

DUKE UNIVERSITY TIP PROGRAM
ABOVE AND BEYOND: ASTRONOMY, PHYSICS, AND ASTROBIOLOGY

SUMMER 2006
SYLLABUS

Objectives

- Learn to use radio and optical telescopes
- Develop research methodology by planning and making observations
- Learn how to apply observations to explore the nature of celestial objects
- Develop problem solving skills
- Learn fundamental astrophysics
- Sharpen presentation skills
- Develop a sense of teamwork in solving complex problems

Materials

- If you have a computer or laptop, we encourage you to bring it. Otherwise, we have several computers for your use at PARI.
- Bring pens, pencils, and a notebook.
- Bring games, puzzles, books, DVD movies, etc. (there is no TV at PARI).
- Rooms are furnished with linens, pillows, blankets, clocks, lamps.
- Bring a flashlight.
- Some cell phones work – we know Verizon and US Cellular work. Others may not. Bring a calling card if you are not sure.

Text

- Download and bring (either electronic or printed) the Radio Astronomy Tutorial located on the MIT Haystack Observatory website (<http://web.haystack.mit.edu/urei/tutorial.html>).
- *Observing the Universe*. Andrew J. Norton. Cambridge, UK: Cambridge University Press. 2004. 180 pp. ISBN 0-521-60393-5. \$34.99 paperback.
(http://www.amazon.com/gp/product/0521603935/sr=8-1/qid=1145041726/ref=pd_bbs_1/104-9289687-2721520?%5Fencoding=UTF8)

The schedule is shifted to begin at a later hour than normal working or school hours because astronomical observations are done in the evening. The agenda is set up to begin about 10 am, but expect to continue each evening after dinner as described in the agenda. Early morning hours before 10 am are set aside for open forum and informal discussion.

The Astrobiology Breaking News is the best way we have for everyone to learn and be brought up to date on the latest research in astrobiology. These class sessions are student led, but guided by one of the instructors.

Above and Beyond: Astronomy, Physics, and Astrobiology.
June 15-29, 2006. Pisgah Astronomical Research Institute.