Title of the course: ***Biology II.***	***NEPTUN-code:*** RKXBI2EBNE	***Weekly teaching hours:*** *l+cw+lb* 2+1+0	***Credit*****:** 4 ***Exam type****:* e
Course leader: Hosam Bayoumi, Dr.	***Position:*** university private professor, associate professor	***Required preliminary knowledge:*** RKXBI1EBNE	

Curriculum:

Evolution: History of life, Theory evolution, Populations genetics and speciation, Classification of living organisms (biodiversity, systematics and modern classification). Importance of plants. Plant evolution and classification. Plant structures and functions. Plant reproduction and plant responses. Importance of plants. Plant evolution and classification. Plant structures and functions. Plant reproduction and plant responses. Invertebrates: Introduction to animals, Sponges, Cnidarians, and Ctenophores. Flatworms, Roundworms, and Rotifers. Molluscs and Annelids, Arthropods, Insects, Echinoderms and invertebrate chordates. Vertebrates: Fishes, Amphibians, Reptiles, Birds, Mammals and animal behaviour. Human Biology: Skeletal, Muscular and skin systems, blood and respiratory systems, The body's defense systems, Digestive and Excretory systems, Nervous system and sense organs, Endocrine system, Reproductive system. The main types of multicellular plant organization. The practical useful of animal and fungi regarding to recognize the environmental protection especially the important indicator groups. The living organization systems and the relationship between awareness of environmental factors, their roles in the regulation of life-operations systems, as well as behaviour of living systems for understanding of the operation.

Professional competencies:

Knowledge of general and specific mathematical, natural and social scientific principles, rules, relations, and procedures as required to pursue activities in the special field of environment protection

Knowledge of the learning, knowledge acquisition, and data collection methods of the special fields of environment protection, their ethical limitations and problem solving techniques.

Comprehensive knowledge of the basic features and interrelations of environmental elements and systems, as well as of the environmentally harmful substances affecting them.

Able to cooperate with engineers involved in the development and application of production and other technologies to develop the given technology in terms of environment protection.

Able to participate creatively in engineering work based on their multidisciplinary skills, as well as to adapt to continuously changing circumstances.

Collaboration with civil organizations engaged in environment protection, but willing to argue in order to develop optimal solutions.

Constantly upgrading their knowledge of environment protection by attending organized professional development training courses.

Sharing experiences with colleagues, thus promoting their development.

Taking responsibility towards society for their decisions made in the scope of environment protection.

Literature:

PowerPoint presentation of lectures

"Branches of Biology". Biology-online.org. Retrieved 2013-10-02.

Life Science, Weber State Museum of Natural Science". Community.weber.edu. Retrieved 2013-10-02
Hörandl, Elvira (2013). Meiosis and the Paradox of Sex in Nature, Meiosis, Dr. Carol Bernstein (Ed.), ISBN 978-953-51-1197-9, InTech, doi:10.5772/56542
Jane B. Reece and Lisa A. Urry (2013). Campbell Biology (10th Edition)
McNeill, J.; Barrie, F.R.; Buck, W.R.; Demoulin, V.; Greuter, W.; Hawksworth, D.L.; Herendeen, P.S.; Knapp, S.; Marhold, K.; Prado, J.; Prud'homme Van Reine, W.F.; Smith, G.F.; Wiersema, J.H.; Turland, N.J. (2012). International Code of Nomenclature for algae, fungi, and plants (Melbourne Code) adopted by the Eighteenth International Botanical Congress Melbourne, Australia, July 2011. Regnum Vegetabile 154. A.R.G. Gantner Verlag KG. ISBN 978-3-87429-425-6. Recommendation 60F
Bartsch, John and Colvard, Mary P. (2009) The Living Environment. New York State Prentice Hall. ISBN 0133612023.
Larson, Edward J. (2006). "Ch. 3". Evolution: The Remarkable History of a Scientific Theory. Random House Publishing Group. ISBN 978-1-58836-538-5.
Fields S, Johnston M (2005). "Cell biology. Whither model organism research?". Science 307 (5717): 1885–6. doi:10.1126/science.1108872
Judd, W.S. et al. 2002: Plant systematics: a phylogenetic approach. Sinauer Associates Inc.
Comment: Attendance of lectures is compulsory! Examination requirements: It is not allowed to be absence more than 4 lectures. 2 midterms with at least a pass grade (50-64 = 2%). Requirements to pass the course: Two written exams. Solve the Homework and write an assay and to pass the oral examination.