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REVISION APPROVAL COVER SHEET FOR CONTINUATION OF W-DESIGNATION

TYPE I PROFESSOR COMMITMENT

Professor Kenneth S. Coles

Department Geoscience

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Please provide answers to these questions on the next page:

1. List up to three of the W courses that you have taught since your appointment as a Type I professor.
2. Using your most recent W course, discuss what the writing activities are intended to accomplish. You do not need to describe the amount of writing, frequency of assignments or fill out the summary chart for writing assignments.

Approvals:	Signature	Date
Professor (s)	Kenneth S. Coles	2/7/2014
Department Chair	[Signature]	2/9/14
College Dean	[Signature]	2/16/14
Director of Liberal Studies	[Signature]	2/26/14
UWUCC Co-chair(s)	Gail Stechert	3/4/14

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 Liberal Studies

## **TYPE I PROFESSOR COMMITMENT**

PROFESSOR Kenneth S. Coles

DEPARTMENT Geoscience

List up to three of the W courses that you have taught since your appointment as a Type I professor.  
GEOS 342 Stellar Astronomy (most recently taught Fall 2013)

Using your most recent W course, discuss what the writing activities are intended to accomplish. You do not need to describe the amount of writing, frequency of assignments or fill out the summary chart for writing assignments.

Students in GEOS 342 Stellar astronomy use writing to understand deep space objects and phenomena, synthesize and communicate results of observations of the sky, and organize plans for instruction in science. The lecture-and-lab course serves two groups of students. One includes science majors who have taken calculus and mechanics and have an interest in astronomy. The second consists of future secondary science teachers. The writing emphasis addresses the needs of both groups, which partially overlap.

Mastery of concepts is central to learning astronomy. The first paper explains an astronomical object or phenomenon; students must accurately present information as well as correctly cite sources. All scientists and science teachers must know how to learn new information and document its origin. Critical evaluation of the validity of reasoning and conclusions is the focus of four sets of written critiques of published scientific articles. Brief, written self-tests given unannounced in class allow students to assess their own understanding of concepts and where they need to give additional effort.

The heart of science is to assimilate observations and share them with the scientific community. The second paper reports a research hypothesis and investigation. The model and rubric for the report were developed by all the science education programs working together to give common experience in asking questions, proposing hypotheses to answer those questions, and testing the hypotheses by investigation. In the Fall of 2013 students used observations from the 13-meter radio telescope at Greenbank Observatory in West Virginia to answer questions about the motions of hydrogen in the Milky Way and other galaxies.

Many of the students in GEOS 342 are future secondary science teachers. While they have formal instruction in lesson planning in education courses, additional practice in planning and presenting lessons has proven beneficial in meeting program outcomes. Students write and then teach their classmates a formal lesson illustrating a concept from deep space astronomy. Students who write out a lesson learn how important it is to focus on a limited number of objectives, specify the elements of the lesson, and give the instructor necessary background to deal with student questions.