AGA0414 Introduction

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Goals (free translation from Jupiterweb)

Show the students the main observational techniques used in Astronomy and the basic “notions” about instrumentation and data aquisition. Introduce the observational “practice” needed for the development of concepts. Make possible the contact with instrumentation available to Brazilian astronomers.

Understand how observations are carried out. It is relevant, of course, if you go to observe but also if you use data from a project (e.g. SDSS).
It is useful also for theoreticians who will want to test their theories (“It doesn't **matter** how beautiful your **theory** is, it doesn't **matter** how smart you are. If it doesn't agree with experiment, it's wrong”, R. Feynmann)

Program (from Jupiterweb)

Telescopes

Properties of CCD detectors

Basic techniques of image reduction

Effect of the atmosphere on astronomical observations (extinction and seeing)

Notions of aperture photometry

Spectroscopy

Radioastronomy

Space satellites

My Program

Coordinate systems

Effect of the atmosphere on astronomical observations (extinction and seeing)

Proposing and planning observations

Telescopes

Properties of CCD detectors

Basic techniques of image reduction

Notions of aperture photometry

Spectroscopy

Astronomy at other wavelengths than optical (incl. Radioastronomy and Space satellites)

Before we start...

I would like to know a little about you!

Entry Level Questionnaire

https://goo.gl/forms/wdIHpiHfgXyCitRq1

Dates

Lectures are on:

- Tuesdays; 2pm - 4pm
- Thursdays; 2pm - 4pm

We allow 5 minutes of “courtesy”

My office is D-309 ; email aederocl@iag.usp.br

If the door is open and I am not talking to someone, you are free to enter.

If the door is closed either I am not in the office or I cannot be disturbed.

Examinations and Grading

There will be three tests:

1. Plan observations (a night and a survey) - 21/03 - 02/04
2. Reduce photometric data - 16/05 - 28/05
3. Reduce spectroscopic data - 30/05 - 11/06

You will have a week to work on each test. I will then give you an oral examination (last week of courses)

Grades will depend on the outcome of the tests and the activity in class.

How to share notes?

Do you use eDisciplinas?

Do you prefer Google Drive?

A few quick reminders; Units of Measure

Length

- International System:
  - metre
- Astronomy:
  - Astronomical Unit (~140×10^6 km)
  - Lightyear
  - Parsecs

Mass

- International System:
  - kilogram
- Astronomy:
  - Gram
  - Solar Mass (~2×10^{33} g)

A few quick reminders; Units of Measure

Time

- International System:
  - second
- Astronomy:
  - Second
  - Year
  - Gyr = 10^9 yrs

Energy ($E = F * l = (m * a) * l = m * l^2 * t^{-2}$

- International System:
  - $J = kg\ m^2\ s^{-2}$
- Astronomy:
  - erg