

**Global Change in Deep Time: Environmental Changes and Biotic Consequences**

Time and Place: Tuesdays from 12-3 PM in D226.

Overview:

The purpose of this course is to discuss past events that featured some combination of warming, ocean acidification, and anoxia. Many of these events were also times of extinction in the marine realm, including two of the largest mass extinctions, but not all led to significant taxonomic losses. We will cover proxy evidence for environmental changes (primarily sedimentological and geochemical proxies) and paleontological evidence for extinction and other biotic consequences (shifts in relative abundance, body size changes, etc.).

Requirements and Evaluation:

Each class meeting will be based on student presentations and discussion. You will be assigned a paper and should prepare a short (~10 minute) summary and presentation, using Powerpoint (or Powerpoint-like) slides to show important figures and graphs. In the presentation, you should explain the goal of the study, the methods they used to test the hypothesis, the key findings, and the broader implications (e.g., comparisons with other extinction events or with modern anthropogenic change). Evaluation will be based on the quality of presentations and discussion.

Class Schedule:

- April 1: Organization
- April 8: Guadalupian extinction
- April 15: Permian extinction: environmental perturbations
- April 22: Permian extinction: biotic consequences
- April 29: Triassic extinction: environmental perturbations
- May 6: Triassic extinction: biotic consequences
- May 13: No class
- May 20: Toarcian extinction
- May 27: Cenomanian-Turonian extinction
- June 3: Paleocene-Eocene thermal maximum