

**RARITAN VALLEY COMMUNITY COLLEGE
ACADEMIC COURSE OUTLINE**

OPTH-121 ANATOMY & PHYSIOLOGY OF THE EYE

I. Basic course Information

A. Course Number and Title: OPTH-121 Anatomy & Physiology of the Eye.

B. Modified Course

C. Date of Proposal: Semester: Fall Year: 2022

D. Effective Term: Fall 2023

E. Sponsoring Department: Health Science Education

F. Semester Credit Hours: 3

G. Weekly Contact Hours: 3 Lecture: 3

Lab: 0

Out of class student work per week: 6

H. Prerequisites: None

I. Additional Fees: No

J. Name and E-Mail Address of Department Chair at time of approval: Chair

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II. Catalog Description

Study of the anatomy of the eye and its related structures; refractive errors, eye diseases and eye muscle imbalances. Class time includes a dissection of a cow's eye and the study of eye emergencies, first aid and ocular prosthetics.

III. Statement of Course Need:

A. This is a required course for the Ophthalmic Science-AAS degree, and the Ophthalmic science (Opticianry) Certificate- Apprenticeship Option.

B. 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-AAS degree, and the Ophthalmic Science (Opticianry) Certificate-Apprenticeship Option.

V. Outline of Course Content

A. Anatomy audit quiz, biology basics, gross anatomy.

B. Gross anatomy, definitions, location and physiology, aqueous humor flow and function, ocular indices of refraction.

C. Detailed anatomy & physiology of the iris, ciliary, choroid, optics nerve, fundus, vitreous humor, lens and accommodation.

D. Sheep-eye dissection laboratory, extrinsic musculature.

E. Muscle imbalances, phorias, tropias, binocular fusion, stereopsis, amblyopia, eccentric fixation, diagnosis and treatment.

F. Cranial nerves, Sjogren's Syndrome, ocular blood supply, nasal lacrimal system.

G. Computer lab, palpebrae, musculature, glands, precorneal tear film, cilia, tarsus, conjunctiva, blink reflexes.

H. Conjunctivitis, vernal, bacterial, viral, fungal, trachoma, ophthalmia neonatorum, pinguecula, pterygium, bony orbit, fractures, sports injuries.

I. Visual pathway, optic nerve, optic chiasm optic tract, lateral geniculate body, optic radiations, occipital lobe, hemianopias, visual fields.

J. Refractive errors inclusive, crystalline lens, parts, functions and characteristics, nutrition, cataracts, definition, visual changes, Rx changes, causes, classifications, surgery techniques.

K. Glaucoma, causes, classifications, treatment, testing, symptoms.

L. Retina, characteristics and functions, chemical composition, disorders and common diseases, visual manifestations, treatment.

M. Uveal tract, characteristics and functions, iritis, choroiditis, treatment, cornea, layers, characteristics and functions, nerve supply, blood interaction, nutrition.

N. Corneal disorders, visual manifestations, treatment, ocular injuries, sports related injuries and protection, treatments, ocular prosthetics, surgery techniques, implants, fitting procedure, patient education.

VI. A. Course Learning Outcomes

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

1. Analyze physiological structure and function of the eye in order to understand refractive errors, diseases processes, injuries, as well as normal eye function. (GE – 3)
2. Compare and contrast normal eye functions with deviations related to the structure and function of the eye. (GE – 3)
3. Demonstrate an understanding of basic biological principles and terminology.
4. Explain the gross structure and function of the human eye.
5. Explain the detailed structure and function of the human eye.
6. Describe the extraocular musculature of the human eye and it's physiology.
7. Explain the irregularities associated with the musculature of the human eye and its impact on vision.
8. Describe the ocular ad nexus and its contribution to human sight.
9. Explain the treatment and surgical procedures for common ocular diseases such as cataracts and glaucoma.
10. Describe the human visual pathway and the interpretation of visual impulses.
11. Describe common ocular injuries and appropriate first aid measures.
12. Explain the usage, fitting and function of ocular prosthetics.

B. Assessment Instruments

1. laboratory products

2. written examinations

VII. Grade Determinants

- A. examinations

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

- A. lecture/discussion
- B. small group work
- C. computer assisted instruction
- D. laboratory

VIII. Texts and Materials

- A. Chalkley, Thomas, M.D; Your Eyes, 4th ED. Chicago: Charles C. Thomas, 2000
- B. Stein, H. & Stein, R. (2006). The Ophthalmic Assistant. 8th Ed. St.Louis: Mosby.
- C. supplemental handouts
- D. powerpoint presentations
- E. CD-ROMS

(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.)

XI. Resources

- A. Computer
- B. Projection equipment
- C. Facilities for laboratory dissection

X.Honors Option: N/A

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