field; (ii) used or expanded analytical technologies in the field; and (iii) provided novel insight in the field. Finally, students will propose a "next step" to extend the new findings.