ASTR 2401 Observational Astronomy Fall 2016
Observing Project Proposal
Due Tuesday, October 4th In Class

Assignment: Write a 2-page project proposal for your semester-long project. Your proposal should include a detailed but concise summary of the project, including the scientific background and justification, observational techniques to be used, targets to be observed, equipment (telescopes, CCDs, filters, etc.) to be used, and a brief description of the how the resulting data will be reduced and/or analyzed. This proposal is worth 5% of your final grade, itself and will form the basis of your semester project, which represents a substantial portion of your final grade, so it is in your best interest to devote time and focused effort to this assignment. To that end, every student should meet with me to consult on their project well before the due date. Please use https://rmorehead.youcanbook.me to schedule an appointment. If you are working with a partner, please book your appointment together.

Limits on Collaboration: For your semester project you may work in groups of up to 2 students. You may collaborate on all aspects of the project with your partner, but each student will be expected to turn in their own write-ups independently for both the project proposal and the final paper.

Format: 2 standard letter-sized pages including references, 1-inch margins, 12-point professional-looking font (Times New Roman, Helvetica, Calibri, …, i.e. no Comic Sans!) double-spaced. You should include your name as well as your partner's name if you are working as a team. The proposal should be turned in via hard copy in class unless alternative arrangements have been made ahead of time.

References: In keeping with both academic integrity and good scientific practice, you should cite all information sources you use in writing this text. At least two of your sources should be peer-reviewed journal articles, like the ones you found during the literature lab. References and in-text citations should be formatted using the style guide of the *Astrophysical Journal*. Guidelines and examples can be found at http://journals.aas.org/authors/references.html.

If you already have some proficiency with using Latex for scientific writing you will find it useful to use the aastex package available from the *Astrophysical Journal* for handling references. If you have not used Latex before, you do not need to for this class, but it is a skill you will need to pick up eventually if you plan on becoming a professional astronomer. It does have a steep learning curve, though.

Rubric:

	3 Points	2 Points	1 Point	0 Points
Format	Correct formatting	Minor formatting issues	Major formatting issues, i.e. wrong font size/style, not double spaced, etc.	Handwritten
Writing	College-level writing, few if any noticeable mistakes	Some minor spelling/grammar mistakes	Major mistakes, no evidence of editing/proofreading	Assignment not even at the rough draft level, incomplete, fragmented sentences, etc.
Scientific Background	A well-thought out scientific/aesthetic justification/motivation for the project supported by evidence	Weak or unsupported justification/motivation	Some background given, but incomplete or showing a major lack of understanding	Missing
Technical Details	Project is feasible and student demonstrates basic technical knowledge sufficient to complete project	Project is feasible after modification, some technical details in error (e.g. wrong telescope or filter for science goal)	No target selected or a completely unobservable during the semester, no mention of equipment to be used	Missing
References and Citation	All claims in text are well cited with no major mistakes in reference/citation format	Citations are complete, but there remain some errors in reference list or citation format.	List of references omitted, several missing or inappropriate citations, references do not include at least two peer-reviewed articles	Missing (This will be treated as a breach of TTU academic integrity policy)

Suggested Project Topics:

- Observe and fit a planet transit
- Make a color magnitude diagram of a star cluster
- Astrophotography portfolio
- Narrow-band imaging of a deep sky object
- Observe and fit an asteroid light curve
- Quasar/star color comparison
- Observe and fit an Eclipsing Binary star
- Observe binary star spectra and fit orbital parameters
- Variable star light curve
- Multi-band imaging of one or more deep sky objects.
- Image a galaxy cluster
- Comet Imaging
- Comet photometry
- Stellar spectra
- Programing project - Write an exposure time calculator for the telescopes at Skyview
- Archival Data Project - (will still have to at least make some pretty pictures with the telescopes)
- Come up with an idea of your own