

# Physics 108 – May Term 2004

## Astronomy Abroad: California

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**Webpage:** [http://newton.uor.edu/facultyfolder/tyler\\_nordgren/May2004/index.html](http://newton.uor.edu/facultyfolder/tyler_nordgren/May2004/index.html)

**Text:** Cosmos, Carl Sagan, 1980, Random House Press.

**Suggested test:** Astrophotography for the Amateur by Michael Covington

### Goals:

**Who** are the people that push back the frontiers of human knowledge about the Universe? Are they all men with white hair and lab coats? We will meet them and hear presentations from them.

**What** is the latest astronomical research being done by these people? And what is science anyway? How does it work?

**Where** is this research taking place? We will travel to at least five observatories or labs (JPL, Mt. Wilson Observatory, Owens Valley Radio Observatory, Big Bear Solar Observatory, Table Mountain Observatory). We will tour, and use, telescopes at these modern "temples" of science.

**When:** The entire month of May 2004.

**Why:** Because we live in a technological world and only through an understanding of what science is, how it works, and why it is different from other human endeavors can we make informed decisions about its veracity. It will also be a truly "behind the scenes" look at an active field of science often portrayed in gross error by the media.

**How:** I am an active member of the astronomical community and together we will go and meet the people who seek to understand why the Universe "is."

### Organization

**Research talks:** There will be periodic research talks by astronomers we visit. Each talk will be about the research of that particular astronomer or observatory. Prior to each talk you will be given a reading assignment in the textbook to give you some background understanding of the topic. These will be augmented by supplementary papers and magazine articles. Due to the nature of our travels there will be some jumping around from topic to topic, and chapter to chapter. For this reason it is crucial you do your reading on time so that we may discuss any

confusions you may have before the talks begin. You will be graded on your participation in class discussions on the reading and the asking of questions for our speakers. For this reason it is crucial that the reading be done.

**Class Journal:** You are to keep a journal in which you record your questions and observations during each of the talks and tours. This journal is vital to your final grade.

**Observing:** We will be taking the 10-inch telescope out at night to view the heavens. In essence this is our laboratory. During the observing you will be expected to keep a logbook of your observations. This book will be provided to you. In it you are to record what you see and where. Your grade will depend upon the quality of your observing notebook.

**Astrophotography:** As part of these evening observing sessions you are encouraged to exercise your artistic sides by learning the art of astrophotography. You will explore techniques ranging from a simple camera and tripod in order to record star trails to more advanced projects involving photography through the telescope. You are therefore encouraged to bring a camera. If you are interested in astrophotography, let me know and I will give you the name of an excellent text to learn this difficult art.

**Research Project:** You will be required to write a paper on a particular astronomical object that will be visible in the sky during our trip. In this paper you will be asked to explain what it is and why it is of importance to our understanding of ourselves as people, a society, species, or planet. You will present this project to the class and we will observe them through the 1-meter telescope at Table Mountain Observatory near the end of the month.

**Your Time:** The class will spend most of its time in Redlands with two or three trips lasting a couple days or so. During this time there will be time for exploring and going about on your own. When you are away from the group I require that when you go out you do so in groups of at least two. This ensures that if something happens there will be at least one person there to help and report back if necessary. Your safety is my primary concern. If someone goes missing the entire class stops until the person is found.

**Your Responsibility:** Drug use will not be tolerated. Alcohol use is at the discretion of those legally able to purchase it. No disruption of the class will be tolerated. Anyone requiring me to pick them up from the hospital or the police station will be sent home immediately at their own expense with no refund of the class fee.

**Grading:** Your grade is dependent upon your completion and participation of each of the areas outlined above.