

EARTH SCIENCES 2265: PALEOBIOLOGY AND PALEOECOLOGY

Instructor: Jisuo Jin, Professor (519-661-4061; E-mail: jjin@uwo.ca)

Aim of course: A survey of the fossil from bacteria, protists, calcareous algae, to invertebrate animals. Topics on each group of fossils include functional morphology, evolution, ancient living environments, contribution to sediment accumulation and reef-building, utility for dating and correlating rocks and for understanding long-term biodiversity change.

Corequisite: ES 2200a/b or permission of department.

Antirequisite: Former ES 361a/b.

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to the Dean's office as soon as possible and contact your instructor immediately. It is the student's responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed. In the event of a missed final exam, a "Recommendation of Special Examination" form must be obtained from the Dean's Office immediately. For further information please see: <http://www.uwo.ca/univsec/handbook/appeals/medical.pdf>

A student requiring academic accommodation due to illness, should use the Student Medical Certificate when visiting an off-campus medical facility or request a Records Release Form (located in the Dean's Office) for visits to Student Health Services. The form can be found here: https://studentservices.uwo.ca/secure/medical_document.pdf

Academic Offences: *Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site: <http://www.uwo.ca/univsec/handbook/appeals/scholoff.pdf>.*

Lectures: (Monday and Wednesday, 9:30-10:30AM, MC Room 17)

- Week 1 Introduction to the principles of paleontology, fossils and the geological time scale, paleoenvironments and paleobiogeography, processes of fossilization, and classification of organisms.
- Week 2 Bacteria. Origin and evolution of primitive life forms and their relationships to the early lithosphere, hydrosphere, and atmosphere. Bacteria contribution to ecosystems and deposits associated with black smokers, hot springs, microbial deposits.
- Week 3 Protists. Calcareous and siliceous forms (such as coccoliths, foraminifers, diatoms, radiolarians) and their importance to the carbon dioxide and silica balance in the ecosystems.
- Week 4-11 Major invertebrate fossil groups: zoological baupläne, functional morphology, evolution, and ecology/paleoecology.

Week 12-13 Paleontological applications: biostratigraphy, paleoenvironmental reconstruction, paleobiogeographic reconstruction, major trends of biotic radiation and mass extinctions.

Laboratory: (Thursday, 6:00-9:00PM, BGS Room 1069)

- Nine three-hour labs on major fossil groups: taphonomy, paleoecology, classification, functional morphology, and microscopic structures relevant to sedimentary petrology.

Lab 1. Fossilization

Lab 2. Bacteria and Protists

Lab 3. Sponges

Lab 4. Corals

Lab 5. Bryozoa and Brachiopoda

Lab 6. Mollusca

Lab 7. Arthropoda

Lab 8. Echinodermata

Lab 9. Graptolites

- Lab 1 starts September 25, 2008.
- A student must complete all lab assignments in order to get a final grade for the course.
- The lab assignment for each week is due by the beginning of the lab session in the following week.
- A 10% deduction of marks will be assessed per one day of late submission.

Course evaluation:	Mid-term exam (week of Oct. 15):	20%
	Final exam (University scheduled):	30%
	Classroom quizzes (random)	10%
	Lab assignments (see under Laboratory)	40%

Recommended Texts and Other Course Material

- 1) Clarkson, E.N.K. 1998. Invertebrate Palaeontology and Evolution (4th edition). Blackwell Science.
- 2) Jin, J. 2007. Earth Sciences 2265 Paleobiology and Paleoecology, Laboratory Manual. 110 pp. (Available in PDF electronic version on WebCT)
- 3) Jin, J. Powerpoint lectures. (Available in PDF electronic version on WebCT)

For copyright reasons, the electronic files of the Lab Manual and Powerpoint Lectures are for personal use by students enrolled in the course ES2265. Any form of duplication or electronic distribution through the web are prohibited.