

Academic Year 1437- 1438H (2016 – 2017)
Second Semester

Environmental Geophysics (GPH 424)

Lecture's Time: Monday & Wednesday: 13:00 -13:50

Lecture's Room: **B 80/ 2**

Instructor: Dr. Mahmoud M. ELWAHEIDI

Office Hours: Sunday, Monday & Tuesday: 11:00 am -12:00 am

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I. COURSE OUTLINES		
Activity	No of Weeks	No. of hours
General Introduction: <ul style="list-style-type: none"> ❖ Basic concepts and definitions ❖ Site investigation 	1	2
<u>Electrical Resistivity Methods:</u> <ul style="list-style-type: none"> ❖ Basic principles ❖ Resistivity of earth materials ❖ Law of Archie ❖ Electrode configurations ❖ Field procedures: VES, Profiling and ERT ❖ Interpretation of Geoelectric data: Master curves and computer modeling. ❖ Limitations of Electrical methods ❖ Fields of applications ❖ Case Studies: Waste site; Groundwater; Geology; Archaeology 	3	6

<u>Seismic Methods:</u> <ul style="list-style-type: none"> ❖ Basic principles of reflection and refraction methods ❖ Processing of seismic data ❖ Interpretation of Seismic data 	3	6
<u>Gravity Method:</u> <ul style="list-style-type: none"> ❖ Basic principles ❖ Corrections of gravity data ❖ Interpretation ❖ Case Studies 	2	4
<u>Magnetic Method:</u> <ul style="list-style-type: none"> ❖ Basic principles ❖ Corrections of magnetic data ❖ Interpretation ❖ Case Studies 	2	4
<u>GPR Method:</u> <ul style="list-style-type: none"> ❖ Basic principles ❖ Interpretation ❖ Case Studies 	2	4

II. GRADING SYSTEM

Assessment	Assessment task	Week due	Proportion of Final Assessment
1	Presentation (Case Study on an Environmental Issue)	10th week	15 %
2	Mid-term exam	8 th week	25%
3	Assignments, Attendance & Quizzes		20 %
4	Final exam		40 %

III. TEXT BOOKS- REFERENCES

- Lectures' notes.
- Reynolds, J. M., An Introduction to Applied and Environmental Geophysics, Wiley, 1998
- Kearey, Ph., Brooks, M., and Hill, I., An introduction to geophysical exploration, Wiley-Blackwell, 2002.
- <http://www.learninggeoscience.net/free/00001/index.htm>
- http://www-ig.unil.ch/cours/geophysa/c_resa.htm