

Astronomy 125 – *Observational Astronomy*

SEMESTER

FALL 2012

TIME

12:00-12:50 p.m.
Clear evenings

DAY

T H
MTWH

PLACE

Trafton C114
Standeford Observatory

INSTRUCTOR: Dr. James Pierce

office: TN N151; **phone:** 389-1114; **office hours:** M 12,1,2; T 10,1; W 12,1; H 10,1

email: jpierce@mnsu.edu; **web:** <http://mavdisk.mnsu.edu/jpierce/>

COURSE MATERIALS: Mechler & Chartrand: *National Audubon Society -- Constellations*
Dickinson et al: *Mag 6 Star Atlas*
Edmund "Star and Planet Locator"
Handouts (Download from my website)

CONTENT:

In this course we will study the night sky and various tools for observing it. We will concentrate on becoming familiar with constellations and bright stars, learning to read star charts, operating small telescopes, and discovering the variety of celestial objects available for observation. Approximate order of lecture topics: celestial sphere; coordinate systems; star charts; sidereal time; telescope optics; telescope specifications; astrophotography; lunar observations; planetary observations. Constellation lectures will be spread throughout the term. See my web page for a more detailed outline.

ASSIGNMENTS:

Several assignments will be given during the semester to help you become more familiar with the material. Written assignments will be due about a week after they are given out; points will be deducted for late assignments. Observing assignments (which must be done at the observatory) will run throughout the semester observing season.

QUIZZES:

Five constellation quizzes will be given during the semester; these will check your growing knowledge of the night sky. We will be studying constellations and their components, learning them in groups of six (see the constellation list). For each constellation you should become familiar with the following: name and abbreviation; appearance and shape; asterisms; position in the sky; bright star names; and objects of special interest.

CONSTELLATION LIST:

| | | | | |
|----------------|-------------------|---------------|----------------|------------------|
| 1 URSA MAJOR | 2 CORONA BOREALIS | 3 AQUILA | 4 PEGASUS | 5 ANDROMEDA |
| CANES VENATICI | HERCULES | SCUTUM | CAPRICORNUS | CASSIOPEIA |
| BOOTES | LYRA | CYGNUS | AQUARIUS | PISCES |
| SCORPIUS | URSA MINOR | DELPHINUS | EQUULEUS | PISCIS AUSTRINUS |
| OPHIUCHUS | DRACO | SAGITTA | CEPHEUS | CETUS |
| SERPENS | SAGITTARIUS | VULPECULA | LACERTA | SCULPTOR |
| 6 TRIANGULUM | 7 TAURUS | 8 CANIS MAJOR | 9 VIRGO | |
| ARIES | ORION | MONOCEROS | LIBRA | |
| PERSEUS | LEPUS | CANCER | COMA BERENICES | |
| AURIGA | GEMINI | LEO | CRATER | |
| CAMELOPARDALIS | CANIS MINOR | LEO MINOR | CORVUS | |
| ERIDANUS | LYNX | SEXTANS | HYDRA | |

OBSERVING:

Telescopic observation of the night sky is a major component of this course. Observing will be done at Standeford Observatory (phone 389-6208), located at the south end of the campus (see map). The observatory will be staffed on a regular basis on clear evenings, MTWH, from 8:30 p.m. to 10:30 p.m., and you will be expected to attend at least one session per week. In a normal autumn we can expect perhaps 50% of the nights to be clear; therefore, plan to take advantage of clear nights when they do occur but don't expect the weather to cooperate with *your* schedule. Above all, try to do some observing before the bitter cold arrives in November – observing is much more fun with warm fingers and toes. The observing season will run from Tuesday, September 4, until Tuesday, November 20 (unless the weather forces us to close sooner).

Observing assistants and I will be on hand at the dome to help you (and students in other classes) with your observing projects. During your first few visits you should identify yourself as a 125 student so the assistants can give you proper guidance. Your attendance at observing sessions (and class meetings) will be graded. To receive credit, be sure to sign the observatory logbook and fill out an Astro 125 Observing Record for each visit. **Give your Observing Record to me or one of the observing assistants before you leave the observatory.**

GRADING:

A point system will be used to determine grades, with components having the following values:

| | | |
|--|-------------------|---------------------------------|
| Observing Assignments (2 @ 54) | 108 points | <u>Approximate Borderlines:</u> |
| Written Assignments (4 @ 28) | 112 points | A/B around 80% |
| Constellation Quizzes (5 @ 32) | 160 points | B/C around 65% |
| Attendance | 60 points | C/D around 50% |
| <u>Final Exam (W Dec 12, 10:15 a.m.)</u> | <u>160 points</u> | D/F around 43% |
| Total | 600 points | |

Letter grades will be assigned on the basis of both the total point distribution and your performance on the observing assignments. **As this is an observing course, you must also earn a minimum score on the observing assignments in order to obtain a given grade:**

| | | | | | | | | | | | | | |
|---------------------------------|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------|
| Grade | ← P NC → | | | | | | | | | | | | |
| | A+ | A | A- | B+ | B | B- | C+ | C | C- | D+ | D | D- | |
| Observing assignments (minimum) | 96 | 84 | 72 | 60 | 51 | 42 | 33 | 27 | 21 | 15 | 12 | 9 | (of 108) |
| Total points (minimum) | 540 | 510 | 480 | 450 | 420 | 390 | 360 | 330 | 300 | 288 | 270 | 258 | (of 600) |

If at any time you would like an assessment of your standing in the class, feel free to stop in to ask me. I will also give you frequent updates in class.

Directions to Standeford Observatory

In traveling to the observatory you may wish to use the *Buddy System* -- walking in groups of three or more.

Alternatively, you may contact University Security (389-2111) for a walking escort; however, there may be a delay in providing the escort depending on other activities on campus.

