

## 12.409 Hands-On Astronomy, Spring 2002

Handout 1 Week of February 11, 2002

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Created S. Slivan  
Revised A. Rivkin and J. Thomas-Osip

### 12.409 Course Information

- MASTER PLAN - to give you a sense of what this class entails. Final plans for a specific class are dependent upon weather conditions, so the “scheduling” of items from this list will be determined week-by-week. Sometimes we're extremely fortunate, with each section getting 5 to 7 clear nights during the term. Sometimes we're extremely UNfortunate, with only 2 or 1 (or less?) useful nights.

- Organization. Observing Notebook. Finding North.

*We begin the term using the telescopes on-campus.*

- Setting up your LX200. If clear --- free night to observe from MIT.
- List of suggested objects. Coordinates and time. Basic object-finding.
- Observe “easy” objects. Selected exercises in class.
- Finish “easy” objects. Do some “intermediates”.
- Possibly arrange daytime session to try solar observing.
- Finding charts. Palomar Sky Survey. Coordinate precession.
- CCD setup and use for imaging
- Optics.

*The telescopes get moved out to Wallace later on in the term (conditions permitting), to give us darker sky conditions for harder, fainter objects.*

- More advanced CCD techniques including color imaging and image processing techniques
- More rock, less talk.
- Assorted videotapes for use on poor-weather nights, selected from: “The Mechanical Universe”: *Kepler's 3 Laws, Navigating in Space*, special relativity. “Ring of Truth” by Philip Morrison: *Mapping, Doubt*. “Spaceflight” (American space program). “The Astronomers”: *Where is the Rest of the Universe?, Prospecting for Planets*. NOVA: *The Doomsday Asteroid*.

**NOTEBOOK INSPECTIONS:** We plan to collect your observing notebook for inspection at least **three times**. Nominally, this will be the week of March 11, April 22, and May 13, though these dates are subject to change if we get really uncooperative weather. I'll remind you the week before an inspection, so that you can plan to bring any imaging results you've accumulated and turn them in with your notebook. Notebooks will be returned at the start of the next class.

- Please be certain to bring your notebook to ALL class sessions.
- Make sure to get signatures in your notebook from your instructor or TA when you pass a competency demonstration (e.g. being sufficiently capable at finding objects without assistance to be able to go on to use the GOTO feature on the LX200).
- To help decide whether it'll be clear enough to observe on any given class night, use on-line weather information, which is linked to the 12.409 Web page (<http://web.mit.edu/12.409/www/12.409.html>):

1. weather model "guidance" output (this is the information which the weather service guys interpret to get the forecast in English for the media)
2. Satellite images
3. NWS most recent forecast

Other available sources for weather forecast information include

1. finger weather@cirrus.mit.edu
2. telnet um-weather.sprl.umich.edu 3000
3. Accu-weather tape, 936-XXXX (any 4 digits work here)
4. www.weather.com, the Weather Channel's website.

I'll do my ding-dang best to put a note on the website like "Definitely going out tonight" or "Definitely staying in tonight" if the decision's sufficiently obvious that I can make the call by 3-4 PM or so. **Unless you see a current note indicating we're staying in, it may not be safe to assume we're staying in!** Typically, if it seems it's going to be clear enough that you'll be able to see somestars, we'll try observing.

- If it's cloudy and the forecast says "clearing this evening" it's prudent to bring your observing clothes anyway---we may just go for it and you don't want to be caught unprepared by surprise!
- "Partly cloudy" in a forecast can mean anything from completely clear through completely overcast; it seems to *actually* mean "The numerical weather models disagree so we don't know what to forecast so we'll just say 'partly cloudy' and be done with it." The actual sky conditions during the afternoon are often a good cue.
- For Wallace nights (as for all classes) we'll still meet in the classroom as a group. We then travel as a group to wherever the van is parked. (This assumes of course that you get to class on-time. If you're late and haven't made arrangements with me in advance, all bets are off as to whether/where we've gone...)