#### ATTACHMENT A

#### **PROPOSAL FOR COURSE CHANGE**

To:	Curriculum Committee
From:	Department of Physical Sciences
Date submitted:	August 20, 2007
Request for:	Course change: Delete CHEM 2143, add CHEM 33x3 33/3
Submitted by:	Bob Allen, Professor of Chemistry
Approved by:	Jeff Robertson, Head, Department of Physical Sciences $Q_{ii}/C$
Reviewed by:	Richard Cohoon, Dean, School of Physical and Life Sciences Tammy Rhodes, Registrar JMMY Hulls Jack Hamm, VPAA

I. Catalog description:

# CHEM 33x3 Environmental Chemistry

Spring, Prerequisite: Chemistry 3254. An examination of the chemistry of the environment including the origins, natural processes, and anthropogenic influences.

Number: 33X3 3313

Title for Catalog: Environmental Chemistry

\*Title for Course Inventory (24 characters): Environmental Chemistry

Description: An examination of the chemistry of the environment including the origins, natural processes, and anthropogenic influences.

Effective date or term: Spring 2008 Swmmel 1, 2006

\*Course fees: none

II. This course has previously been taught as environmental chemistry 2143. An attempt was made to teach this course with a minimum of prerequisites- one semester of chemistry. This has proven to be impractical for proper preparation for the course material. This proposal upgrades the course to a 3000 level with concomitant upgrading of the prerequisites.

app CC 10/22/07 app FS 11/12/07

- A. The course will serve as an upper level chemistry elective for chemistry majors and as an upper level general elective for others such as biology majors.
- B. The course integrates into the chemistry curriculum without out significant overlap with other courses. The course incorporates chemistry from all fields as applied to the study of the environment.
- C. This course is part of the chemistry faculties' continuous review of our curriculum for complete coverage of all areas of chemistry and in particular the relevancy or our offerings.
- D Offered each spring semester
- D. Chemistry 33 3 replaces chemistry 2143 so no staffing changes are necessary
- E. This course change only directly affects chemistry although faculty in biology were consulted in preparation of the course change.
- F. The chemistry department has a robust assessment via the American Chemical Society nationally standardized final examinations. When new course exams are available they will be utilized.

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Date:

List Department Head/ Program Director Consulted: (Add to list as needed)

Indicate Support for Proposal (yes/no)

1. Biological Sciences Yes Charlestorn 8/24/07 2. - Charlie Gagen

3.

2.

4.

5.

If no, please attach explanation from responding Department Head indicating why they do not support the proposal.

Note: A syllabus should accompany each course proposal. The syllabus should contain the objectives of the course, a summary of course content, and bibliography of resources.

\*Each new program proposal must include an assessment plan using the approved University Assessment Form.

> \*Updated 8/1/04 \*\*Updated 9/1/05

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# Environmental Chemistry

**CHEM 33±**3

### Professor: Bob Allen, McEver 20c, 968-0310 <u>bob.allen@atu.edu</u> Office Hours: MWF, 10 AM MW, 2-4 PM

**Catalog Description:** Spring semester. Prerequisite: Chemistry 3254. An examination of the chemistry of the environment including the origins, natural processes, and anthropogenic influences.

Books and Materials: Chemistry of the Environment, Spiro and Stigliani; Prentice Hall 2003

**Rationale for the Course:** The goals of the course are (1) to help the student develop the knowledge and skills necessary to understand and appreciate the chemical nature of the environment, and (2) the fundamental role chemistry plays in all processes be they natural phenomena such as weather patterns, soil development, or man made phenomena such as acid rain, global climate change, etc.

# **Course Objectives:**

- Comprehend the mechanisms by which the universe, the solar system, and the planet formed from the "Big Bang"
- Have a sensitivity to the hypotheses as to how life began on the planet, without utilizing creation myths from any religious perspective.
- Know the time line for these processes
- Understand how solar energy drives numerous processes on the planet with both positive and negative feedback mechanisms
- Understand human impacts on these energetic processes
- Understand atmospheric dynamics of trace gases such as ozone and carbon dioxide
- Understand the processes which contribute to: Ozone depletion, acid rain, global climate change, and air and water pollution in general.
- How soils are modified over time via chemical processes.
- The hydrologic cycle.
- Generally appreciate how man can impact the environment, both positively and negatively.

# Grading formula:

70 per cent hour exams 15 per cent homework 15 per cent quizzes

Although class attendance is voluntary missed quizzes and homework cannot be made up without prior arrangements.

Cheating will not be tolerated.

# Outline:

## **Class Schedule**

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Chemical Beginnings and Part I Energy

#### Test 1 about February 11

Part 2, the Atmosphere

#### Test 2 about March 10

Part 3, the Hydrosphere

### Test 3 about April 7

Part 4, the Biosphere

#### Final Exam as scheduled

# additional materials online :

Origin of the universe: <u>http://www.damtp.cam.ac.uk/user/gr/public/bb\_history.html#pc</u>

http://liftoff.msfc.nasa.gov/academy/universe/b bang.html

Planet Earth: http://zebu.uoregon.edu/ph121/l7.html

http://www.oceansonline.com/solar.htm

Earths Atmosphere: http://www.sprl.umich.edu/GCL/paper to html/evolut clim.html

Deep Holes: http://www.gi.alaska.edu/ScienceForum/ASF7/725.html

http://www.nationalacademies.org/history/mohole/

Origin of Life: http://www.resa.net/nasa/origins life.htm