

ASTRO 358/SPRING 2012
GALAXIES AND THE UNIVERSE
ASSIGNMENT 4

INSTRUCTIONS

1. This assignment has a score of 100 points.
2. Each of you has been assigned to a team of 4–5 students and each team has been assigned a topic pertaining to a next generation facility, as specified in the handout given in class. Each team will present a talk on this topic. I expect each of you to pull your weight as team member and I will conduct formal and random individual interviews to assess your contribution to the team work. I recommend that each team starts to meet on a regular basis as soon as possible in order to divide the work load, discuss the material, plan the talk, etc. You have been given the emails of team members to facilitate this.
3. Your talk should cover some of the following points and whatever else you might deem interesting:
 - a) Where is the facility located and why? When is it expected to be operational? Who are the partner and institutions?
 - b) What are the capabilities of the new facility e.g., operating wavelengths, field of view, spatial resolution, collecting area, no of telescopes, and any other relevant unique features?
 - c) Which of these capabilities are particularly important in allowing this facility to probe uncharted territories ?
What new science questions on GALAXIES, in particular, will this facility allow us to address? Try to illustrate your answer WITH ONE OR MORE SIMPLE EQUATIONS OR QUANTITATIVE ARGUMENTS. Many such arguments will be or have been made in class regarding science questions, as well as technical issues, such as the spatial resolution or seeing, processes traced at different wavelengths, the age and angular diameter distance at different redshifts, redshift-dependent systematic effects, etc.
 - d) What are the limitations of this facility?
4. You can research topic using online resources, books, publications (e.g., using NASA ADS Abstract Services), preprints (e.g. on the Astrophysics Preprint server). There are also resources such as the Astronomy and Astrophysics 2010 decadal survey, "New Worlds, New Horizons" posted on the class website. Please compile a list of your references to hand in.

5. Talks are scheduled on Tuesday Apr 24 and Thursday Apr 26, according to the schedule listed at the end of this assignment. Each talk should last about 13–15 minutes, and we will adhere strictly to time. Points will be deducted if your talk exceeds your allocated 15 minutes slot. After the talk there will be 5 minutes of questions.

The talk can be given by one team member or split between team members. Questions at the end of the talk will be addressed to the team as a whole, and those who are not making the oral presentation should take this opportunity to speak.

6. Please email a copy of your talk in pdf or powerpoint format, and your list of references to Professor Jøgee by 10 am on Mon Apr 23, 2012. PLEASE BE SURE TO TEST YOUR PRESENTATION ON THE CLASSROOM CONSOLE SEVERAL DAYS BEFORE YOUR TALK IS SCHEDULED. The code to start the console is 1988 and there is a schedule for the classroom posted on the door.

It is preferred that you download your talk on the classroom console computer, rather than use your individual laptops, in order to minimize set-up time. However, if there are good reasons, you may use your own laptop, but be sure to bring the correct connectors and to set up within 2 minutes.

SCHEDULE OF TALKS

Tu Apr 24

- 1) Giant Magellan Telescope (GMT) : 12.30–12.45
Questions 12.45–12.50
- 2) The Large Synoptic Survey Telescope (LSST): 12.55 to 1.10
Questions 1.10–1.15
- 3) James Webb Space Telescope (JWST) : 1.20 to 1.35
Questions 1.35–1.40

Th Apr 26

- 4) Extended Very Large Array (EVLA) : 12.30–12.45
Questions 12.45–12.50
- 5) Atacama Large Millimeter Array (ALMA) : 12.55 to 1.10
Questions 1.10–1.15

6) Cerro Chajnantor Atacama Telescope (CCAT) : 1.20 to 1.35
Questions 1.35-1.40