

- A. This is a required course for the Ophthalmic Science (Opticianry) AAS degree and Ophthalmic Science (Opticianry) Certificate-Apprenticeship Option.
- B. There is no lab component.
- C. This course is not designed for transfer.

IV. Place of Course in College Curriculum

- A. Free Elective
- B. This is a required course for the Ophthalmic Science (Opticianry) AAS degree and Ophthalmic Science (Opticianry) Certificate-Apprenticeship Option.
- C. To see course transferability: a) for New Jersey schools, go to the NJ Transfer website, www.njtransfer.org; b) for all other colleges and universities, go to the individual websites.

V. Outline of Course Content

- A. Image jump, vertical imbalance, corrections for vertical imbalance; slab-off, dissimilar segments, prism in segments, two pairs of spectacles.
- B. Complete vertical imbalance corrections, lateral decentration of near segments, reading field size (height/width) through bifocal segments.
- C. Reading field size, convergence/accommodation theory, range of clear vision, reserve percentages.
- D. Amplitude of accommodation, accommodative convergence, fusional convergence, positive relative convergence, presbyopic prescription analysis, prism diopters of convergence, accommodation/convergence ratio.
- E. Aphakia, cataract lens fitting, ring scotoma, jack in the box effect, ultraviolet light exposure, PD change, vertex compensation, tilt, vertical optical center placement, back curve considerations.
- F. Cataract lens fitting continued: Loaner spectacles, frame criteria and selection, symmetry, adjustable pads, decentration, M.E.D., lens selection: Aspherics, P.A.L., bulb size, bifocal styles, Welsh 4-drop, fitting criteria and measurements.
- G. Monocular fitting parameters, prism to stimulate convergence, fusion demands, tints and coatings, patient delivery, patient education, Gerstman rule for dioptic demand, Lebenshon rule of insets.
- H. Approximation formula for insets, crossed cylinders at oblique axes.
- I. Over-refractions, graphical solution for crossed cylinders at oblique axes.
- J. Irlen lens, dyslexia, simple magnifiers, Rule of Four, iseikonic lenses.
- K. Iseikonic lenses continued; magnification formula (shape and power), magnification, minification, lens variables, lens variable formulas.
- L. Graphical solution to compound prism, graphical solution to resolving prism, complex, compound prism and the graphical solution.
- M. Lens designs and update: Transitions, Cosmolite, Hyperal, Thin and Lite, Polycarbonate, photochromics, etc.

- N. Lens update continued; product liability and the opticians' requirements to limit liability, professional negligence, strict liability and breach of implied warranty.
- O. Basic overview with terminology for refraction.

VI. A. Course Learning Outcomes:

At the completion of the course, students will be able to:

1. Identify and describe the most complex ophthalmic prescriptions.
2. Describe the need for documentation in order to minimize professional liability.
3. Demonstrate the skills required to analyze a presbyopic prescription in order to determine if there is a need for correction of vertical imbalance according to state tolerances.
4. Explain the subject of accommodation/convergence theory.
5. Explain the concept of the proper interpretation and fitting of aphakic and other high-powered prescriptions.
6. Calculate and apply segment insets in order to facilitate convergence.
7. Calculate crossed cylinders, compound prism and resolving prism both mathematically and graphically.
8. Explain scotopic sensitivity syndrome and its treatment with the Irlen Lens.
9. Analyze aniseikonic prescriptions and design iseikonic lenses for their treatment according to industry standards.
10. Explain the fitting parameters of current/new lens designs.
11. Explain the causes and preventions of an optician's liability.

B. Assessment Instruments

- A. Research paper.
- B. Written examinations
- C. Small group work

VII. Grade Determinants

- A. Examinations
- B. Research paper

Given the goals and outcomes described above, LIST the primary formats, modes, and methods for teaching and learning that may be used in this course:

- A. Lecture/discussion
- B. Small group work
- C. computer assisted instruction

VIII. Texts and Materials

- A. Brooks, Clifford and Borisch, Irving. Systems for Ophthalmic Dispensing, Fourth Ed. Stoneham, MA.: Butterworth, 2024

- B. supplemental handouts available via Canvas.
- C. film and video
- D. web sources
- E. power point presentations

(Please Note: The course outline is intended only as a guide to course content and resources. Do not purchase textbooks based on this outline. The RVCC Bookstore is the sole resource for the most up-to-date information about textbooks.)

IX. Resources

- A. RVCC Library
- B. Canvas Course

X. Check One: Honors Course N/A