Introduction to Sedimentology 206-12181 – 3 credits
Dr. Dorit Korngreen

Syllabus
Part I: Physical principles of sedimentation. Facies models; weathering processes, erosion and sedimentation, sorting and grain size change, modes of sediment transport, the connection between bedding morphology, flow and grain size.
Exercises: Techniques of measurement of grain size; statistical parameters and their sedimentological significance; separation and identification of heavy minerals.
Part 2: Siliciclastic rocks. Clastic sedimentation systems, alluvial and fluviatile, aeolian systems, beach processes, shallow water, deltaic processes, and deep water systems. Exercises: soft-sediment deformation in hand specimens and outcrops, classification and petrographic identification of sedimentary rocks under the microscope, issues of provenance, diagenetic features common in clastic rocks.
Part 3: Chemical sedimentary rocks - Carbonate rocks- the water-carbonate system, car bonate depositional environments - continental shelves, carbonate ramps and platforms, basinal environments. Exercises: Identification of skeletal and non-skeletal components under the microscope; classification of carbonate rocks.
Part 4: Introduction to diagenesis: Definitions, classification, cyclicity, diagenetic environments. Dolomitization, porosity and cementation. Exercises: Identification of diagenetic features, stylolites, dolomitization and dedolomitization, porosity and cement under the microscope.

Bibliography
1. Bathurst, G. C. R. Carbonate Sediments and their Diagenesis. Elsevier Scientific Publishing Company, 1975.
2. Mcllreath, A. I. And Morrow, D. W. Diagenesis. Geoscience Canada, Series 4, 1990, 338 p.
3. Reading, H. G. Sedimentary Environments: Processes, Facies and Stratigraphy. Blackwell Science. 1996, 688 p.
4. Tucker, M. E. Sedimentary Petrology - An Introduction. Blackwell Scientific Publication, 1981, 252 p.
5. Tucker, M. E., and Wright, V. P. Carbonte Sedimentology. Blackwell Scientific Publication, 1990, 482 p.
6. Wilson, J. L. Carbonate Facies in Geologic History. Springer-Verlag, Berlin, Heidelberg & New York, 1975, 472 p.

Course Requirements
Prerequisite: Introduction to Dynamic Geology
2 hr lecture
1 hr tutorial
1 hr lab