

Instructor: Will Wagner (lab manager); office: 239 Fawcett Hall; office hours: TBA.

Teaching Assistants are assigned quarterly to teach individual lab sections under the supervision of Will Wagner.

This laboratory class uses the lab manual titled: PHY 117 Stars, Galaxies, and the Cosmos, and can be purchased from the book store on campus.

The following are the scheduled experiments that you will be doing. Please read each over completely before coming to lab to familiarize your self with the material. It is the student's responsibility to come prepared to the laboratory so that instruction time can be kept at a minimum thus maximizing the time to do the experiment.

| WEEK OF                         | EXPERIMENT                                     |
|---------------------------------|--|
| January 2 - 6                   | No Lab   |
| January 9 – 13                  | Winter Constellations * (Exp. 1, pg. 3)        |
| January 16 - 20                 | Study of the Telescope (Exp. 2, pg. 9)         |
| January 23 - 27                 | Planetarium Visit ** (Exp. 3, pg. 12)          |
| Jan. 30 – Feb. 3                | The Sun (Exp. 4, pg. 17)                       |
| February 6 - 10                 | Estimating Angular Distances* (Exp. 5, pg. 22) |
| February 13 - 17                | Spectral Classifications (Exp. 6, pg. 26)      |
| February 20 – 24 (Evaluations)* | The Crab Nebula (Exp. 7, pg. 29)               |
| Feb. 27 - March 3               | Pulsars (Exp. 8, pg. 35)                       |
| March 6 - 10                    | Stellar and Galactic Types (Exp. 9, pg. 49)    |

\* Winter Constellations and Estimating Angular Distances experiments require night observations that you must do outside of lab. These experiments should be done on the first clear night you have. Due to the variable weather conditions you will have approximately 2 - 3 weeks to complete and turn in your report from the time that they are assigned.

\*\*The program will be at the Boonshoft Museum of Discovery's Caryl D. Philips Space Theatre on either Monday, Jan. 23, from 11:30 a.m. to 12:30 p.m., or on Wednesday, Jan. 25, from 11:30 a.m. to 12:30 p.m., or Saturday, Jan. 28, from 10:00 a.m. to 11:00 a.m. Transportation is NOT provided, you must arrange for your own transportation. You may attend any one of the shows. A typewritten essay report is to be handed in the following week.

PHY 117 is a writing intensive course. The weekly experiment reports will allow the student to increase their abilities of critical thinking, problem solving, and communication skills. There will be a major essay assignment on the report of the planetarium show scheduled, as well. All work should be done with proper form, thus allowing students to exercise their editing skills. The objectives of these experiments are to aid the students to understand the experimental basis of scientific inquiry; understand the importance of model building for understanding the natural world; understand the theoretical, practical, creative, and cultural dimensions of scientific inquiry; discuss some of the fundamental theories underlying modern science; understand the dynamic interaction between society and the scientific enterprise; recognize appropriate ethical uses of knowledge in the natural sciences.

#### GRADING:

Nine reports will be turned in – each worth a possible 25 points each. Grades will be assigned according to the following scale:

|   |            |
|---|------------|
| A | 202 to 225 |
| B | 179 to 201 |
| C | 144 to 178 |
| D | 120 to 143 |
| F | 0 to 119   |