

Vision Care Technology

Professor Robert J. Russo, Chair
 Pearl 312
 718.260.5298
 email: rrusso@citytech.cuny.edu

PROGRAM:

Ophthalmic Dispensing/AAS

FACULTY:

Professor: August
Assoc Profs: Russo, Siegel
Instructor: Woods
CLT: Strickler

Associate in Applied Science in OPHTHALMIC DISPENSING

The Vision Care Technology department prepares a student for a career in vision care. Successful completion of the degree qualifies graduates for the New York State licensing examination for ophthalmic dispensers and makes them eligible to take the New York State examination for certification as a contact lens fitter.

The ophthalmic dispenser/optician combines knowledge of scientific and clinical procedures with skills and the ability to work well with patients in the fitting and adapting of lenses and devices that aid in providing comfortable and efficient vision and in correcting ocular deficiencies.

The ophthalmic dispenser measures, adapts and fits eyeglasses to the face and, when further certified as a contact lens fitter, also fits and adapts contact lenses to the eyes for the correction of visual and ocular anomalies. The curriculum in ophthalmic dispensing represents a carefully planned balance of theory and clinical practice in all aspects of the profession.

A graduate of the program may become the proprietor of an ophthalmic dispensing firm or may secure a position as an ophthalmic dispenser, contact lens fitter, an ophthalmic assistant, an ophthalmic sales representative or an optical research technician. Among the employers of the graduates of this program are: independent opticians, ophthalmologists, optometrists, HMO's, Eye and Ear Hospitals, wholesale/retail optical establishments and national and international corporations.

Approximate Additional Costs

Malpractice insurance fee	\$15
New York State licensure fee	\$600
National licensure fee (ABO)	\$125
National licensure fee (NCLE)	\$125
Optical tool kit	\$165
All required textbooks (purchased over four semesters)	\$500
Lab coat, department insignia, safety glasses	\$60

The College will grant an associate in applied science degree (AAS) with a major in ophthalmic dispensing upon satisfactory completion of the required 62 credits listed. All candidates for graduation must be certified as computer literate. In addition, graduates of the program are eligible to pursue a baccalaureate degree in Health Services Administration.

Criteria for Admission into the Vision Care Technology Curriculum

Admission to the College and to the Vision Care Technology program requires a high school diploma or the equivalent. Students who have attended other colleges are welcome to apply as transfer students.

Students who wish to transfer into Vision Care Technology from other curricula within the College or CUNY will be accepted into the program after they have satisfactorily met prerequisite requirements.

After earning CUNY certification, students may be admitted to the Vision Care Technology department as space permits. Transfer students will be accommodated if they are CUNY certified in mathematics and have a cumulative average of 2.0 or higher, provided there are places remaining in the first semester of the program. If the number of students meeting the stated criteria exceeds the available places in the program, seats will be allocated on the basis of the highest cumulative academic average.

Progression in and Graduation from Vision Care Technology

A minimum grade of "C" in each course designated with the prefix VCT/OD will be required for progression in and graduation from the Vision Care Technology program. Special conditions of equipment and faculty availability govern the repeating of vision care technology courses; course repetition will only be permitted after all students meeting the entrance requirements have been allotted seats.

No vision care technology course may be repeated more than once. In addition:

- No more than two vision care technology courses may be repeated during the entire course of study.
- A student may not fail more than one course in any one semester.
- If a student fails to meet any of these provisions, he/she will be required to withdraw from the Vision Care Technology department.

Additional information is available in the Vision Care Technology Student Handbook.

REQUIRED COURSES IN THE MAJOR		Credits
VCT 1101/OD 101	Ophthalmic Materials and Laboratory I	3
VCT 1105/OD 105	Principles of Optics	3
VCT 1201/OD 201	Ophthalmic Materials and Laboratory II	3
VCT 1212/OD 212	Anatomy and Physiology of the Eye	4
VCT 1237/OD 237	Contact Lenses I	3
VCT 2311/OD 311	Ophthalmic Materials and Laboratory III	2
VCT 2313/OD 313	Ophthalmic Dispensing I	5
VCT 2316/OD 316	Ophthalmic Dispensing Clinic I	1
VCT 2327/OD 327	Contact Lenses II	5
VCT 2413/OD 413	Ophthalmic Dispensing II	5
VCT 2415/OD 415	Introduction to the Principles of Refraction	3
VCT 2416/OD 416	Ophthalmic Dispensing Clinic II	1
VCT 2427/OD 427	Contact Lenses III	4
Subtotal		42
OTHER REQUIRED COURSES		
BIO 1101/BY 101	Biology I	4
ENG 1101/EG 101	English Composition I	3
MATH 1 ¹	Mathematics	4
COMM ²	Communications	3
LAP ²	Literature/Aesthetics/Philosophy	3
BS/SS ²	Behavioral Science/Social Science	3
Subtotal		20
TOTAL CREDITS REQUIRED FOR THE DEGREE		62
¹ Students without the requisite math background for MAT 1275/IMA 275 will be required to take MAT 1175/IMA 175 in preparation. This will raise the number of credits required for the degree by four (4).		
² See page 34 for detailed explanation of core required courses and categories.		

COURSES:**VCT 1101/OD 101
Ophthalmic Materials and Laboratory I***

2 cl hrs, 3 lab hrs, 3 cr

An introduction to the didactic and laboratory concepts involved in the identification, location and fabrication of prescription ophthalmic eyewear. Emphasis is placed on single vision physical and optical lens characteristics, physical frame and design characteristics including: lens materials, index of refraction, spherical, cylindrical power and axis location. In addition, lens power transposition, lens cross, ophthalmic standards, diopter power formula, focal length, total lens power, relationship of radius of curvature and index of refraction and lens makers equation will be covered.

Prerequisite: CUNY certification in reading and mathematics;
corequisite: MAT 1180/IMA 180, or equivalent

* Credit by examination available for this course with department approval required

**VCT 1105/OD 105
Principles of Optics I***

3 cl hrs, 3 cr

A study of the basic concepts and principles of light, physical characteristics and geometric properties of optics, rectilinear propagation of light and shadows, reflection of light at planes and spherical surfaces, effect of prism on the transmission and deviation of light and thin lens design theory and application will be covered.

Prerequisite: CUNY certification in reading, writing and mathematics;
corequisite: MAT 1180/IMA 180, or equivalent

* Credit by examination available for this course with department approval required

**VCT 1201/OD 201
Ophthalmic Materials and Laboratory II**

2 cl hrs, 3 lab hrs, 3 cr

A continuation of the didactic and laboratory concepts involved in the identification, location and fabrication of prescription ophthalmic eyewear. Emphasis is placed on the calculated effects of prism using a single vision lens power and achieving prism through centration of optical centers. Identifying various ophthalmic lens-manufacturing techniques of factory

finish, surfacing and casting methods to achieve lens powers, sphere and toric base curves will be covered. Multifocal lens and progressive lens characteristics are introduced including powers, design, material, lens profiles, lens blank size, frame size and patient PD. In addition, continued application of ophthalmic standards of ANSI Z80.1, Z80.5 and ANSI Z 87 is emphasized. The laboratory component focuses on the practical aspect of identifying, measuring and fabrication of ophthalmic projects that require wanted prism and fabrication of multifocal lens designs that incorporate patient distant and near PD's.

Prerequisite: VCT 1101/OD 101

**VCT 1212/OD 212
Anatomy and Physiology of the Eye**

4 cl hrs, 4 cr

A study of the structure and function of the eye, bones of the orbit, cranial nerves in the visual system, lid physiology, tear film chemistry, corneal anatomy and function, corneal metabolism, uveal layer, lens accommodation mechanism, retina, photochemistry of vision, visual pathway and extraocular muscles and motility will be covered. In addition, ocular pathologies, anomalies, deficiencies, etiology and treatment, eye examination and ancillary tests for visual screening, eye symptoms and emergencies and ocular pharmacology will also be discussed.

Prerequisite: CUNY certification in reading and writing

**VCT 1237/OD 237
Contact Lenses I**

2 cl hrs, 3 lab hrs, 3 cr

A study of the history and development of contact lenses, physical characteristics of various types of contact lenses, comparison of contact lens materials, contact lens nomenclature, ANSI specifications, corneal topography and astigmatism will be discussed. The laboratory develops skills in the radioscope, profile analyzer, diameter and thickness gauges, measuring magnifier, lensometer, lens modifications, slit lamp and keratometry.

Prerequisite: VCT 1101/OD 101

**VCT 2311/OD 311
Ophthalmic Materials and
Laboratory III***1 cl hr, 3 lab hrs, 2 cr*

Advanced didactic and laboratory concepts involved in the selection, identification, location and fabrication of prescription eyewear. Lens aberrations and characteristics based on index of refraction and lens power is covered. Emphasis is placed on special procedures used in the material and fabrication of rimless, semi-rimless, nylon suspension and drill mounted lenses. In addition, ANSI Z 87.1 safety frames, ASTM F803 sports frames and ASTM F8003 are covered. The laboratory component focuses on the advanced practical aspect of fabrication of lenses and frames, fabrication of rimless, semi-rimless, nylon suspension and drilled mounted lenses. Repairs and customization of frames are also covered.

*Prerequisite: VCT 1201/OD 201***VCT 2313/OD 313
Ophthalmic Dispensing I***4 cl hrs, 3 lab hrs, 5 cr*

A study of the origin, ethics, practices and responsibilities of the Ophthalmic Dispenser will be discussed. The development of corrected curves and aspheric design will be detailed. Factors that affect the ophthalmic prescription, such as vertex distance, lens tilting and magnification will be expanded. The design and application of multifocals will be presented. Anatomical and physiological landmarks of the eye will be discussed and the fitting triangle concept will be developed and detailed. The development of the emmetropic eye will be presented and a thorough presentation of ametropias. Measurement of visual acuity will be detailed. An in-depth presentation of both single vision and presbyopic analysis will be covered. The laboratory sessions provide for an application of the theoretical knowledge presented in the lecture. Malpractice insurance is required.

*Prerequisites: VCT 1105/OD 105, VCT 1201/OD 201, VCT 1212/OD 212; corequisite: VCT 2311/OD 311***VCT 2316/OD 316
Ophthalmic Dispensing
Clinic I***3 cl hrs, 1 cr*

An internship course designed to develop the student's clinical ophthalmic dispensing skills. The structure of a basic functioning clinic is detailed. The basic groundwork for patient management and ethical business practice is demonstrated. The students exercise their technical skills with clinical patients under the direct supervision of the clinical instructor. Malpractice insurance is required.

*Prerequisites: VCT 1201/OD 201, VCT 1105/OD 105, VCT 1212/OD 212; corequisite: VCT 2313/OD 313, VCT 2311/OD 311***VCT 2327/OD 327
Contact Lenses II***4 cl hrs, 3 lab hrs, 5 cr*

The study of anatomy, physiology and pathology of the anterior segment of the cornea and related structures, theory of flexible and non-flexible lens fitting, philosophies and optics of contact lenses will be covered. In addition, the theory and fitting of soft lenses and contact lens solutions will be discussed. The laboratory develops skills in keratometry, biomicroscopy illuminations, and the fitting of soft lenses. Malpractice insurance is required.

*Prerequisites: VCT 1237/OD 237, VCT 1212/OD 212, VCT 1201/OD 201, BIO 1101/BY 101***VCT 2413/OD 413
Ophthalmic Dispensing II***4 cl hrs, 3 lab hrs, 5 cr*

A presentation of the licensing requirements and national certifications will be given. Lifestyle dispensing considerations will be detailed with the goal of meeting a patient's eyewear needs. Consideration will be given to analyzing complex prescriptions. The information presented will enable the practitioner to determine proper lens design recommendations for a patient's occupational and avocational needs. Lens extras such as absorptive tints and coatings will be discussed. Cataract surgery and visual correction options will be presented. The New York State Ophthalmic Dispensing Guide to Practice will be detailed and

professional liability will be stressed. A detailed section on preparation for state licensing and national certification will be presented. The laboratory sessions provide for an application of the theoretical knowledge presented in the lecture. The sessions present the student with the skills necessary at the dispensing table with the patient. Malpractice insurance is required.
Prerequisite: VCT 2313/OD 313

**VCT 2415/OD 415
Introduction to
Principles of Refraction***3 cl hrs, 3 cr*

An introduction to the study of clinical refraction of the eye. Topics include: etiology, types, causes, symptoms, testing and treatment of eye abnormalities; accommodation and presbyopia; versions and vergences; anisometropia and aniseikonia; external examination, preliminary and subjective tests; retinoscopy, low vision aids; twenty-one point refractive examination.

*Prerequisite: VCT 2313/OD 313***VCT 2416/OD 416
Ophthalmic Dispensing
Clinic II***3 clinical hrs, 1 cr*

An internship course designed to increase the basic clinical skills that have been acquired in Ophthalmic Dispensing Clinic I (VCT 2316/OD 316). Under the supervision of a clinical instructor, the interns operate a full service ophthalmic dispensing clinic. Malpractice insurance is required.

*Prerequisites: VCT 2313/OD 313, VCT 2316/OD 316; corequisite: VCT 2413/OD 413***VCT 2427/OD 427
Contact Lenses III***3 cl hrs, 3 lab hrs, 4 cr*

A comparison of spectacles vs. contacts, calculation of residual astigmatism, office procedure and office management and contact lens symptomatology are discussed. Additional topics include: the advanced fitting concepts of RGP lenses, astigmatic contact lenses, scleral lenses, keratoconus, presbyopia, extended wear and disposables, aphakia, therapeutic lenses and pediatric contact lens fitting are discussed. The laboratory continues development in the fitting

of soft lenses and patient instruction and follow-up with patients. In addition, rigid lens fitting, insertion and removal techniques, patient instruction, fluorescein pattern evaluation will be covered. Malpractice insurance is required.
Prerequisite: VCT 2327/OD 327