

Ophthalmic Dispensing
East High School
Logan Newman



Course description: This course covers the role and responsibilities of a dispensing optician, preparing them for further studies or employment in the optical fields and is designed to follow Vision Care I. Students will revisit the principles of vision care, the tools required for vision correction, and will manufacture corrective glasses from a doctor's prescription for students in EHS and the RCSD. Doctors will be invited into the classroom to demonstrate techniques and provide experience to students.

This course will involve lecture, class activities, and laboratory work-time, clinic time, and will be completed over the course of a single school year. Students will complete a variety of projects to further their knowledge of the optician and the roles they play in the workforce. Local optometrists will be invited in to discuss their roles in dispensing and to provide free refractions to students within the program and in the building. Students will measure patients pupillary distances, manufacture glasses that fit the optometrist supplied prescription, and dispense fabricated glasses to students. Students will be assessed through both formative assessments, where they show they have learned important conceptual information, and summative assessments, where they will demonstrate the skills they have acquired. Students who do not demonstrate successful acquisition and retention of optician skills will not pass the class.

Textbook / Support Material / Resources

The content for this course is supported and developed through continuous support of the OPTICS council. The textbook used in this sequence is The Optician Training Manual, by Davis S. McCleary; Santa Rosa Publishing, 2009. Our supportive websites are www.Allaboutvision.com and www.Opticianworks.com.

Course Outcomes: Upon completion of this course students will be able to:

- I. Collect and analyze data
 - a. Analyze and interpret prescription
 - b. Collect and interpret data
 - c. Maintain customer/patient records
- II. Fit and dispense spectacles, lenses and other ophthalmic devices (excluding contact lenses)
 - a. Identify customer/patient visual requirements, needs and wants
 - b. Recommend and demonstrate eyewear and ophthalmic products
 - c. Take customer/patient measurements
 - d. Order products
 - e. Dispense fabricated eyewear
 - f. Fit the frames correctly to patient face
- III. Fabricate ophthalmic products
 - a. Perform mathematical calculations
 - b. Procure prescription materials
 - c. Fabricate eyewear to patients unique needs

d. Verify finished product to meet ANSI standards

NYS Learning Standards addressed:

Standard 1: Analysis, Inquiry, and Design - Students will use mathematical analysis, scientific inquiry, and engineering design, as appropriate, to pose questions, seek answers, and develop solutions.

Standard 2: Information Systems - Students will access, generate, process, and transfer information using appropriate technologies.

Standard 3: Mathematics - Students will become mathematically confident by applying mathematics in real-world settings

Standard 4: Science - Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.

Standard 5: Technology - Students will apply technological knowledge and skills to design, construct, use, and evaluate products and systems to satisfy human needs.

Standard 6: Interconnectedness: Common Themes - Students will understand the relationships and common themes that connect mathematics, science, and technology and apply the themes to these and other areas of learning.

Class Sequence:

1. Introduction to the course and optometric professions – 1 week
 - a. Safety regulations
 - b. Class expectations
 - c. Define vision care technology
 - d. The history of eyeglasses
 - e. The people of the trade
 - f. Educational requirements

2. Project # 1: Optician interview – 1 week
 - a. Students will find and interview an optician (10 - 15 minute interview)
 - i. Students will ask questions regarding how the optician got into the job, what they like, what they find difficult, as well as other pertinent questions
 - b. Students will write a short report about the interview and will share it with the class.

3. Ophthalmic Fabrication course review – 2 weeks
 - a. Structures and conditions of the Eye
 - b. Identification of specific lenses to correct vision abnormalities

- c. Lensometry review
 - d. Blocking
- 4. The Eye – 1 week
 - a. Structure and function of the eye
 - b. Conditions of the eye
 - c. How lenses correct vision
 - d. Types and causes of astigmatism
 - e. Treatment for astigmatism
 - f. Astigmatic lenses
 - g. Pediatric Vision disorders
- 5. Lensometry skills – 2 weeks
 - a. Continue to build lensometry skills
 - b. Spherical and sphero-cylindrical lens neutralization
 - c. Neutralization of bifocals and progressives
- 6. Lenses & Frames – 2 weeks
 - a. Reading the doctor's prescription
 - b. Mathematical transposition of prescriptions
 - c. Working with polycarbonate lenses
 - d. Sport and safety goggles
 - e. Using the automatic Groover
 - f. Repair logo wires
 - g. Drill mount lenses
- 7. Progressive lenses – 1.5 weeks
 - a. Understanding how progressive lenses work
 - b. Identifying progressive lens markings
 - c. Picking the correct progressive lens
 - d. Transitions and other specialty lenses
 - e. Taking monocular measurements
 - f. Progressive lenses for small diameter lenses
- 8. Field trip – tour Empire vision optical store in Henrietta, NY
 - a. Visit optical store with clients
 - b. Observe Eye exam
 - c. Follow path of job from Patient to dispensing
- 9. Clinic procedures - 1 week
 - a. Working with the patient
 - b. Patient medical history
 - c. Pupillary distance measurements – using the PD stick and the pupilometer
 - i. Measuring PD & NPD for progressives, bifocals, and trifocals
 - d. Using the Non-Contact Tonometer

- e. Using the keratomoter
 - f. Assisting the optometrist
 - g. Filling out the work ticket for glasses order
 - h. Working in the retail setting
 - i. Work place etiquette
10. Finishing lenses – 4 weeks
- a. Filling the work ticket order
 - b. Lens layout - Decentration and frame PD for patient PD
 - i. Optical vs. geometric centers of frames and lenses
 - ii. Working with and decentering bifocals and progressive lenses
 - c. Edger parts and safety
 - d. Patternless edging
 - e. Edger maintenance and general upkeep
 - f. Safety beveling techniques
 - g. Occupational lenses
11. Project # 2: Develop an Optical Shop – 2 weeks
- a. Students will develop their ideal optical shop. Including machine placement, frames and stock, and doctors' offices.
 - i. Can include surfacing and finishing capabilities or just finishing
 - b. Students will present their shops and their reasoning to the class
12. Mounting, Bench Alignment, and Verification of fabricated spectacles – 4 weeks
- a. Mounting zyl frames
 - i. Using the hot box and air warmer
 - b. Mounting in metal frames
 - c. Bench Alignment and Repair
 - d. Checking prescription in mounted lenses to patient Rx
 - i. Applying ANSI standards (PD, power, and axis)
13. Adjustments and Dispensing – 3 weeks
- a. Adjusting frame components for individual faces
 - i. Nose pads, temples, tilt, frame level
 - b. Dispensing to patient, techniques and focus
14. Lens coatings – 2 weeks
- a. Various lens coatings
 - b. Use the UV meter
 - c. Heat Treating and Chemical Tempering lenses
 - d. Lens tinting
 - e. Using the gradient handle
 - f. Neutralizing tinted lenses

15. Using the Digital Lens system – 1 week
 - a. Uses of the lens system
 - b. Understanding AR coating procedures
 - c. Using the flash fill mold system
 - d. Production of progressive lenses

16. Clinic time – 7 weeks
 - a. Students will work with Doctors and patients as they fit, repair, dispense, and manufacture glasses for students in East High School (additional schools will be added as experience and time permits).

17. Final Assessments: 2 weeks
 - a. Written assessment testing the knowledge gained over the course of the year
 - b. Performance assessment demonstrating acquisition of skills learned over the course of the year
 - c. Final projects
 - d. Mock interviews/Job readiness assessment
 - i. College entry requirements
 - e. Continued production of prescription eyewear.