



## Discipline Information

The following dates are in (dd/mm/yyyy) format.

Code: GMG5826 - 7 Type: POS

Name: Global Tectonics

Concentration area: Geotectônica (44141)

Approval dates:

CCP: 13/12/2013 CPG: 13/12/2013 CoPGr:

Activation date: 13/12/2013 Inactivation date:

Workload:

Total: 150 h Theory: 3 h Practice: 3 h Study: 4 h

Credits: 10 Duration: 15 weeks

Professors: 87748 - Benjamim Bley de Brito Neves - 13/12/2013 until today  
915463 - Ginaldo Ademar da Cruz Campanha - 13/12/2013 until today

Content:

A. BASIC SUBJECTS Concepts and field realms of Tectonics (Global Tectonics). Usual subdivisions, a synthesis of the historical events of development as an Earth Science. The irreversible evolution of the tectonic regimes throughout the time and according to the geothermal processes, The top ten worldwide events. The face of the Earth. The Planet Earth and their exteriors. Crustal and lithospheric types and their relationships with the interior of the planet.

CRATONS: a review and up to date discussion of concept: geological, geophysical aspects and mineral resources.

“Cratonization” events and geological time Where? When? How? “Descratonization processes”, an up to date theme for Tectonics (“regeneration”, “metacratons”, “massifs” etc.) The main cratons of the world, with emphasis in South American (the “sons of Rodínia”).

TAPHROGENS. Concept, importance, classifications. Importance of taphrogenesis according to practical objectives and theoretical aspects. The main stages of taphrogenesis in South America and their lithological and geo-economics aspects.

OROGENY- FOLD BELTS Convergent interactions of plates and segments of lithospheric plates (continental and oceanic). Problems between the observed litho-structural records and the usual classification in textbooks. Overview on the classical models of the bibliography, introduction to the (new) alternative models. Fundamental subsidiary processes, important for the analysis and classification of the mobile belts s. l.:

underplating, delamination, reworking of the continental lithosphere. The orogens positioned in the interior of past cratonic domains. Farfield stresses and intracontinental orogens. ACCRETIONARY OROGENS. Fundamental elements of the subduction processes, their consequences, the variable tectonic landscapes with time. The reworking and subduction of unexpectable continental elements. Ophiolites. Modern concept, types and examples. Possible precambrian Brazilian examples.

COLLISIONAL OROGENS. Diversity of occurrences and landscapes. Tectonic elements then generated and their development. Transcurrence, transcurrent and transform faults. TRANSPRESSIONAL OROGENS. Transension and transpression. TERRANES AND SUPERTERRANES. Many types of basement inliers in the interior of fold belts. From the original paradigms (North American Western Cordillera) to the usual occurrences, recognized in different types of fold belts. Evolution of the concept. INTRAPLATE TECTONICS: LIPs, Mantle Plumes, Hot Spots, Membrane tectonics etc. Possible LIPs in the interior of the South American continent. Modern classifications of SEDIMENTARY BASINS. Tectonic forming and Tectonic deforming events. From the Sedimentary basins to the Orogenic Belts (extreme of basin inversion). Discussion of Sedimentary Slossian Cratonic Sequences. South American examples. CONTINENTS AND SUPERCONTINENTS. How to make a continent? How to build a supercontinent?? The past supercontinents and the present descendent of them. The future supercontinent.

Bibliography:

Global Tectonics. Kearey et al., 2009. 3a edição Earth as evolving planetary system. K. C. Condie, 2nd edition, 2011 Earth Structure, Pluijm e Marshak, 2004, 2a edição Plate Tectonics and Crustal evolution, K. C. Condie, 1995, 4a edição Framework of Continental crust. Memoir 2000 do GSA, Hatcher et al, 2007 Mantle Plumes and their record in Earth History, K. C. Condie, 2000. Continents and Supercontinents. Rogers & Santosh, 2004 Tectonics of Sedimentary Basins. Busby & Ingersoll, 2012. Série Didática n. 7 IGC USP, 1995 Glossário de Geotectônica. Brito Neves, 2011. Oficina de Textos

