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See <http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures/> for a complete description of the rules governing curriculum & course changes.

TRIAL COURSE OR NEW COURSE PROPOSAL

SUBMITTED BY:

Department	Geology & Geophysics	College/School	CNSM
Prepared by	Sarah Fowell	Phone	474-7810
Email Contact	sjfowell@alaska.edu	Faculty Contact	Sarah Fowell

1. ACTION DESIRED

(CHECK ONE)

Trial Course

New Course

emphasize critical reading and application of scientific methods to reconstruction of geologically rapid events in deep time.

Prerequisites: GEOS 322 and GEOS 315, or permission of instructor. (3+0)

^GEOS F315W

11. COURSE CLASSIFICATIONS: Undergraduate, General Education, Science, Earth and Planetary Science

and GEOS F322 AND GEOS F315W, or permission of instructor.
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18. ESTIMATED IMPACT

WHAT IMPACT, IF ANY, WILL THIS HAVE ON BUDGET, FACILITIES/SPACE, FACULTY, ETC.

The course will form a regular portion of the teaching method of ...

South Powell

Date 9/23/11

Signature Chair Program/Department of

[Redacted]

10/5/11

**Mass Extinctions,
Neocatastrophism and
the History of Life**

**GEOS 485
Course Syllabus**

Lectures, Activities, and Discussions:
TR
233 Reichardt Building

3 Credits

**Prerequisites: GEOS 322 and GEOS 315,
or permission of instructor**

Instructors: Dr. Sarah I. Fowell

Dr. Michael Whalen

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Office Hours: M 11:30-1:30, W 1:00-3:00

mtwhalen@gi.alaska.edu
474-5302
TR 4:00-5:00 PM or by appt.

Required Materials:

● Alvarez, W., 2008. *T. rex and the Crater of Doom*. Princeton University Press

● Leakey, R. and Lewin, R., 1996. *The Sixth Extinction*. Anchor Books.

● Additional journal articles (see attached citations) available on E-reserve

Learning Outcomes

This course will emphasize analytical thinking. Readings, lectures, and exercises will provide the necessary geological background and allow you to evaluate the evidence firsthand. Projects, critiques and discussions will encourage you to read critically and express your ideas in an organized format. Upon completing this course, you will be able to:

- ④ Outline evidence discovered in the rocks near Gubbio, Italy for an extraterrestrial impact at the end of the Cretaceous period

④ Describe the environmental effects of extraterrestrial impact

- ④ Discuss how the Ordovician, Devonian, Permian, Triassic, and Cretaceous extinctions changed the course of evolution
- ④ Create a poster that illustrates the history of one fossil group or the evidence from one boundary section
- ④ Critique articles about mass extinction in the popular media
- ④ Evaluate the impact of the Gubbio section with respect to theories of mass extinction and the tempo and mode of evolutionary change

Instructional Methodology

Classes will typically include a reading assessment activity, a mini-lecture (~45 minutes) and a group discussion, debate or brainstorming activity. Reading assessment activities are intended to evaluate comprehension and forge connections between reading assignments and lecture topics. Lectures will provide necessary background and visual

Project: Each of you will research one of the “lesser” extinctions and prepare a poster to display your findings. Your job is to explore the subject in depth and prepare an overview for the class. The final poster should contain both a concise summary of your findings and some informative graphics. Completed posters will be put on display during the last week

Disabilities Act (ADA) and ensures that UAF students have equal access to the campus and course materials. I will work with the Office of Disability Services (474-7043) to provide reasonable accommodation to students with disabilities. Please let me know at the beginning of the course if accommodations should be provided.

Topics and Assignments

Date	Topic	Assignment
	Mass Extinctions and Adaptive Radiations	
Week 1	Mass Extinction and the Cretaceous-Tertiary	

References for Journal Articles:

Alego, T.J., and Scheckler, S.E., 1998. Terrestrial-marine teleconnections in the
Deonian ~~radiation between the evolution of land plants, weathering~~

anoxic events *Philosophical Transactions of the Royal Society B* 353: 113-120

McElwain, J.C., Beerling, D.J., and Woodward, F.I., 1999. Fossil plants and global
warming at the Triassic-Jurassic boundary. *Science* 285: 1386-1390.

Merlott, A.L. and 8 others, 2004. Did a gamma-ray burst initiate the late Ordovician
mass extinction? *International Journal of Astrobiology* 3: 55-61.

Olsen, P.E., and 8 others, 2002. Ascent of the dinosaurs linked to an iridium anomaly at
the Triassic-Jurassic boundary. *Science* 296: 1305-1307

Retallack, G.J., Metzger, C.A., Greaver, T., Jahren, A.H., Smith, R.M.H., and Sheldon