

LSC # _____
Action approved
May 4, 1995

COVER SHEET: Request for Approval to Use W-Designation

TYPE I. PROFESSOR COMMITMENT

- () Professor Connie J. Sutton Phone 2379
(XX) Writing Workshop? (If not at IUP, where? when? _____)
(XX) Proposal for one W-course (see instructions below)
(XX) Agree to forward syllabi for subsequently offered W-courses?

TYPE II. DEPARTMENTAL COURSE

- () Department Contact Person _____ Phone _____
() Course Number/Title _____
() Statement concerning departmental responsibility
() Proposal for this W-course (see instructions below)

TYPE III. SPECIFIC COURSE AND SPECIFIC PROFESSOR(S)

- () Professor(s) _____ Phone _____
() Course Number/Title _____
() Proposal for this W-course (see instructions below)

SIGNATURES:

Professor(s) Connie J. Sutton

Department Chairperson J. Fall

College Dean [Signature]

Director of Liberal Studies Darlene Richardson 5-4-95

COMPONENTS OF A PROPOSAL FOR A WRITING-INTENSIVE COURSE:

I. "Writing Summary"---one or two pages explaining how writing is used in the course. First, explain any distinctive characteristics of the content or students which would help the Liberal Studies Committee understand your summary. Second, list and explain the types of writing activities; be especially careful to explain (1) what each writing activity is intended to accomplish as well as the (2) amount of writing, (3) frequency and number of assignments, and (4) whether there are opportunities for revision. If the activity is to be graded, indicate (5) evaluation standards and (6) percentage contribution to the student's final grade.

II. Copy of the course syllabus.

III. Samples of assignment sheets, instructions, or criteria concerning writing that are given to students.

Provide 12 copies to the Liberal Studies Committee.
Please number all pages.

Writing Summary -- GS 342 Stellar Astronomy

GS 342 Stellar Astronomy is proposed for identification as a "w" course. The course is taught every other fall semester, and is not listed as a liberal studies elective. Because of the prerequisites, most of the students will be juniors or seniors. The students will primarily be earth & space science education majors but there may be other science majors enrolled, using it as a science elective. Class size is limited to twenty four.

Three types of writing will occur in this course.

1. TECHNICAL WRITING.

a. After gaining background concepts in the lecture, the students will complete laboratory exercises which show how information is gathered, analyzed, and conclusions made. These graded exercises, along with a lab final, will count 30% toward the final grade.

b. Students will be given essay questions on each of their lecture tests. These questions will ask the students to apply and extend their knowledge base to related information. The lecture tests will count 15% each toward the final grade.

c. Students will be assigned a journal article to read, summarize, and react. The subject of the article will relate to topics being covered in class and will report about some of the latest information coming out of cutting-edge research (for example information from the Hubble Space Telescope). The journal assignment will count 5% toward the final grade.

2. RESEARCH WRITING.

a. Each student, at the beginning of the semester, will be assigned to find out the history of their zodiac constellation. In addition to the preparation of a two page paper, each will give an oral presentation of the findings. These will be used to begin our study of constellations. The constellation assignment will count 5% toward the final grade.

c. Students will also be assigned, at the beginning of the semester, a research project. Its successful completion will be aided by a series of stages with specific dates due for various aspects of the assignment. Students will be given at least two opportunities for re-write. Both a

peer review as well as instructor review will be required. The research paper will count 15% toward the final grade.

3. FREE WRITING.

a. At least twice a month the students will be asked to write their reaction to one of the lab exercises or to one of the night observations. These will not be graded.

b. At least twice a month the students will be asked, at the end of a lecture, to write what parts of the lecture they did not understand or have questions about or what they liked best/least or what they would like to discuss in the next lecture. These will not be graded.

Written Assignments

	# of pages
I. One to six page graded assignments	10
1. Laboratory Exercises - 10 range from 2 to 6 pages long - contain both qualitative and quantitative information - some qualitative questions ask direct content information while others require application and/or opinions.	
2. Out of class assignments	
a. Mythology of your zodiac constellation	2
b. Summarize & analyze a journal article	2
3. Tests - three tests are given - approximately 50% of each is essay - rest is computation or short answer	6
II. Free-write ungraded assignments	
1. Reaction to a lab exercise or night observation	2
2. End of lecture - what do you not understand or have questions about - what would you like to discuss in the next class	3
III. Major Assignment - Research Paper	8-12
1. selection of topic - approved by professor	
2. outline - approved by professor	
3. rough draft - suggested changes by another student then by professor	
4. final paper - graded by professor	

Total # of pages = 33-37

Examples of Writing Assignments:

Test Questions:

a. You just stepped out of Weyandt to find sunlight hitting your face (real surprise, considering it's IUP). Describe the complete "life" of this energy. Include development, time-line, changes, etc.

b. Suppose you get to be the first person to look through the world's newest and largest telescope. You see a star that has never been seen before. List at least five characteristics that you would want to determine about this star. Briefly explain how you would obtain each piece of information.

(Note: all necessary information will be presented in lectures but various aspects at various times. Information must be collected and processed by the student in a very different way than presented in lecture.)

Journal Article:

Each student will be given a different article concerning a topic being studied during the semester. Each will:

- a. Summarize the major points of the article.
- b. Determine, if quantitative material is included, if it is presented in such a way that is easily understandable, if the statistics support the conclusions.
- c. Determine if the significance of the information is explained.
- d. Explain their reaction to the article in terms of readability, understanding of material.

Course Syllabus

GS 342 Stellar Astronomy

I. Catalog Description

Prerequisites: MA 121 and PY 111

Fundamentals of astronomy, with emphasis on Sun, stars, galaxies, the sidereal universe, and use of spectroscopy for gathering astronomical data.

II. Objectives

- A. The students will gain a knowledge of the basic concepts concerning the Sun, stars, and galaxies.
- B. The students will be able to manipulate the basic tools of astronomy.
- C. The students will be able to gather and assimilate data from observation and/or experimentation; using the data, they will be able to form conclusions.
- D. The students will improve their writing skills.
- E. The students will be able to critically read scientific articles, evaluate the evidence presented, synthesize the information and prepare a research paper.

III. Course Outline

Lecture Schedule:

- A. History of astronomy (2 weeks)
 - 1. The ancients world-wide
 - 2. The dawn of science - Maya, Babylonia, Greece & China
 - 3. The Revolutionary Middle Ages
 - 4. Gravitation - Two body & multiple body systems
- B. Tools of astronomy (1 week)
 - 1. Light & the spectrum
 - 2. Optical telescopes
 - 3. Other telescopes & other tools
- C. The Sun (2 weeks)

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1. Physical characteristics, nuclear energy production
 2. Solar Energy

D. The stars (3 weeks)

1. Physical characteristics
2. Spectral analysis
3. Binaries & clusters

E. The life cycle of stars (2 weeks)

1. Formation
2. Changes
3. Death - Black dwarfs and black holes

F. Galaxies, formation of the Universe, life in the Universe (2 weeks)

1. The Milky Way & other galaxies
2. Quasars
3. Cosmology
4. Possibility of life, UFO's

Lab Schedule:

A. Constellations (3 labs)

- Circumpolar & Zodiac Constellations
- Summer & Fall Constellations
- Winter Constellations

B. Navigation (2 labs)

- Cross-section Diagrams
- Spherical Diagrams

C. Stars (6 labs)

- Sunspots
- Distance & Magnitude
- H-R Diagram
- Visual Binaries
- Spectroscopic Binaries
- Eclipsing Binaries

D. Observations (3 labs)

- Allegheny Observatory
- Indiana High Observatory
- Field Observation

IV. Evaluation Methods

Final grades will be determined using a percentage scale as follows:

- 90 - 100 = A
- 80 - 89 = B
- 70 - 79 = C
- 60 - 69 = D
- 59 = F

The break-down of percentages will be: 15% for each test (45% total), 30% lab score, 10% for the short out-of-class assignments and 15% for the research paper.

V. Required Texts, Supplemental Readings

Textbook:

Abell, George O. et al (1993) Exploration of the Universe, Philadelphia: Saunders.

Lab Manual:

Sutton, Connie J. (1993) IUP Stellar Astronomy Lab Manual.

Supplemental Readings:

Articles from Sky & Telescope, Astronomy, The Planetary Report, & Scientific American.