Grande Prairie Regional College
Department of Science and Technology

Course Outline - Winter 2005
Earth Science 1030 - Earth and Life Through Time

Lecture: Monday from 1:00 to 2:20 and Friday from 11:30 to 12:50 in J203
Laboratory: Tuesday from 2:30-5:20 in J107

Instructor: Jason Tuchelt **Telephone**: 539-2048 **E-Mail**: tucheltj@gprc.ab.ca **Office**: J210
Office Hours: no set hours, please make an appointment or just come by if the door is open

Course Summary and Objective
This course will examine the complete known history of the earth as viewed through the eyes of an earth scientist. Topics include the origin of the solar system, development of the Earth's surface, theories on the origins and evolution of life, mass extinctions and adaptive radiations. Geologic and biologic processes relevant to historical geology, structural geology and plate tectonics will also be examined. The course has been designed to generate competence in the fundamental concepts historical geology including: evolution of life through time, and; evolution of geologic processes and landforms through time. ES 1030 serves both as a course for specialists in geology or other environmental sciences and as a course for non-specialists who desire to obtain knowledge of the Earth's natural history.

Text Book: *Earth and Life Through Time* by Levin

Lab Book: *Lab Exercises for ES 1030* which is a photocopied lab manual

Other Items (not required but may prove useful)
Dictionary of Geologic Terms
Simon and Schuster's Guide to Identifying Fossils or any other equivalent book

All books and materials are available at the College Bookstore

Mark Distribution

Geologic Time Scale Quiz	5%
Weekly Labs	10%
Laboratory Mid Term Exam	10%
Laboratory Final Term Exam	10%
Mid Term Exam	15%
Final Term Exam	25%
Term Paper *(due March 21)*	20%
Presentation	5%

Geologic Time Scale Quiz
Because the names for the various time periods of the Geologic Time Scale will be used frequently in class, you must have a very good understanding of them. The quiz will take the following form:

- If you get all the answers right you will obtain the full 5% allocated.
- If you get one or more answers wrong you will obtain a mark of zero of the 5% allocated.
- If you fail the first exam you may write a makeup exam that is scheduled exactly 1 week after the first. The makeup exam will be worth a maximum of 3% of the 5% allocated. It is marked using similar rules as listed above with the exception you may have a maximum of 1 mistake before failing.

Laboratory Assignments
In each laboratory you will be asked to complete an assignment based upon what is being taught in the lecture portion of the class. Each assignment will be marked out of 10 points and is due 1 week from the assignment date. If you hand in a completed assignment during the laboratory period in which it was assigned, your mark will be automatically bumped up 1 point (out of 10) to a maximum of 10 points.

Laboratory and Lecture Term Exams
The lecture and laboratory will each have 2 tests throughout the semester. The tests will not be cumulative. Labs can be used for studying rocks, fossils or maps other than scheduled lab hours by pre-arranging with Medha Karnik the lab technologist (Telephone 539-2952)

Term Paper
You will be asked to complete a 1500 to 1750 word essay on a topic dealing with historical geology. See enclosed list for suggested topics or come to me if you have one you would like to try. All topics must be pre approved by the instructor as I will not allow exact topics to be done by two separate students.

Presentation
You will also be required to complete a brief 10 to 15 minute presentation on a summary of your term paper topic to the class. Your presentation will be marked on the following parameters: quality of presentation materials (ie. slide shows, Power Point slides, overheads…), quality and clarity of information and public speaking ability.

Late Assignments
For all lecture and lab assignments that are not handed in <u>at the beginning of a lab or lecture</u> on the assigned due date, a 20% per day penalty will be applied. No assignments will be accepted if they are over 3 days late.

Sickness / Family Emergencies
If you are sick or have a family emergency occurring on an exam or quiz you must contact the instructor as soon as possible and provide a doctors or family members letter (whichever is applicable) as soon as possible for you to get a rewrite of the exam. Missing exams due to outside work obligations is not a suitable excuse.

Lecture Outline

The following table is an approximate schedule of lecture topics to serve as a study aid.

Week	Topics	Chapter
January 3	Development of Historical Geology	1
January 10	The Fossil Record and Evolution Minerals	4 2
January 17	**Geologic Time Scale Quiz** Rocks Sedimentary Archives	 2 3
January 24	Relative and Absolute Dating Earth Structure and Plate Tectonics	1 4
January 31	The Archaen	6
February 7	**Mid Term Exam**	
February 14	The Proterozoic Life of the Paleozoic	7
February 21	Reading Week – No Lectures	
February 28	Early and Late Paleozoic Events	8 and 9
March 7	Life of the Paleozoic	10
March 14	The Mesozoic Life of the Mesozoic	11 12
March 21	**Term Paper Due** The Cenozoic Life of the Cenozoic	 13 14
March 28	Human Origins	14
April 4	**Class Presentations**	n/a
April 11	Review	n/a
April 14	**Last Day of Classes**	

Lab Outline

Week	Lab #	Topic
January 3		No labs
January 10	1	Rocks and Minerals
January 17	2	Reconstructing the Sedimentary Environment
January 24	3	Structural Geology and Plate Tectonics Relative and Absolute Dating
January 31	4	Fossils and Evolution
February 7	5	Review Lab
February 14		**Mid Term Lab Exam**
February 21		Reading Week – No Laboratories
February 28	6	Precambrian Rocks and Fossils
March 7	7	Ordivician, Silurian and Devonian rocks and fossils
March 14	8	Mississipian, Pennsylvanian and Permian rocks and fossils
March 21	9	Mesozoic rocks and fossils
March 28	10	Cenozoic rocks and fossils
April 4	11	Review Lab
April 11		**Final Term Lab Exam**