

OPH 111 OPHTHALMIC LAB I

COURSE DESCRIPTION:

Prerequisites: OPH 141 and Enrollment in the Opticianry program

Corequisites: None

This course introduces optical laboratory practices and procedures. Emphasis is on safety, OSHA and EPA requirements, equipment and instrumentation, and lens fabrication to ANSI standards. Upon completion, students should be able to duplicate lenses, use basic formulas, and identify materials and procedures used to safely fabricate prescription lenses to specifications. Course Hours Per Week: Class, 2. Lab, 3. Semester Hours Credit, 3.

COURSE OBJECTIVES:

Upon completion of the course the student will be able to:

- a. Demonstrate safe use of surfacing equipment.
- b. Layout and block single vision and multifocal lenses for surfacing.
- c. Neutralize single vision and multifocal eyewear.

OUTLINE OF INSTRUCTION:

- I. Laboratory safety, OSHA and EPA requirements
 - A. Clothing safety
 - B. Eye safety
 - C. Safe use and disposal of laboratory chemicals
- II. Spherical, spherocylindrical, and multifocal lens design
- III. Neutralizing lenses
- IV. Surfacing Procedures:
 - A. Layout and markup of spherical, compound and multifocal lenses
 - B. Blocking procedures
 - C. Generating of lenses
 - D. Lap selection and lap truing
 - E. Fining and polishing
 - F. Deblocking
 - G. Inspection

- V. Basic Formulas
 - A. Index of Refraction
 - B. Nominal power
 - C. Sag (thickness)
 - D. True power
 - E. Transposition
 - F. Prentice's rule
 - G. Oblique meridian
 - H. Lens sizing (MBS)

REQUIRED TEXTBOOKS AND MATERIALS:

Brooks. Understanding Lens Surfacing. Butterworth-Heinemann, 1992.

Brooks. Essentials for Ophthalmic Lens Finishing. 2nd ed. Elsevier, 2003.

Non-programmable scientific calculator. The least complicated calculator that contains the keys 'sin,' 'cos,' and 'tan' will do.

STATEMENT FOR STUDENTS WITH DISABILITIES:

Students who require academic accommodations due to any physical, psychological, or learning disability are encouraged to request assistance from a disability services counselor within the first two weeks of class. Likewise, students who potentially require emergency medical attention due to any chronic health condition are encouraged to disclose this information to a disability services counselor within the first two weeks of class. Counselors can be contacted by calling 919-536-7207, ext. 1413 or by visiting the Student Development Office in the Phail Wynn Jr. Student Services Center, room 1209.