

Approximate schedule of lecture topics is presented below:

- Week of Sep.12 **Introduction & Course Outline handout.**
The Earth System: What is Earth Science?, Different Systems, Different Spheres, Dynamic interactions and cycles, How Science works? Minerals and Rocks, Common minerals and their identification. (Ch. 1, 3)
- Week of Sep.19 **Matter:** Common states of Matter, Elements and atoms, Mineral composition and structures. Types of rocks. Identification of Igneous, Sedimentary and Metamorphic Rocks. (Ch. 3)
- Week of Sep.26 **Energy:** What is Energy? First, Second and Third Law of Thermodynamics. Energy Sources: The Sun. Energy and Society. **Space and Time:** The Solar System, its origin. Earth's Nearest Neighbours. Other Suns and Planetary Systems. (Ch. 2, 4)
- Week of Oct.3 **The Tectonic Cycle:** Moving continents, Earth's internal energy, Magnetic reversals, External structure of the Earth, Causes of Plate Tectonics, Building the Continents, Isostasy. **Earthquakes and Volcanoes:** Origin of earthquakes, Locating the Epicentre, Risks involved, Prediction of earthquakes. Earth's Interior, Volcanic Eruptions, Types of Volcanoes, Volcanic Desasters. (Ch.5, 6)
- Week of Oct.10 **The Rock Cycle:** Weathering, Types of Weathering, Mass wasting, Sedimentary Rocks, **The Earth's Evolving Crust:** Sedimentary Strata, Missing strata and correlation, Sedimentary Rocks, Clastic and Chemical sed. Rocks. Metamorphism and metamorphic Rocks, From rock to magma and back again. (Ch. 7)
- Week of Oct.17 **Water and Ice on the Land:** Hydrologic cycle, Water on the Ground, Streams and different types of channels, Stream loads, Floods, Ground Water, Water Table and Groundwater movement, Porosity, Recharge and Discharge, Springs, Aquifers, Geologic work of Groundwater, Lakes. Water and Society. **Cryosphere:** Glaciers form and distribution, Glacier budget, how glaciers move, Calving and glacier Surges. Glacial and interglacial stages, Last Ice Age, (Ch. 8, 9)
- Week of Oct.24 **(Mid Terms Exams this week)**
The World Ocean: Ocean geography, Origin depth volume and Age of ocean, Salinity, Temperature and Heat Capacity of the Ocean, Ocean Circulations, Current Systems, Ocean Waves, Tsunami, , Tides, Reefs and coastal erosion, Changing sea. (Ch. 10)
- Week of Oct.31 **The Atmosphere:** The habitable planet, Composition and structure of atmosphere, Temperature, Air pressure, Humidity, Condensation and Clouds, Understanding of Micro and Macro Climates **Wind and Weather Systems:** Why air moves, factors affecting wind speed and direction, Global air circulation, Hadley Cell, Polar fronts, Jet streams, El Nino. Dust storms, Mountain and valley winds, weather systems and Chinooks. (Ch. 11, 12)
- Week of Nov.7 **The Climate System:** Earth's Climate systems, Evidence of climate change, Earth's Past Climates, Reasons for climatic variations, Feedbacks and Complexity in Earth's Climate System. (Ch. 13)

- Week of Nov.14 **The Biosphere: Life on Earth:** Life and its characters, Prokaryotes and Eukaryotes, The Ecosystem and Food Chains, Origin of Life on Earth, The History of Life, Extinctions. **Ecosystem, Biomes and Cycles of Life:** Energy and matter in Ecosystem, Food webs, Global Cycle of Life, Earth's major Ecosystems. (Ch. 14, 15)
- Week of Nov.21 **Populations Communities and Changes:** Populations, Communities, Habitat and Niche, Biodiversity, Threats to Biodiversity, Importance of Biodiversity. (Ch. 16)
- Week of Nov.28 **Humans and the Earth System: The Resources Cycle:** Resources from the Earth System, Renewable Resources: Forest resources, Fisheries Resources, Soil Resources, Water Resources, and Limits to Growth. **Mineral and Energy Resources:** Mineral resources, Mineral Deposits, Hydrothermal, Metamorphic and magmatic Ore deposits, Sedimentary Ore deposits, Placer Ore deposits, and Residual Ore deposits. Mining. Energy Resources, Fossil fuel, coal. Other resources from the Earth. Energy and Society. (Ch. 17, 18)
- Week of Dec.5 **Changing Earth System:** Understanding Anthropogenic Changes, Human Impact on the Earth's System: Impact on Land, Impact on Air, Impact on Life and Ecosystem, Human activity and Carbon Cycle, Our past, present and future. (Ch. 19)

Last day of classes – December 9, 2011

ASSIGNMENTS

You will be given weekly assignments consisting of multiple choice, true/false or fill in the blanks type questions. These assignments are open book and are available on Black Board. You will be given two choices and marks will be recorded out of the best. The test will be available for two weeks before the due date. If you do not complete your test within given time, a **20% deduction per day** will be applied to your score.

Minitest

Every second week, you may be given a mini-test at the start of class which will be approximately 15 minutes long. Labs will also have quizzes.

MARKS DISTRIBUTION

Mini tests	10%
Assignments	15%
Weekly labs	10%
Midterm exam	20%
Lab final	15% (Two finals 7.5% each)
Final exam	<u>30%</u>
	100%

Assignment Due Dates

Ass#	Chapters	Due date	Special Info
1.	1, 3	Sep. 19	
2.	2, 3, 4	Sep. 26	mini-test Oct.3
3.	5, 6	Oct. 3	
4.	7	Oct. 12	mini-test Oct.17
5.	8, 9	Oct. 17	
Mid-Term Exam		Oct. 24 – Monday	
6.	10	Oct. 31	mini-test Nov.7
7.	11, 12	Nov. 7	
8.	13	Nov. 14	mini-test Nov.21
9.	14, 15	Nov. 21	
10.	16	Nov. 28	mini-test Dec.5
11.	17,18	Dec. 5	

LAB SCHEDULE

Week of:

September 9	NO LABS	
September 16	Lab 1.	Identification of Minerals
September 23	Lab 2	Igneous Rocks
September 30	Lab 3.	Sedimentary Rocks
October 7	Lab 4	Metamorphic Rocks
October 14	Lab 5	Maps and topographic profiles
October 21	FINAL LAB EXAM (PART 1)	
October 28	Lab 6.	Water at and Beneath the Earth's Surface
November 4	Lab 7.	Glaciers and Glaciation
		Solar Radiations, Climate and Weather
November 11	Lab 8.	The Life and Times of Planet Earth
November 18	Lab 9.	Mineral Resources and the Human Footprints
November 25	Lab 10.	Environmental Studies
December 2	FINAL LAB EXAM (PART 2)	

Note - All books and materials are available at the Bookstore

- labs could be used for studying rocks, minerals or maps other than scheduled lab hours by pre-arranging with Medha Karnik, our lab technologist.

STATEMENT ON PLAGIARISM AND CHEATING:

Please refer to pages 49-50 of the College calendar regarding plagiarism, cheating and the resultant penalties. These are serious issues and will be dealt with severely.

GRANDE PRAIRIE REGIONAL COLLEGE			
GRADING CONVERSION CHART			
Alpha Grade	4-point Equivalent	Percentage Guidelines	Designation
A⁺	4.0	90 – 100	EXCELLENT
A	4.0	85 – 89	
A⁻	3.7	80 – 84	FIRST CLASS STANDING
B⁺	3.3	77 – 79	
B	3.0	73 – 76	GOOD
B⁻	2.7	70 – 72	
C⁺	2.3	67 – 69	SATISFACTORY
C	2.0	63 – 66	
C⁻	1.7	60 – 62	
D⁺	1.3	55 – 59	MINIMAL PASS
D	1.0	50 – 54	
F	0.0	0 – 49	FAIL
WF	0.0	0	FAIL, withdrawal after the deadline