**GRANDE PRAIRIE REGIONAL COLLEGE**
**DEPARTMENT OF SCIENCE AND TECHNOLOGY**

**WINTER SEMESTER 2002-2003**

**COURSE OUTLINE**

# EARTH SCIENCE 1030

# EARTH AND LIFE THROUGH TIME

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|---|---|---|---|
| **Lecture** | Section A3 | M13:00-14:20 F11:30-12: 50 | Room J203 |
| **Lab** | L1 (W) | W 14:30-17:20 | Room J107 |
| **Office hours** | M 2:30-3:30 | T 9:30-10:30 or by appointment. | |

**INSTRUCTOR:** **Dr. Rob Young** - Office #J215, Phone 539-2048, email RYoung@gprc.ab.ca

**TRANSFER CREDIT:** U. of Alberta EAS 103 3 Credits

**COURSE OUTLINE**

**Lecture**: Origin of solar system and development of Earth's surface. Geologic and biological processes relevant for historical geology, structural geology, and plate tectonics. Relative and absolute dating, facies analysis and correlations, fossils, origin and evolution of life. Index fossils, mass extinction, and adaptive radiations.

**Lab**: Minerals and rocks. Structural geology and plate tectonics; Relative and Numerical Dating. Fossils and evolution. The fossil record from the Precambrian to the Cenozoic

**TEXTBOOKS** <u>**The Earth Through Time**</u> by Levin (6th ed.)

**LAB BOOK**
Earth and Life Through Time from the Lab Technician
Simon and Schuster's Guide to Fossils (recommended - from bookstore)

**OTHER ITEMS**
Simon and Schuster's Guide to Rocks and Minerals or equivalent
Dictionary of Geological Terms
Readings to enhance course content will be placed on reserve in the library

The following approximate schedule of lecture topics is presented as an aid to your study.

| Week of: | Topics |
|---|---|
| January 6 | Minerals (Ch. 2) |
| January 13 | Rocks (Ch. 2) |
| January 20 | The sedimentary archives (Ch 3). |
| January 27 | Relative and numerical dating (Ch. 1) |
| February 3 | Earth structure and plate tectonics (Ch. 5) |
| February 10 | Development of historical geology (Ch 1). The fossil record and evolution (Ch. 4) |
| February 17 | **Midterm on Friday, Feb. 21** |
| February 24 | Reading week (no classes) |
| March 3 | The Archean (Ch. 6) |
| March 10 | The Proterozoic. (Ch. 7) |
| March 17 | Early and Late Paleozoic Events (Ch. 8 & 9) Life of the Paleozoic (Ch. 10) |
| March 24 | The Mesozoic (Ch. 11) Life of the Mesozoic (Ch. 12) |
| March 31 | The Cenozoic (Ch. 13). Life of the Cenozoic (Ch. 14) |
| April 3 | Human origins (Ch. 14) |

April 14
**Last day of classes – April 16, 2003. Final exam date TBA.**

**ASSIGNMENTS:** You will be given regular assignments consisting of multiple choice, true/false, fill in the blank type questions, or short answer. These assignments are open book, and some midterm and final exam questions will be based on these assignments. They are due one week from the day they are handed out. Late = 0.

**MARKS DISTRIBUTION:** As much as is possible, midterm and final exams (both in lab and lecture) will not be cumulative.

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| Assignments | 10% |
| Lab midterm | 15% |
| Midterm exam | 30% |
| Lab final | 15% |
| Final exam | 30% |
| Total | 100% |

**Laboratory exercises:** Labs will be undertaken as teaching exercises that will aid learning of material. The material will be tested twice during the term in (as much as possible) non-cumulative exams (see dates below in the lab schedule. A key for each lab will be posted outside the lab room. Students are expected to check their work against the key. Weekly quizzes that test content from the previous week will be given. Quizzes are meant to assist and evaluate learning for the benefit of the student, and marks will not be recorded.

| Week of: | Lab Topics |
|---|---|
| January 6 | Lab check in, begin minerals |
| January 13 | Lab 1: Minerals |
| January 20 | Lab 2: Rocks |
| January 27 | Lab 3: Structural geology and plate tectonics; Relative and numerical dating |
| February 3 | Lab 4: Fossils and evolution |
| February 10 | Lab 5: Midterm Lab Exam |
| February 17 | No Lab |
| February 24 | No Lab (Reading week) |
| March 3 | Lab 6: Precambrian and Cambrian rocks and fossils |
| March 10 | Lab 7: Ordivician, Silurian, and Devonian rocks and fossils |
| March 17 | Lab 8: Mississippian, Pennsylvanian and Permian rocks and fossils |
| March 24 | Lab 9: Mesozoic Rocks and Fossils |
| March 31 | Lab 10: Cenozoic rocks and fossils |
| April 7 | Lab Final Exam |