Syllabus:

Petroleum and source rock geochemistry 206-26101

Instructor: Shimon Feinstein  shimon@bgu.ac.il; Tel. 08-6472622
Office: Room 120, Building #58, Tuesday 11:30-12:30

Teaching Assistant: Ilya Kutuzov  kutuzov@post.bgu.ac.il; Tel. 08-6461429
Office: Room 020, Building #58, Sunday 12:00-13:00

2h class (incl. few integrated exercises), 2 credit points

Main subjects:

Fossil fuels; Oil and gas: definitions; overview of origin and processes (organic/inorganic); oil and gas systems (conventional and unconventional).

Source rocks for oil and gas: definition; accumulation and composition of organic matter in sedimentary rocks; the transfer of organic matter from biosphere to geosphere; kerogen, bitumen, geochemical fossils.

Coal: petrology, composition, coalification rank, Van Krevelen diagram.

Oil and gas generation: thermal maturation, methods for evaluation, liquid and gas windows, geothermal history; biogenic gas generation.

Source rock evaluation: parameters controlling type and quantity of hydrocarbons in a reservoir. kerogen richness-type-chemical composition-convertibility potential; geothermal history and thermal maturation; expulsion efficiency, geo-chromatography and reservoir dynamics; analytical and evaluation methods, estimation of total generation potential and actually generated oil and gas .

Oil, gas and source rock bulk, molecular and C, H, N, S stable isotopes characterization; biomarkers; oil-oil and oil-source rock correlations; primary vs. post-generation characteristics; genetic groups classification; oil and gas systems.

Genetic groups and oil and gas systems in Israel

References:


* Additional references will be assigned on-line per studied subjects.

Grading: Exercise assignments - 10%
Final examination – 90%