



September 1, 1999

CALIFORNIA
STATE
UNIVERSITY,
FRESNO

TO: Stanley Ziegler, Associate Dean
College of Science and Mathematics

FROM: Brandt Kehoe
Interim Associate Provost

A handwritten signature in black ink, appearing to read "Brandt Kehoe", written over the printed name in the "FROM:" field.

SUBJECT: Class Size in A3, Critical Thinking Courses

The General Education program as recommended by the Senate and approved by the Provost contains the following language in reference to courses in area A3:

All courses must include all of the following elements:

1. Provide theory and practice in reaching factual or judgmental conclusions based on sound inferences drawn from unambiguous statements of knowledge or belief.
2. Provide theory and practice in identifying the relationship of language and logic.
3. Provide theory and practice in the structure of informal arguments and development of deductive and inductive reasoning skills with oral or written critiques by the instructor.
4. Provide theory and practice in identifying and distinguishing the most common formal and informal fallacies of language and reasoning with oral or written critiques by the instructor, and
5. Provide theory and practice in identifying and providing examples of the role of critical thinking in society.

As a means of ensuring that these elements can be made integral to these courses and corresponding elements in Areas A1 and A2, the General Education program requires for all courses in Area A:

Courses in Area A must meet the current mode and level standards set for lecture discussion courses. Larger class size may be permitted based on the ability of the course to meet the criteria and by outcome assessment measures (see note 2). Exceptions to the enrollment size limits will be considered by the General Education Committee if they are consistent with the interactive, active learning model of lecture/discussion (C4) courses. Small enrollment may be necessary to achieve the required objectives in some courses, while labs, break-out groups, or other means of providing individual student-instructor communication and feedback may work well in other courses. In some courses, enrollment may be limited by available facilities (i.e. computer stations). While differences in pedagogy and methodology exist between and within instructors,

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THE CALIFORNIA STATE UNIVERSITY

departments, and schools, course (enrollment) size is an important consideration in achieving educational objectives.

Many sections of the courses in A3 which are currently being offered have enrollments and class limits significantly in excess of the C4 class size which is limit 25, breaking point 30. The size limitation was in the GE program as approved and at the time courses were submitted for consideration. It is the expectation of the Committee that lacking the exceptions provided for in the prior paragraph and approved by the Committee, all courses will operate at or near this level. We recognize that this is a transition period but we do expect to see improved compliance in spring 2000, and full compliance by the fall 2000 semester. Full compliance is viewed by the committee as including the level of practice indicated and a class size no greater than 35.

This memorandum is being sent to all programs offering courses in area A3.

Cc: J. Michael Ortiz
Pedro Amaral
Kin Ping Wong

General Education Course Proposal

Proposed Course: N Sci 4 Science and Nonsense:
Prefix No. Title Facts, Fads, and Critical Thinking Units 3

Department: _____ School: Natural Sciences

GE Category (Indicate one category only):

Foundation: A1 ___; A2 ___; A3 X; B4 ___
Breadth: B1 ___; B2 ___; C1 ___; C2 ___; D ___; E ___
Integration: B ___; C ___; D ___; International/Multicultural ___

Existing Course X; Revised Course ___; New Course ___
Course Included in Current GE Program X

New courses require the Undergraduate Course Proposal form in addition to this form.
Revised courses require the Undergraduate Course Change Request in addition to this form.

Proposed catalog description: Limit course description to 40 words using succinct phrases. Include prerequisites, limitations, lecture/lab hours. Indicate former course number, e.g., (Former Biol 105)
Use of language, thought, and logic in science, distinguishing science fact from science fiction. Inductive and deductive methods, judgment, opinion, belief, and knowledge. A critical examination of contemporary pseudoscientific issues (creation "science," UFOs, astrology, etc.).

Enrollment limit per section: 40
Expected number of sections per semester – Year 1 2; Year 3 2

Attachments:

1. A statement presenting the ways in which this course meets the Specifications provided in the appropriate section of the General Education Policy as well as in the Policies for Inclusion and Evaluation of General Education Courses.
2. A statement of elements common to all sections of this course, identifying content, objectives, required student activities, grading policy, representative texts, and an approximate schedule for the course. Required student activities include such things as papers, research projects, homework, laboratory and/or studio performance, recitations, participation, attendance, and exams.
3. A typical syllabus for a particular offering of the course.
4. Any special cost factors associated with this course.

Approval for Inclusion in General Education

M. J. Zuder 2/23/98 Department Chair Date
Quamser 2/23/98 School Curriculum Committee Date
Keithing Way 2/26/98 School Dean Date
Paul Amund 12/15/98 General Education Subcommittee Date
Brandt Kehoe 12/22/98 Associate Provost Date

1/14/98

FEB 27 1998

Attachment 2

All sections of this course will concentrate on the varieties and vagaries of deductive and inductive reasoning. The Moore text does very little on deductive reasoning (I have written her and suggested the addition of more material on this subject). In the absence of this, we have devoted specific class days to the subject, with discussion and examples from **Logic** by D.H. Freeman, **An Introduction to Critical Thinking**, by W.H. Werkmeister, and numerical and statistical analysis particularly pertinent to this course. John A. Paulos' book **Innumeracy** is particularly interesting and helpful. Still, the emphasis is on the inductive end, because of the multitude of applications constantly before us all, and because of the greater difficulty in understanding and using induction.

The specific focus, and really the reason this course was developed in the first place, is on pseudoscience and the paranormal. Many of us in Natural Science find it frightening to see the extent to which the media boost pseudoscience and particularly the paranormal, and even more frightening to see the extent to which these things have permeated our culture. A major part of this course (and the part most enjoyed by our students) is looking at the evidence, and the arguments stemming from that evidence, for and against many of the most visible of these beliefs. All instructors of this course certainly expect to see their students emerge much better informed, and with a much more skeptical attitude toward wild claims.

The same two texts have been used by all sections of this course since its founding in 1988. **Patterns of Inductive Reasoning**, by Kathleen Dean Moore, is a very lively textbook, using contemporary readings to introduce the major kinds of inductive (and deductive, to a lesser extent) reasoning. There are a myriad of practical examples in constructing arguments, analyzing arguments, clarifying the major fallacies in arguments — many based on the major controversies in our society today. We are now using the 4th Edition, which just became available in Fall 1998. **Pseudoscience and the Paranormal**, by Terence Hines, is the best text available for those subjects, with encyclopedic coverage, well organized, and containing a wealth of references on almost every conceivable folly of humanity. The outlook is relentlessly skeptical.

All sections of the course require at least one term paper, homework based on Moore, cooperative student presentations, ongoing analysis of presentations, class discussion and exams. To the best of my knowledge no instructor takes roll, although attendance is clearly expected. We think of it as a university-level course.

Attachment 3

A typical syllabus for a particular offering of the course (Fall 1998, Instructor John R. Donaldson) is included. The exams for the previous fall are included, to give the flavor of what the students are expected to learn in the course. A final exam has not been part of the course; in view of the new rules for this part of the GE program, one is included, beginning with Fall 1998.

The syllabus consists of Introduction and Policies, a schedule for the semester, Rules for the Paper, Possible Subjects for Group Presentation, Assignments for Groups, and a sheet of Common Errors to be avoided. In general these are pretty obvious, except for the Schedule, which is written in very compact form for the students, but which must be greatly expanded for a reviewer lacking the Moore and Hines texts.

THE SCHEDULE, EXPANDED

Please assume this shorthand: M1.7 means Moore Application 1.7, MCh1 means Moore Chapter 1, Hines Ch5 means Hines Chapter 5, P1 means class presentation #1, C1 means the critique of P1.

This section of the class meets from 3:10 to 4:25PM Monday and Wednesday.

M, Aug24: Discussion of the nature of the course, explanation of the Intro, Schedule, etc, a check of the roll to see who is actually present, and a class discussion of Moore Application 1.10, a most interesting case study to be analyzed.

W, Aug26: Discussion of Chapter 1 of Moore, on patterns of reasoning. The ideas of argument, deductive reasoning, inductive reasoning, the Principle of Induction and the Problem of Induction are all introduced.

Do M1.2: identifying issues

M1.4: identifying missing premises and conclusions

M1.5: analyzing arguments

Due: M1.1: finding arguments

The student choices for class presentations.

M, Aug31: In class: Assign the groups for class presentations, arrange short meetings of the groups, discuss deductive reasoning in considerable detail, with many examples, show how algebra fits the definition of deductive reasoning.

Due: M1.3: identifying premises and conclusions.

W, Sept2: P1, The first class presentation, on Astrology, presented by the instructor as a guide to the groups and to show some of the resources available.

Due: M1.7, parts 1-6: Distinguishing inductive from deductive arguments.

M, Sept 7: Labor Day holiday.

W, Sept9: In class: Work through Hines, Ch1: The Nature of Pseudoscience

Ch2: Psychics and Psychic Phenomena

Do M1.9: Playing with Patterns (a game to increase understanding of the Problem of Induction)

Due: C1, the critique of the first class presentation made Sept2

M, Sept14: In class: Work through Moore Ch2: Arguments by Analogy

Do M2.1: Finding arguments by Analogy

M2.3: Using standard form

Due: M1.8: Identifying inductive arguments

W, Sept16: In class: Further study of Deductive Reasoning, with emphasis on simple statistics and some of the odds that peculiar things will happen. Includes coin flips by the entire class and analysis of the results, as well as analysis of several gambling games.

Due: M2.2, parts 2,4,5,6,10: Writing analogical arguments

M, Sept21: In class, Do M2.5: Debating with analogies

M2.6: Analyzing and refuting arguments by analogy

Catch up on questions from previous classes

Due: M2.4: Assessing relevance

W, Sept23: In class: P2, on Poltergeists. The first student presentation.

Due: M2.10, part 1: Analyzing complex arguments by analogy

M, Sept28: In class: Hines Ch5: Psychoanalysis. This is a big, difficult and very important chapter.

Hines shows that psychoanalysis is pseudoscientific

Do M2.7: Finding, writing and refuting arguments by analogy

M2.8: Writing arguments by analogy

Due: C2

W, Sept30: In class: Quiz 1, on M Ch1 & 2, Hines Ch1,2 &5

M, Oct5: In class: M Ch3: Inductive Generalizations

Do M3.1: finding underlying generalizations

M3.3: strengthening inductive generalizations

M3.7: Using inductive generalizations

Due: M3.2: Judging randomness

W, Oct7: In class: P3, on the Bermuda Triangle

Due: M3.8: Problem solving with inductive generalizations

M, Oct12: In class: Hines Ch9: Ancient Astronauts, Cosmic Collisions, and the Bermuda Triangle

Do M3.4: Identifying fallacies

M3.5: Learning from inductive generalizations

M3.10: Analyzing polling data

Due: C3

W, Oct14: In class: P4, on UFO's.

Due: M3.6: Human nature and fallacious inductive generalizations

M, Oct19: In class: M Ch4: Hypothetical reasoning

Do M4.1: Brainstorming alternative hypotheses

M4.6: Exploring a model of Hypothetical reasoning (black box)

Due: C4

W, Oct21: P5, on ESP

Due: M4.2, parts 1,3,4,5,7: Disconfirming hypotheses

W, Oct26: In class: Hines Ch 7: UFO's I — Close encounters of the first kind

Ch 8: UFO's 2 — Photos, physical evidence, abductions

Do M4.5: the game of Eleusis (hypothetical reasoning abounds)

Due: C5

W, Oct28: In class: P6, on Psychokinesis

Due: M4.4, parts 1,4,5,8,9: Analyzing hypothetical arguments

M, Nov2: Quiz 2, on M Ch3, Hines Ch7,8,9

Due: C6

W, Nov4: In class: P7, on Near Death Experience

M, Nov9: In Class: Hines Ch4: Laboratory Parapsychology

Hines Ch6: Astrology, the Lunar Effect & Biorhythms

Do M4.3: Building examples of hypothetical reasoning

M4.8: Deciding between competing hypotheses

Due: C7

W, Nov11: In class: Hines Ch10: Faith healing

Catch up on questions etc.

Due: Term Paper

M, Nov16: In class: M Ch5: Causal Arguments

Do M5.2: Distinguishing coincidence and causation

M5.3: Spotting causal fallacies

M5.5: Designing experiments

W, Nov18: In class: P8, on Reincarnation

Due: M5.6: Evaluating Experimental Design (this is interesting and difficult)

M, Nov23: In class: Hines Ch3: Life after Death

Moore Ch6: Critical thinking about Inductive reasoning

Do M5.8: Debating causal arguments

M5.9: Assessing causal claims

M6.5: Analyzing an argument based on confirming instances (horoscopes)

W, Nov25 No Class. My experience is that a late afternoon class the day before Thanksgiving does not work.

M, Nov30: In class: Quiz 3, on M Ch4,5; Hines Ch3,4,6,10

Due: M6.2: Assessing news stories quickly (from tabloids)

W, Dec2: In class: P9, on Creationism

Due: M5.7: Analyzing a complex causal argument (another difficult, interesting one)

M, Dec7: In class: Hines Ch11: Health and Nutrition Quackery
Ch12: Current trends in pseudoscience
Further discussion of Creationism

Due: C9

W, Dec9: In class: finish up loose ends
Do class evaluation
Give grades to date.

M, Dec14: Final Exam, about half on analyzing the arguments for and against the various pseudosciences and paranormal beliefs we have studied, and half on the more academic aspects of critical thinking.

This class requires considerable writing. Grading this must always be somewhat subjective, but I make it a practice to read everything carefully, except for the Moore Applications, for which I have a very experienced reader. Even on those, any student is welcome to come to me if there is disagreement with the reader's comments or grades. On all the rest, I look to see if the student did a good job on the assignment, doing everything that was required. A good job there gives 9 out of 10 on any Critique, and 16 out of 20 on the Term Paper. Then I evaluate: a better job (longer, more information, more original) earns more points, a weaker job (too short, overlooking evidence, misunderstanding the problems) earns fewer points. In addition, I am something of a proofreader, and do count off points for errors in spelling or grammar, with particular emphasis on the Common Errors which I present and discuss with the class, and with which I am really fed up. Of course, too many such errors disqualify a paper, and require that it be corrected and redone.

I am sure that each instructor handles this difficult task differently.

INTRODUCTION AND POLICIES

NATURAL SCIENCE 4: Science and Nonsense: Facts, Fads, and Critical Thinking

FALL 1998 SCHEDULE#23940(3units) GE credit Area A3

John R. Donaldson McLane Hall 218 OFFICE HOURS 1-3 PM M,W

278-4822 school, 291-3818 home until 11PM; e-mail johnd@csufresno.edu

Welcome to "**Science and Nonsense: Facts, Fads, and Critical Thinking**". This course is different from most in the School of Natural Sciences; it is not a science course at all, although we will be involved with a lot of science and also a lot of nonsense! It is a course in **critical thinking**; therefore it is **process-centered** rather than **content-centered**.

We are all surrounded by information of all kinds: on the net, on TV, on the radio, in the newspaper, in magazines and books, in our daily contacts with others. It is important to have the skills to **evaluate** this information, a great deal of which is **biased** or **false**. By the end of this semester you should be familiar with the main kinds of **deductive** and **inductive arguments**, and be able to recognize them as they are used to influence you and others. You should have a good understanding of the role of **evidence** in rational inquiry, and of the **probabilities** of events. You should also be familiar with the arguments **for** and **against** many of the popular **mysteries**, such as the Bermuda Triangle, UFO's, Astrology, ESP, Reincarnation and "Creation Science".

In other words the focus of the class is not on content and how well you've mastered it, but on **facts** and **ideas**, their **relationship**, **quality** and **expression**. Such a focus makes for a responsibility that you might not have in a more traditional content-centered course. **Involved participation** is basic; without it you will probably not get much out of this class.

One of the most important goals of your college education is to improve the clarity, accuracy, originality and style of your writing. You will have many opportunities to write, and to have your writing critiqued by the instructor.

Do check the Catalog or Schedule of Courses for the University policies on **cheating** and **plagiarism**.

TEXTS: *Patterns of Inductive Reasoning*, by Kathleen Dean Moore 4th Ed.

Caution: Used copies often have Application pages torn out.

Pseudoscience and the Paranormal, by Terence Hines

Your participation is vital to this class. Doing the homework, spending some time thinking about the various arguments you encounter, coming to class regularly, engaging in discussion, having reports and papers ready on time: these are the required elements of this course. It is always better to submit work late than not to submit it at all; if there are sufficient extenuating circumstances, you may still receive full credit, and even make up missed quizzes — but it is **your responsibility** to see me and explain those circumstances, as soon as possible. You are welcome to tape record any parts of the class. If you have a **disability**, it is **your responsibility** to tell me about it so that reasonable arrangements can be made.

Class Requirements	% of grade	Grade System
Term paper @ 1500 words	20	90-100% = A
Group report, presented orally	20	80-89% = B
8 Critiques of group reports	20	70-79% = C
3 one-hour quizzes, on Moore & Hines	15	Note that a grade of C or better
Homework	15	is required for credit in this course,
Final Exam	<u>10</u>	as in all Area A courses.
	100	

GROUP REPORT: Very early in the semester all students indicate the topics (from the “Possible Subjects” list) in which they are most interested. The instructor then puts together groups, approximately equal in numbers, trying to place every student in a group of indicated interest.

The group then meets (outside of class, after the first meeting) and plans the presentation. It must include both the *pro* and *con* sides of the case, using the available **evidence**, citing some relatively **recent** references, and giving some evaluation of the **strength** of that evidence. It is not necessary that the group come to a joint conclusion, but if they are unanimous they should state that conclusion. The presentation must be **at least** 30 minutes in length, with each member contributing at least 10 minutes of relevant material to the discussion. This is a cooperative project, and each member must take part in planning and presenting the project; however, each participant will be graded separately according to the information and style of presentation. **Reading** the material will deduct 2 points (10%) from the score for that person. Pertinent videos may be used, but not for shock value and generally not for more than 5 minutes of the total. A good presentation will earn 16 points out of 20; better or weaker presentations will earn more or less. Creativity in the presentation is encouraged.

CRITIQUES: A critique consists of a summary of the **points made on each side** of the presentation, a short discussion of the **merits of the arguments**, and a short discussion of the **method and merit of the presentation**. This comprises a very important part of your learning in this course. The minimum length is 250 words (about one double-spaced page)). Students frequently slip up in three ways: They don’t do the critiques at all, or they do not summarize the information presented, or they write less than 250 words. Each loses points. A good critique will earn 9 points out of 10; better or weaker critiques will earn more or less.

QUIZZES: A quiz is a short (?) exam on specified chapters in the two texts. I often try to invent questions which are easier if you have been coming regularly to class. I keep a file of back quizzes in the Reserve Book Room (Pam 192-7). It is a good idea to spend some time with them; you have probably never been asked to “Discuss the *pros* of **Ancient Astronauts**” — or, tell everything you know in favor of the belief in Ancient Astronauts, in 10 minutes or less.

HOMEWORK: The assigned “Applications” from Moore. In all cases, a reasonable **explanation** of your answers is more important than the actual answer. Often there is more than one correct answer, according to how you interpret the question and what you assume about missing premises or conclusions. Many of these “Applications” are very interesting and thought-provoking; some are about current controversies in public life and are therefore controversial; some are rather simple, others are quite complex and difficult.

FINAL EXAM: The Final Exam will be composed about half of questions common to Critical Thinking courses, and about half of questions specific to the “Pseudoscience and the Paranormal” aspects of the course.

TERM PAPER: A separate sheet gives detailed instructions for the term paper.

NB: Those who fail this course fail because they do not do the required work.
A C or better is required for GE credit in this course.

NATURAL SCIENCE 4 — SCIENCE AND NONSENSE #23940 JOHN R. DONALDSON, FALL 1998

MONDAY	DUE	WEDNESDAY	DUE
Aug24: Intro, Roll M1.10	- - - -	Aug26: Roll, Moore Chap 1, M1.2, 1.4, 1.5	M1.1 (needs letters to Ed.) SUBJECTS for Groups
Aug31: Roll, Assign Groups; Group Mtgs. Deductive Reasoning	M1.3	Sept2: P1: ASTROLOGY - JRD	M1.7 (1-6): state argument clearly, tell WHY
Sept7: LABOR DAY	- - - -	Sept9: Hines Chapter 1,2 M1.9	C1
Sept14: Moore Chapter 2 M2.1, 2.3	M 1.8 (tell WHY)	Sept16: Deductive Reasoning: Statistics, A Little Gambling	M2.2(2,4,5,6,10)
Sept21: M2.5, 2.6	M2.4	Sept23: P2: POLTERGEISTS Deadline: Ch1 HW; C1	M2.10(1)
Sept28: Hines Chapter 5 M2.7, 2.8	C2	Sept30: QUIZ 1 (M1,2; H1,2,5)	- - - -
Oct5: Moore Ch3 M3.1, 3.3, 3.7	M3.2	Oct7: P3: BERMUDA TRIANGLE	M3.8
Oct12: Hines Ch9; M3.4, 3.5, 3.10	C3	Oct14: P4: UFO's Deadline: Ch2 HW; C2	M3.6(ADVANCE WORK RQ'D.)
Oct19: Moore Ch 4; M4.6, M4.1 (record Hyp. for 4.8 later)	C4	Oct21: P5: ESP	M4.2(1,3,4,5,7)
Oct26: Hines Ch7,8; M4.5 (bring cards)	C5	Oct28: P6: PSYCHOKINESIS	M4.4 (1,4,5,8,9)
Nov2: QUIZ 2 (M3; H7,8,9)	C6	Nov4: P7: NDE (NEAR DEATH EX) Friday is Last day to Drop, except complete W	- - - -
Nov9: Hines Ch4,6; M4.3, 4.8	C7	Nov11: Hines Ch10; M5.2	P A P E R
Nov16: Moore Ch5; M5.2, 5.3,5.5	- - - -	Nov18: P8: REINCARNATION Deadline: Ch3,4 HW; C3-7	M5.6
Nov23: Hines Ch3; M5.8,5.9 Moore Ch6; M6.5 (Bring Horoscopes)	C8	Nov25: NO CLASS — THANKSGIVING	- - - -
Nov30: QUIZ 3 (M4, 5; H3,4,6,10,11)	M6.2 (ADVANCE WK)	Dec2: P9: CREATIONISM	M5.7
Dec7: Hines Ch11, 12; Creationism	C9	Dec9: LAST CLASS; Grades Evaluate	- - - -
M, Dec14: FINAL EXAM 3:30—5:30PM. ALL MATERIAL FOR THIS COURSE MUST BE RECEIVED BY 5:30 PM THIS DAY			

POSSIBLE SUBJECTS FOR GROUP PRESENTATIONS, NAT. SCI. 4
INDICATE THREE CHOICES: 1, 2 OR 3.

NAME: _____

_____ **Ancient Astronauts:** the belief that people from somewhere else came to earth and taught ancient civilizations how to build pyramids etc.

_____ **Astrology:** a belief that our personalities and lives are governed by the positions of the stars and planets at the instant of birth.

_____ **Atlantis:** the legend of a vanished continent and great civilization.

_____ **Bermuda Triangle:** the belief that there is a region near Bermuda where all kinds of strange, unexplainable accidents occur.

_____ **Creationism:** a belief that the universe, with all life forms, was created at a single time, and not more than 10,000 years ago.

_____ **Dowsing:** the belief that a person, with the aid of a forked stick, can locate underground, invisible water (or oil, or gold).

_____ **ESP (ExtraSensory Perception):** the belief that people can communicate with others even when completely isolated from the usual modes.

_____ **NDE (Near-Death Experiences):** the belief that people who are near death but who recover have passed into a different world.

_____ **Poltergeists:** the belief that spirits can cause strange happenings (noises, objects falling, etc.) in "haunted houses."

_____ **Psychoanalysis:** a belief in the theories of Freud, chiefly, which include methods of treatment for mental illnesses. Chapter 5 of Hines says this is largely pseudoscience.

_____ **Psychokinesis:** the belief that some "psychics" can move material objects using only their minds. A branch of ESP.

_____ **Reincarnation:** the belief that people have led previous lives, sometimes for hundreds or thousands of years. In some eastern religions, the people might have been different animals; today in the U.S. it is only different people.

_____ **Remote Viewing:** the belief that some people can somehow sense what other people are doing or seeing at some distant location. A branch of ESP.

_____ **UFO's: Unidentified Flying Objects,** usually taken to be filled with invaders from other planets, sometimes abducting people.

ASSIGNMENTS FOR GROUP PRESENTATIONS — N.S. 4

BERMUDA TRIANGLE: Leticia Rodriguez, Samuel Smith, Shamara Whittington (3)

CREATIONISM: Guadalupe Alvarez, Chris Ogawa, Sandra Ragsdale, Jason Von Allman (4)

ESP: Mike Harris, Adam Joaquin, Johnny Xiong (3)

NEAR DEATH EXPERIENCE: Carolyn Boyle, Jennifer Fisher, Chris Mulbrecht (3)

POLTERGEISTS: Enyonam Akondo, Troy Johnson, Erin Matwiczak, Sidney Morrison (4)

PSYCHOKINESIS: Jennifer Dedmon, Omar Hashmi, Jaime Holly, Bert Sherman (4)

REINCARNATION: Leslie Lopez, Leticia Perez, Melanie Reno (3)

UFO'S: J.D. Auernheimer, Pablo Canosa, Catherine Lasley, Dean Moules (4)

COMMON ERRORS IN WRITING

Some of you will find it hard to believe that these errors occur in papers written by university students. However, all have appeared, many of them ***ad nauseum !***

GENERAL: failure to make a complete sentence, with at least a subject and a verb. Writing style is different from speech style.

SPELLING:

argu (not e) ment occurrence separate strength vs height
criterion, criteria phenomenon, phenomena

WORDS WHICH SOUND THE SAME, OR ALMOST THE SAME

there-their-they're to-two-too sight-site-cite accept-except-aspect
roll-role straight-strait do-due aid-aide
diseased-deceased disgust-discussed incidents-incidence
whether-weather where-were which-witch
effect-affect petal-pedal passed-past
no-know new-knew conscious-conscience

APOSTROPHES

its-it's who's-whose there-their-they're your-you're
his-he's hers-she's UFOs-UFO's
I've you've they've

OTHERS

lay, laid, laid lie, lay, lain lie, lied, lied
a line, an eagle the line, the eagle
"that bad of a presentation" must of come-must have come
lose-loose could of come-could have come

After the first Critique, these errors will count off on Critiques (and on your paper, will be counted double as errors).

PAPERS FOR N SCI 4

One paper is due during the semester, on the date announced in the schedule. The paper is to be on some pseudoscientific or paranormal topic different from your group report topic. If you are not sure your subject qualifies, check with the instructor before doing too much work.

The paper must present both the pros and the cons of the topic, analyze the relative merits of the arguments, and draw some conclusion. "The conclusion will be left to the reader to decide" is NOT acceptable. You do not have to agree with the prejudices of the teacher to receive a top grade — what is important is that you do a good job of getting the evidence together, present it clearly, and analyze it logically.

Your textbook by Terence Hines is a very valuable source. In the back, references are listed for a great many possible subjects. Our library has most of those sources. In addition, be sure to read what Hines has to say about your subject. Begin soon, and enjoy it!

Write your paper on computer and save on floppy disk, if possible. Corrections are much less painful !

There are several important mechanical requirements:

1. The paper must be at least 1,500 words, typed. Count a page or two to be sure. If in doubt, I count — and I hate it. Bibliography and copies do not count.
2. There must be at least 4 references, of which at least one must be a book (You may use Hines as a reference, but it doesn't count as a book). There must be at least one reference on each side of the argument.
3. Try very hard to get some recent references. The *Skeptical Inquirer* is in our library, and is probably the best source of up-to-date articles. Sometimes the internet is helpful, but a lot of unreliable information resides there.
4. You must include a bibliography listing the sources you used with standard identification of each. This is not included in the 1,500 words.
5. You must include a "Xerox" copy of one page from each reference, carefully labeled to show which reference it is. The page should be one which you actually used in your paper. Title pages are no help.
6. When you use specific information or ideas from a particular source in the body of your paper, you should cite that reference at that point. I am not choosy about the exact method of citation.
7. It is acceptable to use direct quotations, clearly indicated as such, up to a total of no more than 150 words, or 10% of the paper.
8. It is extremely important never to use the exact words or trivially rearranged words from any source without attribution. This is **PLAGIARISM**, a prime academic sin. Every semester several members of this class have papers disqualified for this transgression. **I quote from Marilyn Savant, from Parade Magazine, Nov.15, 1992: "Never take material from an open book unless you copy it word for word and give the author credit. If you write from a closed book, however, it's probably all right. That's learning."**
9. I expect correct spelling, correct punctuation and clear syntax as a minimum. If you are weak in those areas, get someone to proofread your paper; then make the necessary corrections before submitting it. If I find more than 15 such errors, your paper will be disqualified. Errors on my list of **Common Errors** count off double. Throughout your life, you will be judged by the correctness and style of your writing — here is a great chance to improve.

Each semester I return from one half to two thirds of the papers as unacceptable, because they do not comply with the rules listed. Every time a paper is returned to be redone, one or more points will be deducted from what it would otherwise earn. A reasonable paper gets 16 out of 20 possible (80%); better or worse ones get more or less. You don't want to lose your hard-earned points carelessly!

NATURAL SCIENCE 4

Oct. 8, 1997

John R. Donaldson

QUIZ #1

1. a. Define *pseudoscience*.
b. How is *the paranormal* different from *pseudoscience* ?
c. Hines gives 4 reasons to study *pseudoscience*. Identify and discuss 2 of them.
d. Briefly discuss *N-Rays*.
2. Discuss *psychic readings*, including some specific cases or methods.
3. Explain what *Ancient Astronauts* is all about, and give several of the examples used to support the case for them, with a few words about each.
4. a. Moore discusses the *Principle of Induction* (what's it all about?) and the *Problem of Induction* (What's the main problem with it?) Briefly discuss each.
b. Compose an *Inductive Argument*, and comment briefly on its strengths and weaknesses.
c. Do the same for a *Deductive Argument*.

5. Analyze the following statement, along the lines advocated by Moore. Be sure to include a refutation as part of the analysis:

We can expect many CSUF students to be chosen for high governmental posts. Students at CSUF are much like students at Harvard in many ways. Both are serious about learning, spend most of their time studying, with little time working at outside jobs, have predominantly wealthy parents, are chosen from the top 1% of high school students in the country, like pizza and football, are mostly healthy and young, are very interested in politics, and have radios in their cars. There are a great many Harvard grads in high governmental positions.

NOTE: for Moore 3.6

In your assignment due next Wednesday, there are some ethical problems. I do not believe you should lie to your two students. Therefore I suggest that instead of telling them you are taking a course in handwriting analysis, and that you will take the sample of their handwriting to class to be analyzed, you tell them you are **learning about handwriting analysis in a class. Tell them that if they will give you a sample of their handwriting, you will bring back a description of their personality.**

QUIZ #2

NATURAL SCIENCE 4
NOV. 3, 1997

JOHN R DONALDSON

1. Summarize, briefly but comprehensively, the evidence For UFO's. Some specific cases will be valuable.
2. Discuss the strengths and weaknesses of the *photographic* evidence for UFO's.
- 3.a.What is an *Inductive Generalization*?
b.Give an example of the above (Not the one in 5!).
c.A subgroup is the *Statistical Generalization*. What is that?
d.Give an example for c.
e.In your example in d, identify the group, the sample, what is known about the sample, and the conclusion.
- 4.a.Discuss symbolic interpretation, being sure to include both Freud's and Hines' views.
b.Hines devotes 2 1/2 pages to the question "Does psychoanalytic therapy work?" Discuss what he has to say about this important problem.
5. Analyze the following Inductive Generalization, being sure to point out what the *sample* is, what the *group* is, and factors which both *increase* and *decrease* your confidence in the argument:
American prisons are violent, vicious places where inmates learn how to hate and hurt society. Attica prison is overcrowded and violent; in recent years, inmates there have been raped, injured, and even killed. The prisoners rioted in Soledad prison to protest the inhumane treatment they receive there. Mississippi jails are so vicious that federal judges ruled that not another prisoner can be jailed in Mississippi, until the jail conditions are improved.

NATURAL SCIENCE 4

Dec. 1, 1997

John R. Donaldson

QUIZ #3

1. We played the game of Eleusis as an example of hypothetical reasoning. Using the following sequence of cards played, explain
- A hypothesis for a "Secret Rule" that will explain the first 4 cards played, but which fails on later cards.
 - A hypothesis for a "Secret Rule" that will explain all the cards accepted and denied.

Y means accepted, N means denied:

10S - Y, 9D - N, 5C - Y, 4H - N, KH - Y, 7D - Y, 8S - Y, 10H - N, . . .

- 2.a. Why did Rhine bother to do all the experiments with Zener cards?
b. What were his results?
c. Explain some of the problems that were found with his and other similar work.
d. What is the present status of Zener card experiments, according to Hines?
e. What is the present status of ESP research in general, according to Hines?
- 3.a. Briefly discuss the pros of Astrology.
b. Briefly discuss the tests of Astrology.
- 4.a. Explain psychic surgery.
b. Explain the dangers of faith healing, preferably with an example or two.
c. Why is there such a fascination with *Near Death Experience* and *Reincarnation*?
d. Comment on the proposed proofs of *Reincarnation* OR *NDE*.
- 5.a. What is a *causal hypothesis*?
b. Explain the *Backwards Fallacy*.
c. Give an example of a Backwards Fallacy.
d. Explain the *Common Cause Fallacy*.
e. Give an example of a Common Cause Fallacy.