1. I estimated the hourly increase in RA by dividing 365 days by 24 hours, which is about 0.0658 hours per day. Since the RA for an object crossing the meridian at midnight is 12 hr on March 21, I used the daily increase to calculate the RA for an object crossing the meridian at midnight on the first of each month. They are listed in table 1.

Month	RA at midnight
April	12.72
May	14.70
June	16.73
July	18.71
August	20.75
September	22.78
October	0.76
November	2.79
December	4.77
January	6.81
February	8.84
March	10.68

Table 1: This table shows the approximate RA of an object crossing the meridian at midnight on the first day of each month.

2. It is about 10am local time right now (solar time). Since the RA of an object crossing the meridian at midnight is about 8hrs, the RA of objects directly overhead right now is about 18 hrs, which is equal to the local sidereal time. The declination overhead is equal to our latitude, which is 32.3° North. Observing within 60° is ideal, so we would want to observe objects with an RA between 14 and 22 hours (60° corresponds to four hours) and a declination between -28° and 88° North (on the other side of the North Star... where the RA would actually be 12 hours from 88° on the other side... I think.

3. From `skycalendar` (If I'm reading it correctly), the nights during the first quarter (January, Februaray, and March) that have no moon above the horizon during the first half of the night are 1/31 - 2/5, 2/29 - 3/6, and 3/30 - 3/31 (daylight savings starts 3/13, so the first-half night goes until 1am instead of midnight).

4.
   - M87: RA = 12h 30m 49.42s; Dec = 12° 23′ 28.04″
   - Galactic center: RA = 17h 45.6m; Dec = -28.94°
   - Jupiter: RA = 12h 30m 49.42s; Dec = 12° 23′ 28.04″

5. **Run skycalc (choose observatory A for APO, ? gives list of command help, look at r, d, y, and h commands). For the galactic center, what is the maximum amount of time it can be observed at an airmass of less than 2.5? How about the Virgo cluster? Why are these different?**

6. **Run jskycalc. Play with all of the buttons! What planets will be visible spring 2016, and at what times of night? Note that you can load files with a list of coordinates, and you can make airmass observability charts for them.**

7. **Start to outline plan for an 3 half-night observing run during late March A halves, when we are taking our APO trip. Eventually, the plan should include a list of objects for each night with a tentative order of observation, taking into account how much time needs to be spent on each object. Our projects are still TBD, but will likely include observations with multiple instruments.**

    - **Determine the approximate range of RAs that we will be able to observe.**
    - **Given the NMSU 1st quarter proposals, which of them might we be able to make some observations for?**
    - **If you have other ideas for projects, start to tabulate them. (Sten/Diane stars for APOGEE calibration/neutron capture calibration, Triplespec RR Lyrae RV curves Drew Be stars)**
    - **Start to prepare a joint web page with the plan, including relevant information: coordinates of objects, finder images if necessary, links to tabulated spectra, instrument manuals, etc. etc.**

8. **Look up the catalog Globular Clusters in the Milky Way in VizieR and download it (make sure to get all of the rows).**

    - **Plot the locations in an Aitoff projection of equatorial coordinates. Can you detect Galactic structure?**
    - **What clusters would be possible to observe during our March run?**
    - **Convert coordinates to galactic coordinates and plot in an Aitoff projection.**