MACROMOLECULAR CRYSTALLOGRAPHY

Co-Directors
Ronen Marmorstein
Room 326, The Wistar Institute
Tel: (215) 898-5006
e-mail: marmor@wistar.org

Emmanuel Skordalakes
Room 330, The Wistar Institute
Tel: (215) 495-6884
e-mail: skorda@wistar.org

Time and Place
Lectures will be on Tuesdays and Thursdays 10:30 A.M. - 12:00 P.M. Sep. 8th – Oct. 25th in XXXX (No class on Oct. 8th -11th, Fall term break)

Required Text
Biomolecular Crystallography: Principles, Practice, and Application to Structural Biology, Bernhard Rupp, Garland Science

Course Outline and Grading
The Course will cover the principles of X-ray crystallography. Grading will be based on the following: problem sets (20%), a mid-term exam (40%) and a final exam (40%).

Sep. 8, 13, 15, 20, 22, 27 (midterm exam), 29; Oct. 4, 6, 11(no class), 13, 18, 20, 25 (Final Exam)

Lecturer: Ronen Marmorstein (Sep. 8th – 27th)
  (i) Why Use X-Rays in Structural Biology?
  (ii) X-Ray Diffraction.
  (iii) Preparation of Crystals.
  (iv) Crystal symmetry, and space groups.
  (v) Data collection.

Lecturer: Emmanuel Skordalakes (Sep. 29th – Oct. 25th)
  (vi) The structure factor and fourier synthesis.
  (vii) The phase problem (Multiple Isomorphous Replacement, Molecular Replacement, Anamolous Dispersion, Multiple Anomalous Dispersion)
  (viii) Electron density maps.
  (ix) Electron density modification
  (x) Crystallographic refinement and analysis.