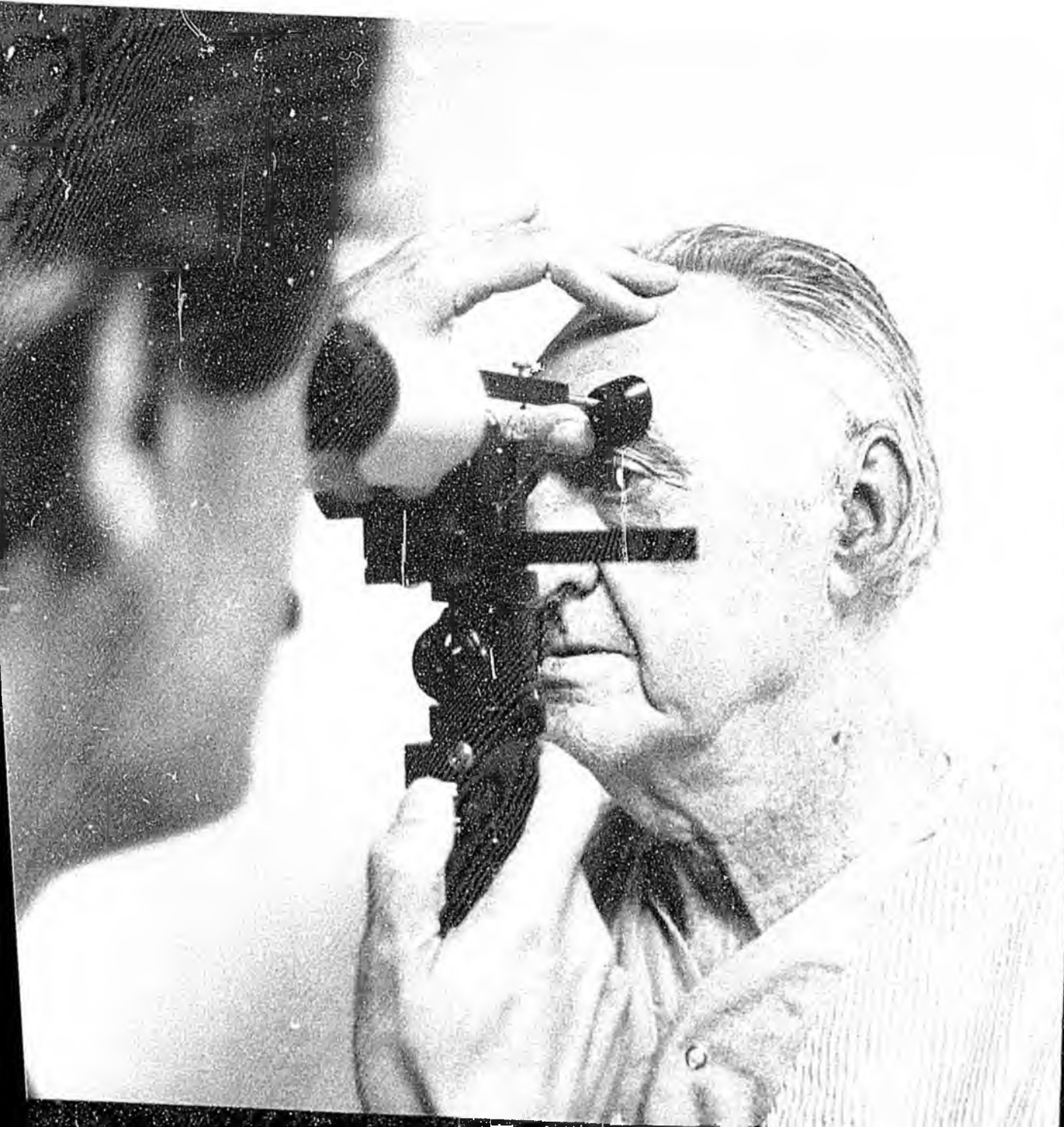


ALASKA LEGISLATURE COMMITTEE FILES 1991-1992 8672

7408 SENATE HEALTH EDUCATION & SOCIAL SERVICES

	Lecture Hours	Lab/Clinic Hours	Quarter Hours
Second Year—Winter Quarter			
BS221 Anterior Segment Ocular Disease	45		4.5
BS224 Psychophysics & Physiology of Monocular Vision	35	20	4.5
BS225 Ophthalmic Optics I	25	20	3.5
CS221 Professional Practice III		30	.75
CS222 Clinical Diagnostic Procedures III	15	40	3.5
CS225 Professional Communication	15	14	2.25
Totals	135	124	19.00
Second Year—Spring Quarter			
BS231 Posterior Segment Ocular Disease	25		2.5
BS234 Normal & Abnormal Binocular Function I	25	20	3.5
BS235 Ophthalmic Optics II	30	20	4.0
CS231 Professional Practice IV		40	1.25
CS232 Clinical Diagnostic Procedures IV		20	1.0
CS233 Management of Refractive and Accommodative Disorders	25		2.5
CS234 Contact Lenses I	25	20	3.5
Totals	130	120	18.25
Year Totals	425	334	57.50
Third Year—Summer Quarter			
BS311 Glaucoma/Ocular Emergencies	25		2.5
BS312 Clinical Medicine I	25	14	3.25
BS314 Normal & Abnormal Binocular Function II	25	20	3.5
CS311 Professional Practice V		135	4.75
CS314 Contact Lenses II	20	20	3.0
Totals	95	189	17.00
Third Year—Fall Quarter			
BS321 Medical Pathology	25		2.5
BS322 Clinical Medicine II	25	14	3.25
BS324 Normal & Abnormal Binocular Function III	25	20	3.5
CS321 Professional Practice VI		135	4.75
CS323 Geriatrics—Special Populations		20	3.0
Totals	95	189	15.50

	Lecture Hours	Lab/Clinic Hours	Quarter Hours
Third Year—Winter Quarter			
BS331 Neuro-Eye Disease	25	10	3.0
CS331 Professional Practice VII		135	4.75
CS332 Pediatrics	20	20	3.0
CS333 Vision Rehabilitation	20	20	3.0
CS334 Advanced Contact Lenses	15	10	2.0
Totals	75	165	15.75
Third Year—Spring Quarter			
CS341 Professional Practice VIII		135	4.75
CS342 Health Care Policy/Jurisprudence	25		2.5
CS343 Environmental Optometry	25		2.5
CS344 Practice Management & Development	25		2.5
CS345 Colloquium	15		1.5
CS346 External Education Professional Practice		90	3.0
Totals	90	225	16.75
Year Totals	355	778	65.00
Fourth Year—TEI Quarter			
CS411 Advanced Professional Practice—TEI Electives	7	390*	13.25
Totals	7	390	20.25
Fourth Year—Externship Quarter			
CS421 Externship I		375*	12.5
Totals		375	12.5
Fourth Year—Externship Quarter			
CS431 Externship II		375*	12.5
Totals		375	12.5
Fourth Year—Externship Quarter (Additional)			
CS441 Externship III (Additional)			
Year Totals*	7	1140*	45.25
*Minimum Number			
Totals for Curriculum	Lecture Hours		1222
	Laboratory Hours		594
	Clinic Hours		1860
	Quarter Hours		221.00

Course Descriptions

Prerequisite Courses, Elective Registration

In specific instances, before a student may be enrolled in a particular course, prerequisite courses are required. These prerequisites may be satisfied by (1) successful completion of the courses; (2) approval of the course instructor; (3) transfer of credit from other institutions; (4) an exemption examination.

Individual registration is required for enrollment in any elective course. Credit will only be given when the student has been properly registered for the elective course through the Registrar in the Office of Student Affairs.

Course Changes

Courses listed in this catalog are subject to change through normal academic channels.

Department of Basic Sciences

Assistant Dean for Basic Sciences

Pierrette Dayhaw-Barker

Professors

John B. Siegfried, Joseph Toland, Gilda Crozier, Emeritus, Jacob Nevyas, Emeritus

Associate Professors

Sitaramayya Ari, Pierrette Dayhaw-Barker, Andrew Buzzelli, Alvin Byer, James P. Carroll, Louis Catania, Edward Deglin, Lawrence Gray, John W. Lanev, Thomas L. Lewis, Lorraine Lombardi, Susan Oleszewski, Christopher Rinehart, Mitchell Scheiman, Stephen Whittaker, Charles Wormington

Assistant Professors

Connie Chronister, Robert Cole, Bruce Muchnick, Paul Robinson, Eileen Schnell-Klitsch

Instructors

Chaya Herzberg, JeanMarie Pagani, Joan Wing

Teaching Associate

Jon Marberger

The objective of the Department of Basic Sciences is to provide the student with the scientific concepts underlying optical, visual, and biological function and organization of the eye and systemic biological organization and interrelationships of ocular functions with those of the entire body.

Students are prepared to understand the optics of lenses and the visual system, in addition to the anatomy and physiology of the visual system and the nervous system. The basic principles in these disciplines are used as a foundation for the understanding of accommodation and

convergence, eye movements, the eye as a monocular sensory system and normal and abnormal binocular functions of the visual system.

Several courses within the department discuss the clinical application of optical principles to the fitting of spectacles and contact lenses and the diagnosis and treatment of binocular disorders, strabismus and amblyopia.

Ocular structures and functions in normal and pathological states are explored in detail with the goal of creating a basis for the understanding of altered conditions.

A strong background in biomedical sciences enables the future optometrist, as a provider of primary health care, to correlate systemic and ocular abnormalities. The optometrist is thereby better prepared to assess, diagnose, treat, and/or refer ocular problems with possible systemic cause and to diagnose and refer patients with systemic problems.

BS111 Human Anatomy 3.5 Quarter Hours

Provides an overview of major anatomical relations of the thorax and abdomen. Anatomy of the head and neck region is presented in great detail with emphasis on the eye and adnexa. Topics are accompanied by observation of prosected cadavers and detailed analysis of the skull

BS112 Biochemistry 2.5 Quarter Hours

Discusses structure and function of basic biochemical molecules (carbohydrates, lipids, proteins, nucleic acids). Much of the course deals with human metabolism with in-depth study of the major metabolic pathways at the cellular level.

BS113 Microanatomy 3.5 Quarter Hours

Presents the student with knowledge of the structure of tissues and of the organ systems they comprise. It thus serves as a foundation for subsequent detailed study of the eye and of the relationships between the eye and the body as a whole.

BS114 Human Physiology 4.0 Quarter Hours

Studies the functions of cells, tissue and organ systems and the correlation between ocular and systemic characteristics. Special emphasis is placed on body fluids and the integration between cardiovascular, pulmonary and renal functions.

BS115 Theoretical Optics 1.5 0 Quarter Hours

Introduces the student to basic terminology in optics, followed by ray-tracing through thin optical systems, e.g., reflection and refraction from plane and spherical surfaces and refraction by thin lenses, optics of refractive errors and correction of ametropias, optics of cylindrical lenses and toric surfaces and Gaussian optics of thick systems.

BS121 General Pathology 2.5 Quarter Hours

Covers basic principles and dynamics of the pathological processes of human disease. Emphasis is placed on the molecular, biochemical and structural alterations characteristic of diseased cells, tissues and organs.

BS122 Endocrinology 1.5 Quarter Hours

Deals with basic endocrinological principles with an overview of all endocrine tissues and organs. Special emphasis is placed on the relationship of certain hormones to ocular function and the effects of specific metabolic diseases on systemic and ocular tissues.

BS123 Neuroscience 4.0 Quarter Hours (Prerequisites: BS111 Human Anatomy, BS112 Human Physiology).

Provides a thorough structural basis for understanding the mechanisms of the nervous system and facilitates the understanding of its clinical and functional significance. Covers the histogenesis of nervous tissue and the structural and functional characteristics of neurons, neuroglia, nerve fibers, receptors and effectors.

BS124 Optics of the Eye 3.5 Quarter Hours (Prerequisite: BS115 Theoretical Optics I).

Discusses optical and ultrasonic techniques for measuring the various optical parameters of the eye. In addition, the quality of optical image in the eye is examined, including optical aberrations, blur circle theory and visual acuity.

BS125 Theoretical Optics II 5.5 Quarter Hours

Discusses the principles of magnification applied to spectacle lenses; provides introduction to optics of low vision aids, optics of clinical instruments, telescopes and microscopes, theory of stops and field of view, radiometry and photometry, aberrations and physical optics.

BS131 Ocular Biology I 4.5 Quarter Hours (Prerequisites: BS111 Human Anatomy, BS112 Biochemistry, BS114 Human Physiology).

Presents a detailed gross and microanatomical study of the eye and its adnexa, with emphasis on specific relationships of the ocular structures to function. Includes a comprehensive study of the developmental anatomy of the eye and its adnexa. Metabolic activities and physiological functions of all ocular tissues are discussed in detail with special emphasis on clinical aspects.

BS132 Pharmacology and Therapeutics I 3.0 Quarter Hours (Prerequisites: BS112 Biochemistry, BS114 Human Physiology).

Covers in detail the basic principles and pharmacokinetics of the following categories of drugs used for diagnostic

and therapeutic purposes: autonomic drugs, general anesthetics, drugs affecting the central nervous system, diuretics and antihypertensives, cardiovascular drugs and over the counter drugs. Students are expected to acquire knowledge in the classifications, uses, side-effects and toxicity of the drugs discussed.

BS133 Ocular Microbiology and Immunology 2.5 Quarter Hours (Prerequisites: BS112 Biochemistry, BS121 General Pathology).

Presents a detailed review of those pathogens of specific importance to the etiology and treatment of ocular disease. Basic immune mechanisms, pathological ocular immune reactions and current methods of treatment are also discussed.

BS211 Ocular Biology II 5.5 Quarter Hours (Prerequisites: BS131 Ocular Biology I, BS132 Pharmacology and Therapeutics I).

Continuation of BS131 Ocular Biology I using the same format.

BS212 Pharmacology and Therapeutics II 4.0 Quarter Hours (Prerequisite: BS132 Pharmacology and Therapeutics I).

Provides the future practitioner with a thorough knowledge of pharmaceutical agents and their effects on the eye and the visual system. Local anesthetics, antihistamines, anti-inflammatory agents, cycloplegics, miotics, mydriatics and other agents are covered in detail. Emphasis is placed on the ocular side effects of systemic drugs. Upon completion of this course, the student has a thorough understanding of therapeutic agents used in systemic and ocular disease management.

BS214 Ocular Motility 4.0 Quarter Hours (Prerequisite: BS123 Neuroscience).

Covers the mechanical and neurological aspects of ocular motility, including an analysis, description and classification of monocular and binocular eye positions and movements.

BS221 Anterior Segment Ocular Disease 4.5 Quarter Hours (Prerequisites: BS131 and 211 Ocular Biology I & II, BS121 General Pathology and BS133 Ocular Microbiology and Immunology).

Presents a detailed description, e.g., the etiology, pathogenesis, differential diagnosis, treatment and management of diseases of the anterior part of the eye including the lids and adnexa, conjunctiva, cornea, uvea, sclera and lens.

BS224 Psychophysics and Physiology of Monocular Vision 4.5 Quarter Hours (Prerequisites: BS125 Theoretical Optics II, BS124 Optics of the Eye).

Discusses the visual process in detail, from photochemical, neurological and psychophysical points of view. Functional neuroanatomy of the visual system deals with the behavior of single sensory cells from retina to visual cortex. Covers basic aspects of human visual electrophysiology. The light sense, form sense and color sense are dealt with in psychophysical terms, with emphasis on normal and abnormal color vision and their measurement and specification.

BS225 Ophthalmic Optics I 3.5 Quarter Hours
(Prerequisite: BS125 Theoretical Optics II).

Deals with applied aspects of optics as used in optometric practice. Lenses are considered as physical entities with specific form and characteristics, rather than pure mathematical concepts. Students derive a thorough knowledge of surface value, form and power of lenses, neutralization, transposition and prismatic function. In the laboratory, the student becomes proficient in prescription determination as it is applied in practice.

BS231 Posterior Segment Ocular Disease 2.5 Quarter Hours
(Prerequisite: BS221 Anterior Segment Ocular Disease).

Similar format as in Anterior Segment Ocular Disease applied to the vitreous, choroid and retina.

BS234 Normal and Abnormal Binocular Function I
3.5 Quarter Hours (Prerequisite: CS221 Professional Practice III, BS214 Ocular Motility).

Covers the physiological optics of normal binocular function. Visual anomalies resulting from disturbances in binocular vision are discussed from theoretical and clinical approaches. The diagnosis of disabilities in oculomotility, convergence and accommodation is analyzed. Students will formulate a prognosis and treatment protocol using vision therapy and ophthalmic intervention.

BS235 Ophthalmic Optics II 4.0 Quarter Hours
(Prerequisite: BS225 Ophthalmic Optics I).

Covers lens thickness considerations, safety and legal requirements, occupational and progressive addition lenses, transmission and design, prescribing for aphakia and other high refractive errors.

BS311 Glaucoma/Ocular Emergencies 2.5 Quarter Hours
(Prerequisite: BS231 Posterior Segment Ocular Disease).

Similar format as in Anterior Segment Ocular Disease applied to various forms of glaucoma and ocular emergencies.

BS312 Clinical Medicine I 3.25 Credit Hours
(Prerequisites: BS121 General Pathology, BS133 Ocular Microbiology and Immunology, and BS212 Pharmacology and Therapeutics II).

Presents an overview of current medical diagnosis and management of systemic diseases having ocular involvement with special emphasis on interprofessional relationships and responsibilities. Topics in this course include history taking, clinical laboratory tests, emergency medicine, diseases of immunological origin, collagen disorders and cardiovascular diseases.

BS314 Normal and Abnormal Binocular Function II
3.5 Quarter Hours (Prerequisites: BS234 Normal and Abnormal Binocular Function I, CS231 Professional Practice IV).

Discusses the development and neurophysiology of normal binocular vision. Emphasis is placed on those principles which form the basis for the clinical assessment and treatment of strabismus and amblyopia. These principles are integrated throughout the course with presentation of the clinical diagnosis and management of strabismus and different forms of amblyopia.

BS321 Medical Pathology 2.5 Quarter Hours
(Prerequisites: BS121 General Pathology, BS312 Clinical Medicine I).

Deals with disease patterns of select systems of the human body with emphasis on clinical pathologic correlation. Disease processes with ocular manifestation will be specifically addressed. Selected topics include: connective tissue and occlusive diseases, diabetes mellitus, anemia, hypertension, diseases of skin, endocrinopathies and neuropathology.

BS322 Clinical Medicine II 3.25 Quarter Hours
(Prerequisite: BS312 Clinical Medicine I).

Continuation of Clinical Medicine I for diseases of high prevalence such as cardiovascular diseases, cancer, endocrine and neurological disorders.

BS324 Normal and Abnormal Binocular Function III
3.5 Quarter Hours (Prerequisite: BS314 Normal and Abnormal Binocular Function II).

Continuation of BS314.

BS331 Neuro-Eye Disease 3.0 Quarter Hours (Prerequisites: BS123 Neuroscience, BS231 Posterior Segment Ocular Disease).

Presents a clinical approach to patients with disorders of the afferent and efferent visual system; emphasizes diagnostic methods and management of patients with neuro-eye disorders.

Department of Clinical Sciences

Assistant Dean for Clinical Sciences

Susan Oleszewski

Professors

Jerome A. Hirsch, Joseph Toland

Associate Professors

Sarah Appel, Sheree J. Aston, Felix M. Barker, G. Richard Bennett, Robert J. Berman, Bernard Blaustein, Richard L. Brilliant, Andrew Buzzelli, Robert W. Cummings, Edward A. Deglin, William M. Dell, Anthony DiStefano, Michael E. Gallaway, Lawrence G. Gray, Irving Gurwood, Joanne Klopfer, Jeffrey S. Nyman, Neal N. Nyman, Susan Oleszewski, Christopher Rinehart, Joseph P. Ruskiewicz, Mitchell Scheiman, Joel A. Silbert, Maryin B. Smith, Michael R. Spinell, Charles Wormington

Assistant Professors

Penni Blaskey, Elise Ciner, Connie Chronister, Mitchell J. Fink, Harry Kaplan, Susan Marren, Bruce G. Muchnick, Holly Myers, Paul Robinson, George White

Instructors

Chaya Herzberg, Bernard P. Lepri, JeanMarie Pagani, Maria Parisi, John Ray, Helene M. Kaiser, Andrew S. Gurwood, Sarah Foster, Jonathan Stevens, Joan Wing

Teaching Associate

Francine Pearlman Storch

Director, Externship and Clerkship Programs

Bernard P. Lepri

Director of Community Eye Care, External Clinics and Residency Programs

Satya B. Verma

Staff Optometrists

Susan Marren, Gale Orlansky, Jeffrey Varner

Externship Counselors

Mitchell J. Fink, Irving Gurwood, Jerome Hirsch, Paul H. Robinson

Program Supervisor

Denise Guido

The Department of Clinical Sciences is responsible for providing students with the requisite knowledge, skills, attitudes, and values for clinical optometric practice.

Initial coursework concentrates on the theory and methods of clinical procedures for primary care optometry. Subsequent coursework provides students with the theory

and clinical techniques in contact lenses, binocular dysfunction, pediatrics, and rehabilitation of the visually impaired patient. Integration of didactic and laboratory courses with patient care occurs at each stage of the sequence.

Perspectives on the critical issues in health care are also provided. Specific skills are taught regarding the economic, political, environmental, ethical, legal, sociologic, and epidemiologic principles, including practice management, that are necessary for the clinical and administrative aspects of optometry.

Integration and application of principles, concepts, and skills in basic and clinical sciences occurs in the care of an extensive diversity of patients and settings. Clinical training concentrates on providing those total competencies which are the hallmark of the primary care optometrist under the guidance of the professional staff of The Eye Institute and external preceptors. This training encompasses the full-range of optometric practice, including the diagnosis, treatment, and management of patients with visual and medical disorders of the eye and entire body.

CS131 Professional Practice I 1.25 Quarter Hour

Observation of the delivery of care in The Eye Institute.

CS132 Clinical Diagnostic Procedures I 5.0 Quarter Hours (Prerequisites: BS125 Theoretical Optics II, BS124 Optics of the Eye).

Discusses the theory and techniques of primary care examination procedures including history, visual acuity, objective and subjective methods of refraction, and basic ocular motility.

CS135 Introduction to Community Health 2.5 Quarter Hours

Introduces the student to today's health system, optometry's role within it, the general principles of community health and his or her future role as a primary health care practitioner and optometrist.

CS211 Professional Practice II 1.25 Quarter Hour (Prerequisites: BS131 Ocular Biology I, BS132 Pharmacology & Therapeutics I, CS132 Clinical Diagnostic Procedures I, CS131 Professional Practice I).

Continues the preparation of the student for primary optometric care by encouraging the development of basic clinical testing skills and patient care thought processes. Students participate by providing vision screenings, pre-examinations, and selected tests and observation, as well as by their involvement in case management discussion and planning with professional staff at The Eye Institute.

CS212 Clinical Diagnostic Procedures II 4.0 Quarter Hours (Prerequisites: BS131 Ocular Biology I, BS132

Pharmacology and Therapeutics I, CS132 Clinical Diagnostic Procedures I, CS131 Professional Practice I).

Continues the theory and methods of primary care examination procedures including binocular vision evaluation, external evaluation, evaluation of the eye for disease, use of the biomicroscope, direct and indirect ophthalmoscopy, tonometry, gonioscopy and visual field testing.

CS215 Epidemiology/Clinical Decision Making 2.5 Quarter Hours

Presents methods of epidemiological investigation of health and disease in a population. Problem solving and decision analysis are used to illustrate the interrelationship of factors involved in human vision and eye disease.

CS221 Professional Practice III 1.75 Quarter Hour (Prerequisites: BS211 Ocular Biology II, BS212 Pharmacology and Therapeutics II, CS215 Epidemiology/Clinical Decision-making, CS212 Clinical Diagnostic Procedures II, CS211 Professional Practice II).

Continuation of Professional Practice II. Provides an opportunity for students to develop a minimum level of competency in basic clinical examination. Interns examine their first patients in The Eye Institute under close supervision, using video taping as a mechanism for both students and faculty to assess the accomplishment of objectives. Certification of basic clinical testing skills and of beginning patient care management skills is accomplished.

CS222 Clinical Diagnostic Procedures III 3.5 Quarter Hours (Prerequisites: BS211 Ocular Biology II, BS212 Pharmacology & Therapeutics II, CS212 Clinical Diagnostic Procedures II, CS211 Professional Practice II).

Continuation of Clinical Diagnostic Procedures II. The evaluation of the eye for disease and integration of all testing procedures into a problem-oriented approach to patient evaluation, diagnosis and management.

CS225 Professional Communication 2.25 Quarter Hours

Deals with the development of written and oral communication between the clinician, his or her patients, staff and other professionals.

CS231 Professional Practice IV 1.0 Quarter Hour (Prerequisites: BS221 Anterior Segment Ocular Disease, CS225 Professional Communications, CS222 Clinical Diagnostic Procedures III, CS221 Professional Practice III).

Continuation of Professional Practice III. In addition to clinical patient care, weekly Module conferences begin.

CS232 Clinical Diagnostic Procedures IV 1.0 Quarter Hour (Prerequisite: CS222 Clinical Diagnostic Procedures III). Continuation of laboratory portion of Clinical Diagnostic

Procedures III. Emphasis will be placed on technique of evaluation of the fundus and visual field testing.

CS233 Management of Refractive and Accommodative Disorders 2.5 Quarter Hours (Prerequisites: CS222 Clinical Diagnostic Procedures III, CS221 Professional Practice III).

Emphasizes the clinical diagnosis, treatment and management of the following conditions: accommodative and convergence anomalies, myopia, hyperopia, astigmatism, presbyopia, anisometropia and aphakia. Various philosophies of data analysis are presented and related to the overall optometric management of the patient.

CS234 Contact Lenses I 3.5 Quarter Hours (Prerequisites: BS221 Anterior Segment Ocular Disease, CS222 Clinical Diagnostic Procedures III, CS221 Professional Practice III, BS225 Ophthalmic Optics I).

Introduces the student to the theory and principles of designing, fitting, evaluating and caring for rigid and soft contact lenses. Special emphasis is placed on the effects of contact lenses on the eye and the indication and/or contra-indication for specific contact lens designs or materials.

CS311 Professional Practice V 4.75 Quarter Hours (Prerequisites: BS231 Posterior Segment Ocular Disease, CS234 Contact Lenses I, CS232 Management of Refractive and Accommodative Disorders, CS231 Professional Practice IV, BS234 Normal and Abnormal Binocular Function I).

Students assume the role of interns in the Primary Care Modules of The Eye Institute. Accuracy and efficiency in examination techniques, interviewing, data interpretation, case presentation and utilization of the problem-oriented record are stressed. Emergency eye care, contact lenses and ophthalmologic secondary and tertiary care are introduced.

CS314 Contact Lenses II 3.0 Quarter Hours (Prerequisites: CS234 Contact Lens I, CS233 Management of Refractive and Accommodative Disorders, CS231 Professional Practice IV).

Continuation of Contact Lens I emphasizing the problem-oriented approach toward managing contact lens patients. Fitting techniques for toric soft lenses and extended wear hydrogels will be explored, including diagnosis and management of potential physiological complications. Advanced rigid lens design, including computer-assisted modeling will be introduced, for high myopia, hyperopia and aphakia as well as treatment regimens for contact lens induced corneal distortion.

CS321 Professional Practice VI 4.75 Quarter Hours (Prerequisites: BS311 Glaucoma Ocular Emergencies, BS312 Clinical Medicine I, CS314 Contact Lenses II, CS311 Professional Practice V, BS314 Normal and Abnormal Binocular Function II).

Continuation of Professional Practice V. Increasing emphasis is placed on problem solving and patient management skills while continuing the development of more advanced examination techniques.

CS323 Geriatrics/Special Populations 1.5 Quarter Hours.

Presents the epidemiological, physical, physiological, psychological and ocular changes that occur in the aging patient. Special examination and management considerations and an interdisciplinary approach to geriatric optometric care are discussed. Similar consideration is given to special populations such as physically and mentally impaired patients.

CS331 Professional Practice VII 4.75 Quarter Hours
(Prerequisites: BS322 Clinical Medicine II, CS321 Professional Practice VI, BS324 Normal and Abnormal Binocular Function III).

Continuation of Professional Practice VI.

CS332 Pediatric Optometry 3.0 Quarter Hours
(Prerequisites: CS321 Professional Practice VI, BS324 Normal and Abnormal Binocular Function III).

Discusses the epidemiology, psychology, growth and development, methods of examination, and the treatment and management of vision problems related to infants and children. The role of the optometrist in detection, prevention and approaches to treatment of children with developmental and learning related disorders is stressed.

CS333 Vision Rehabilitation 3.0 Quarter Hours.
(Prerequisites: CS311 Professional Practice V, BS125 Theoretical Optics II).

Discusses the diagnosis, management and rehabilitation of the visually impaired patient including the epidemiology, symptoms, signs and course of low vision problems. Methods of testing and optical principles of low vision aids are presented in a context emphasizing a multidisciplinary approach to rehabilitation of the partially sighted.

CS334 Advanced Contact Lenses 2.0 Quarter Hours
(Prerequisites: CS314 Contact Lenses II, CS331 Professional Practice VII).

Presents specialty contact lens care, including lens design and management for residual astigmatism, presbyopia, extended wear with gas-permeable lenses, keratoconus, and therapeutic bandage lenses. Contact lens complications and management of contact lens complications, new developments in contact lenses and contact lens related practice-management are also addressed.

CS341 Professional Practice VIII 4.75 Quarter Hours
(Prerequisites: BS331 Neuro-Eye Disease, CS332 Pediatric Optometry, CS331 Professional Practice VII).

Continuation of Professional Practice VII.

CS342 Health Care Policy/Jurisprudence 2.5 Quarter Hours
(Prerequisites: CS135 Introduction to Community Health, CS215 Epidemiology/Clinical Decision Making).

Covers governmental relationships, health care organizations and delivery systems, legal development and optometric jurisprudence, methods of quality assurance, legislative processes and manpower studies.

CS343 Environmental Optometry 2.5 Quarter Hours
(Prerequisites: BS214 Ocular Motility, CS222 Clinical Diagnostic Procedures III).

Concentrates on the study, management and control of natural and human factors in the environment that can affect the health safety and visual status of patients.

CS344 Practice Management and Development 2.5 Quarter Hours

Provides an overview and orientation for practice options in solo, partnership, multidisciplinary and institutional settings. The student is taught the development, management and economics of optometric practice.

CS345 Colloquium 1.5 Quarter Hours (Prerequisite: CS331 Professional Practice VII).

Introduces case presentations, special clinical topics, and reviews recent developments in basic and clinical sciences.

CS346 External Professional Practice 1.0 Quarter Hour
(1 day a week, 48 hours) (Prerequisite: satisfactory completion of all first and second year courses or approval of Assistant Dean).

Provides the student with experience in handling patients under unique circumstances, e.g., screenings, nursing homes, homebound, etc., under close supervision of a faculty member. This program, administered through the Community Eye Care Service, stresses the importance of the service aspect of optometry to these patients.

CS411 Advanced Professional Practice 13.25 Quarter Hours (Prerequisite: CS341 Professional Practice VIII).

The senior quarter in The Eye Institute affords the student the opportunity to gain intensive clinical experience by assignment to and the Primary Care Modules, the Lynch Pediatric Unit or the William Feinbloom Vision Rehabilitation Center.

External Clinical Programs

The Office of External Clinical Programs, within the Department of Clinical Sciences, has been designed to give students a variety of off-campus "real world" patient care experiences and provide them with the quantity and quality of experience needed to develop a highly competent health care practitioner. The department encompasses five major divisions: the Clerkship Program, the Community Eye Care Program, the External Clinic Program, Externship Program and External Residency Program.

Clerkship Program (Elective)

This program affords an opportunity for students in their first years of professional school training to spend time in a variety of optometric practice settings. It permits them to observe firsthand different patient handling protocols, office formats, practice, etc., and to put to use much of the basic classroom and laboratory material to which they have been exposed.

Externship Program

During the fourth professional year, students spend a quarter of the year in an institutional setting and a second quarter in a private practice setting, providing patient care under the supervision of highly qualified preceptors. Students are also required to extern at a site with emphasis in contact lenses and at a site with emphasis in the management of ocular disease. Externships offer the student the opportunity to refine patient care abilities, while making an easy transition from the role of a student to the role of a practitioner. Because of the variety of choices available, many of which are outside the Philadelphia area, students should plan on spending time off campus during their fourth year. Externship sites emphasize interdisciplinary large group and specialty care. Externship assignments are tailored to complement the clinical experiences of the student.

CS421 Externship I *12.5 Quarter Hours (13 weeks, 40 hours* of patient care per week in a private practice)* (Prerequisites: CS341 Professional Practice VIII and approval of assistant dean).

Provides students with patient care experiences in over 139 private practice externship locations in the United States.

CS431 Externship II *12.5 Quarter Hours (13 weeks, 40 hours* of patient care per week in an institutional externship)* (Prerequisites: CS341 Professional Practice VIII and approval of assistant dean).

Provides students with patient care experiences in over 79 institutional locations in the United States.

CS441 Externship III (additional) *12.5 Quarter Hours (13 weeks, 40 hours* of patient care per week)* (Prerequisites: Acceptable scholastic performance in CS421-431 Externship I and II and approval of assistant dean).

* (In some instances, externs are required to work more than 40 hours/week if the office to which they are assigned has patient care more than 40 hours/week).

External Residency Program

The College has residency programs approved by the Council on Optometric Education at six Veterans Administration (VA) facilities, an air force base, and an ambulatory eye care center. The purpose of the residencies is to give the graduate optometrist from an accredited school or college of optometry one year of advanced training that further complements the training and education at the professional college. (For more information, see section entitled Post-Graduate Opportunities.)

Electives

The intent of the electives program is to increase the flexibility and personalization of the academic curriculum. Two major types of elective courses are offered.

The first are general exploration courses which allow the student to investigate an area of interest which is not covered in the core curriculum, and in which the student has relatively little knowledge or expertise. These types of electives present information not required by every student in order to practice optometry, but which are potentially interesting to a selected group of students.

The second are advanced electives which probe deeper into more specialized areas of optometry. The advanced electives require the knowledge base of the core curriculum and permit the student to advance in an area of interest beyond that required by all students.

In addition, students who are interested in research may pursue this interest for elective credit.

The electives list that follows is a representative sample of electives and is neither all inclusive nor certain to be offered at any given time. The electives program is in a constant state of development, and additions and deletions occur as the needs and interests of the students and faculty vary from year to year.

All students are required to accumulate a minimum of seven quarter hours of elective credit for graduation. Students are encouraged to take as many electives as possible prior to the fourth year.

Research electives and clerkships may be taken for elective credit during any of the four years; most of the other electives are restricted to the third and fourth years. Credit for optional clinical activities will not be credited toward the seven quarter hour requirement.

Elective Course Descriptions

Basic Ophthalmic Surgical Procedures

This course introduces the theories, instrumentation, techniques and follow-up management of the ophthalmic surgical patient. Topics include scrub, dacryocystorhinostomy, anterior chamber paracentesis, cataract and glaucoma surgery, suture removal, vitreous and retinal surgery and the use of lasers. Course format involves slide presentations as well as video tapes of selected procedures.

Diagnosis and Management of Vision Problems in Infants, Toddlers and Preschool Children:

This course will present the current research and clinical information on the development of vision problems in very young children. Emphasis will be on the development of a clinical model and case analysis.

Interventional Cornea and External Disease:

Common diseases and conditions affecting the cornea, adnexa and the anterior segment will be discussed. Diagnosis and management including therapeutics and surgery will be described. A systemic approach will be emphasized.

Lasers in Eye Care:

This course covers the basic physics of the various laser types available for use in ophthalmic practice. Reviews uses of various lasers in practice of eye care as well as future uses.

Broaden Your Contact Lens Fitting Techniques

How to develop a proper philosophy and clinical approach for both hard and soft contacts to obtain an optimum fit. Lens performance and diagnostic techniques will build and expand the student's present knowledge. Learn how to handle problem fits and increase your percentage of success. Extensive slides and handouts are used to reinforce understanding.

Clinical Applications of Contrast Sensitivity Testing

This course covers the rationale for contrast sensitivity testing from its inception to present day clinical applications. Spatial and temporal processing characteristics of the visual system are studied as they apply to contrast sensitivity and visual acuity. Various forms of contrast sensitivity testing are discussed. Hands-on experience both in testing and evaluating results with regard to following eye disease, amblyopia, visual therapy and contact lens practice are given. Course emphasis is on clinical applications and patient management.

Compilation of Current Designs and Latest Techniques in Prescribing Contact Lenses

This course gives a historical overview of contact lenses. Additional topics include gas permeable lens options, contact lens solutions, extended wear lenses, and bifocal and toric lenses. Emphasis is placed on management of extended wear patients, marginally dry eye patients, and patients with irregular corneas. The use of computers in a contact lens practice is included.

Computers and Their Use in an Optometric Practice

This course familiarizes students with basic computer terminology. Business and professional uses of computers and how to implement them into an optometric office are discussed. The course also covers the pros and cons of many existing optometric software packages.

Effective Communication Skills for Optometric Diagnostic Evaluation of Hearing Impaired

A deaf or hard of hearing individual relies on vision for communication. This course provides four three-hour sessions: two and a half sessions of Basic Sign Language and one and a half sessions of sign language for diagnostic evaluation. The last session involves working in the lab doing simulated eye exams in sign language. This course will help the student organize diagnostic questions and increase clarity of language used. All of the skills learned will assist in evaluating young children, the elderly and others who have difficulty comprehending or responding to traditional communication styles.

Electrodiagnosis

This is a practical course to provide clinical application of electrophysiological principles and techniques acquired in Physiological Optics III. Requirements include readings and observation of patient testing in The Eye Institute. One oral examination will be given at the end of the course.

Fabrication and Use of Prosthetic Eyes

This course introduces and familiarizes the student with the anatomical and physiological facts essential to an understanding of an artificial plastic eye and the prosthetic eye wearer. This course also covers the state-of-the-art and, most importantly, optometric involvement in the clinical examination. It includes the care of the anophthalmic socket and hands-on experience in examining, removing, and inserting the prosthesis, following a question and answer session with the patient.

Learning Disability: Optometric and Educational Correlates

Visual information processing and its role in the physiological basis of learning is highlighted. Learning theory and academic failure resulting from pre-, peri-, and post-natal trauma are emphasized. Special primary care optometric management topics, including the nutritional needs of the patient in visual therapy and the neurohormonal response to stress, are investigated.

Learning Disabilities—A Psychologist's Approach

This course explores the nature and theories on causes, diagnosis, and treatment of various learning disabilities. Normal vs. deviant child development in the areas of cognition, perception, language, and motor skills are stressed. The role of the optometrist in treating learning disabled students is emphasized throughout.

Ocular Manifestations of Sexually Transmitted Diseases

In this course, the age-old sexual diseases of syphilis, gonorrhea, and pediculosis are reviewed in detail. Special attention is paid to the more contemporary diseases of herpes, chlamydia and AIDS. The primary intensive concentration is on diagnosis and management of systemic and ocular conditions. Additionally, the epidemiology, appropriate history taking skills, clinical approach, and proper asepsis technique are discussed.

Optometry—The Behavioral Model

The objective of the course is to teach the art and science of the Behavioral Optometric Model by reviewing the history of its origin, comparing it with other models and demonstrating its use in practice. By the conclusion of this course, the student should be able to understand the background and application of the Behavioral Optometric Model.

Perception, Cognition and Learning

This course trains students in theory and techniques necessary to administer and evaluate perceptuo-cognitive skills and learning strategies employed by persons of all ages. In addition to problem detection, the student is presented with alternative strategies and programs to eliminate areas of learning deficits. Experimental methods and research findings in selected areas of perception, cognition, learning, development and motivation, including both classroom and real-life instruction, are covered.

Practical Aspects of Practice Management

This course assists the new practitioner in making important business decisions, including mode of practice, practice location and promotion techniques. Business negotiations and marketing strategies for optometric practices are discussed. The course also covers office design, specialization, equipment and computerization.

Pre-Operative & Post-Operative Care of the Cataract Patient with an Implant

This course presents the indications and contraindications for intraocular implants, patient selection, patient orientation and subsequent care for both short- and long-term aphakic patients.

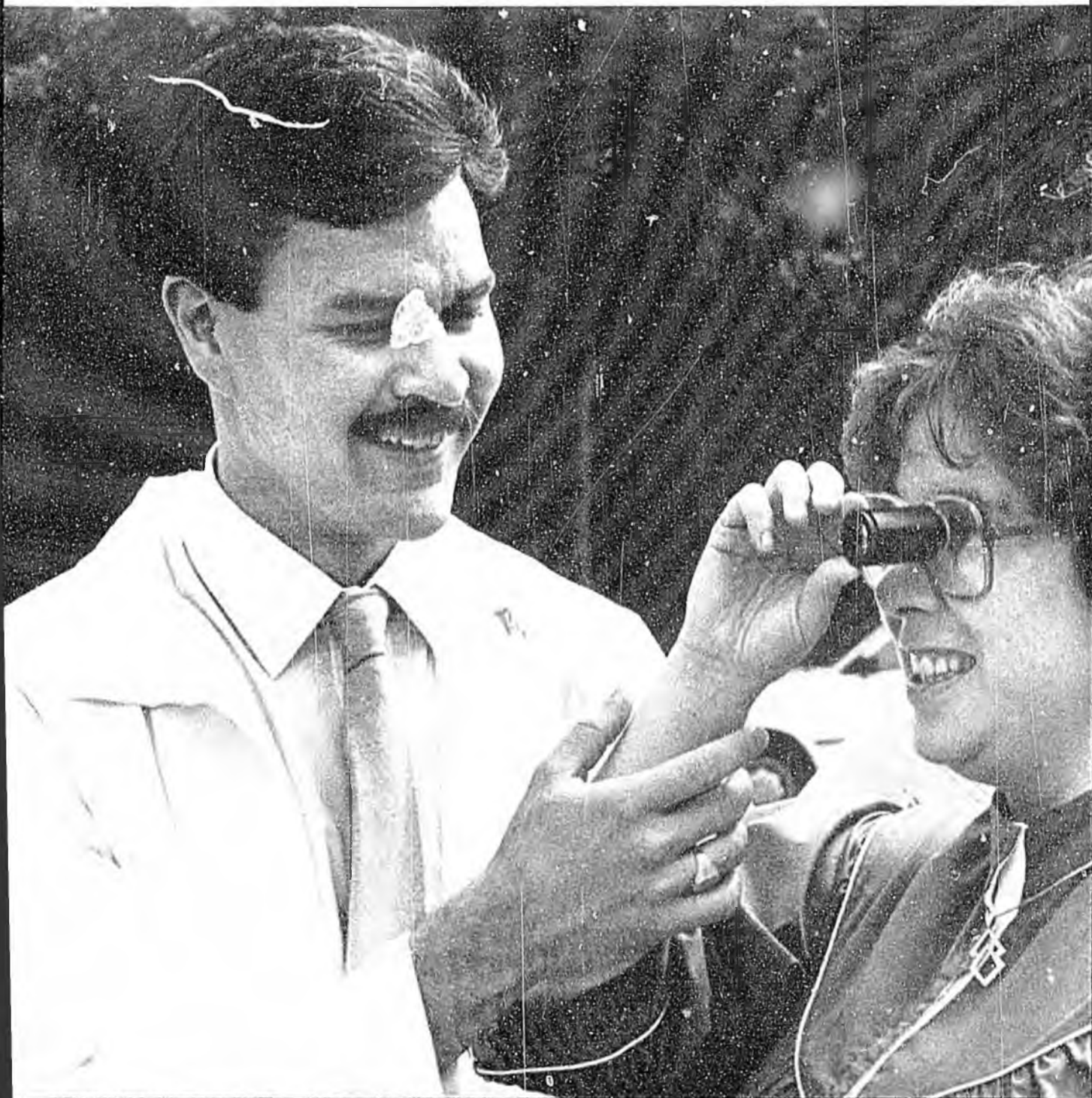
Research Topics in Biomedical Sciences

Those students who desire to become involved with elective research may contact Dr. Pierrette Dayhaw-Barker.

Sports Vision

This course encompasses the entire topic of Sports Vision, illustrating how many daily optometric concepts are continuously utilized by various athletes as they perform their demanding tasks. Screening, evaluating and training procedures are discussed as well as the specialized use of contact lenses as they relate to many different types of athletic endeavors. Ocular injuries and ocular safety are also covered.

Graduate Studies in Vision Impairment



Chairperson:

Susan M. Kershman

Associate Professors:

Susan M. Kershman, Audrey J. Smith, Gale Watson

Assistant Professors:

Anna L. Bradfield, Laura Edwards, Rita Livingston, Eileen Schmael-Klirsch, John Ray

Adjunct Faculty:

Marcy Graboyes, Kent Higgins, Frank Irzyk, Adrienne Koller, Jeanne Leiper, Susan Millaway, Mark Steciw, Susan Parthasarthy, Debby O. Holzapfel, Bette Homer, Amy Johnson, Lisa Porch, Maurcen A. Duffy, Sr. Judith A. Moeller

The Department of Graduate Studies in Vision Impairment prepares a variety of professionals to work with the visually impaired population. Interdisciplinary students can engage in a number of different programs to meet their goals. Presently, the department includes the Master of Science and Certificate Programs in Vision Rehabilitation, the Masters and Certificate Programs in Education of the Visually Handicapped and a variety of short-term, individualized Continuing Education programs in low vision rehabilitation. The department encompasses a rich mixture of classroom, laboratory, clinical, research and field-based learning, geared toward meeting professional preparation needs in the field of vision impairment.

Master of Science Degree and Certificate Programs in Vision Rehabilitation

In 1983, the nation's first Master of Science Degree Program in Vision Rehabilitation was implemented by the College. This program was made possible by a grant from the Glenmede Trust. Graduates of this program represent an interdisciplinary mix of O.D.'s, orientation and mobility specialists, special educators, rehabilitation teachers, administrators, etc. The Master's Program builds upon the educational and clinical reputation of The Eye Institute's William Feinbloom Vision Rehabilitation Center and focuses its emphasis on preparing professionals from a variety of disciplines to work in a team approach with low vision individuals. In this competency-based, one-year program, students are actively engaged in problem-solving experiences directly related to real life practices. Students from varied disciplines work together in classes and field

experiences. Discipline-specific education and supervision are provided during the laboratory portions of coursework, field practice and internships. The certificate in Vision Rehabilitation Program provides a competency-based six-month immersion in the multidisciplinary approach to low vision rehabilitation.

For further information on this program, contact Susan M. Kershman, Coordinator, Ph.D., at 215-276-6291.

Cours Sequence

Course Number	Course Title	Quarter Hours
First Quarter		
G-930	Optical Principles & Low Vision Devices	3.50
G-910	Normal & Abnormal Visual Functioning	3.25
G-960	Clinical Evaluations & Interventions for the Low Vision Individual	4.00
G-980	The Interdisciplinary Services to persons with Low Vision	2.00
G-950	Research I	3.25
		Total: 16.00
Second Quarter		
G-968	Developing & Financing Comprehensive Low Vision Services	3.00
G-961	Visual Evaluations & Interventions in the Home, School, and Workplace	4.00
G-963	Psychosocial Implications of Visual Impairment	3.25
G-962	Human Development & Learning: A Visual Perspective	2.75
G-951	Research II	3.25
		Total: 16.25
Third Quarter		
G-970	Managing Comprehensive Low Vision Services	2.00
G-941	The Elderly: Service Needs & the Aging Process	1.50
G-992	Practicum: Supervised Field Placement	3.50
G-952	Research III: Data Collection	1.50
G-954	Research V: Statistical Interpretation & Integration	3.00
		Total 10.00 or 18.50

Fourth Quarter

G-993	Practicum: Internship	5.00
G-953	*Research IV: Research Paper	1.50
	Total	5.00 or (6.50)
	Overall Total	47.25

*Required for all students who elect G-952.

Rehabilitation Optometry Program

The Pennsylvania College of Optometry offers a combined degree option which allows students in the Doctor of Optometry Program to concurrently enroll in the Master of Science Degree Program in Vision Rehabilitation. Students apply and enter the M.S. Degree Program after successful completion of their first year in the optometric curriculum. Courses in the M.S. Degree Program are taken on a part-time basis over a three-year period with both degrees received at graduation. This program allows students the knowledge and skills to maximize the functioning of the visually impaired and work in conjunction with state rehabilitation agencies. It is presently the only program of its kind in the nation.

Interested students should contact John S. Ray, O.D., M.S., Program Coordinator, for further information.

Programs in Education of the Visually Handicapped

The Programs in Education of the Visually Handicapped at the Pennsylvania College of Optometry were developed in response to a serious shortage of teachers in this specialty area. These part-time programs were designed to prepare teachers of the blind and visually handicapped to work with infants, toddlers, children and youth.

The competency-based programs lead to Pennsylvania Department of Education (PDE) certification (Instructional I, Teacher of the Visually Impaired) and enable individuals to work with those whose vision ranges from low vision to total blindness. Individualized programs of studies vary, based on evaluation of the applicant's transcripts, previous experience and certification(s) in education, interview and competency testing. Students may elect to complete the Certificate Program in Education of the Visually Handicapped, the Master of Education (M.Ed.) degree, or both. For additional information on course requirements and admissions, contact Susan M. Kershman, Ph.D., Program Coordinator, at 215-276-6291.

Course Sequence

The following represents the Pennsylvania College of Optometry course requirements. Additional courses will be required, based on the student's background on entering the program.

Course Title**Credits****First Quarter**

C-911	Educational Implications of Visual Dysfunction	3.25
C-960	Educational Assessment of the Blind & Visually Handicapped	3.75
C-990	Practicum 1: Roles & Responsibilities of Personnel Working with Visually Handicapped	2.50

Second Quarter

C-961	Educational Interventions for the Visually Handicapped & Multihandicapped	3.75
C-965	Braille & Communication for the Blind & Visually Handicapped	3.75
C-991	Practicum 2: Roles, Resources and Requirements in the Education of Persons with Visual Impairment	1.75

Third Quarter

C-966	Technology & Instruction for the Visually Handicapped	2.75
C-967	Orientation & Mobility for Teachers	3.50
C-992	Practicum 3: Supervised Fieldwork in Education of the Visually Handicapped (one placement)	4.50

Fourth Quarter

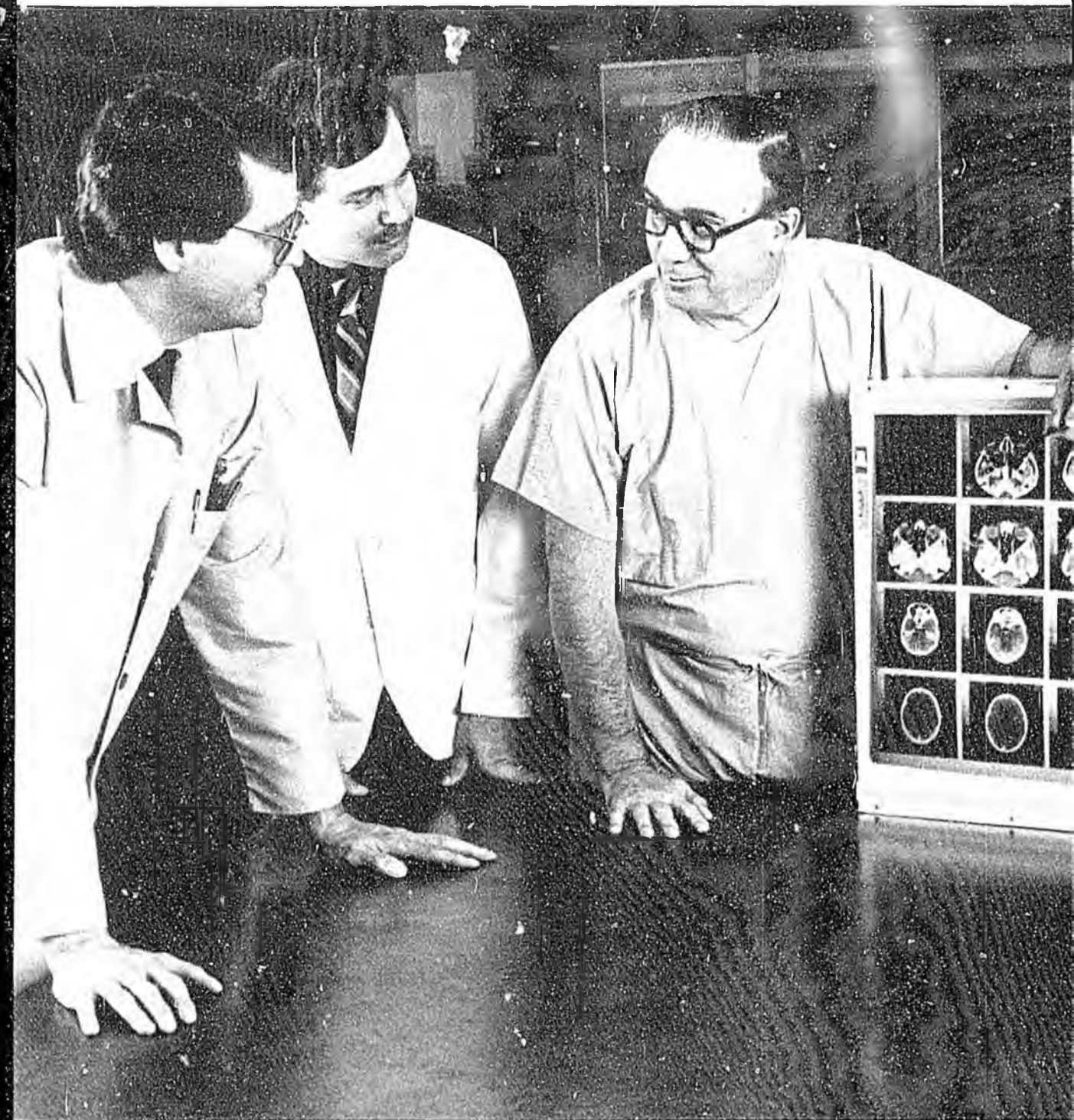
C-992	Practicum 3: Supervised Fieldwork in Education of the Visually Handicapped (one placement)	4.50
-------	--	------

Additional course requirements for the M.Ed. degree include C-950 Research 1, C-951 Research 2 and the student's choice between a Master's thesis, a Master's project or comprehensive exams.

Continuing Education and International Programs

A variety of continuing education courses are offered to professionals from education, rehabilitation, optometry, and other human service fields. Fliers describing current courses, dates and fees are available. Instructors have national and international reputations and represent a variety of disciplines. Courses vary in length from one day to six weeks. Both on campus and off campus sites may be used.

Post-Graduate Opportunities



Alumni Association

The College Alumni Association is an active group of 4,300 graduates practicing in all areas of the U.S. and many foreign countries. All graduates automatically become members of the Alumni Association; there is no membership fee required.

The Alumni are represented by three members on the College Board of Trustees. The high point of the year for alumni activities is the annual reunion held each spring at the College. This meeting includes a continuing education program, exhibits, a business meeting and the annual banquet.

The Alumni Association funds a Scholars Program for financially needy and academically deserving students. During the most recent academic year, 15 students received Alumni Scholarships.

Licensing

Optometry school graduates must pass a written and clinical board examination prior to being licensed to practice their profession in any state, the District of Columbia, or the Commonwealth of Puerto Rico. Most states accept portions of the written examination of the National Board of Examiners in Optometry in lieu of their own written examinations.

The written portion of the National Board examination is given in three parts and administered each spring and late summer at all colleges of optometry. Part I, involving the basic sciences, may be taken in the spring of the second professional year; and Part II, covering clinical sciences, in the spring of the third year; and Part III, involving patient care, during the fourth year.

Center for Continuing Education

Rapid advances in modern technology make it imperative that today's optometrist keep abreast of the latest developments in the profession.

In 1973, the Pennsylvania College of Optometry established the Center for Continuing and Post Graduate Education, dedicated to offering optometric practitioners the opportunity to learn the newest techniques, the most advanced instrumentation and current developments in the eye care field. Continuing education programs are offered in cooperation with other schools of optometry and state optometric associations throughout the U.S. In most states, continuing education credits are required for optometrists to retain their licensure. For more information, call 215-276-6258.

Residency Program

Post graduate residencies at The Eye Institute offer Doctors of Optometry advanced training in primary care, pediatric optometry/vision therapy, vision rehabilitation, contact lenses, and other specialties.

Residency training emphasizes development of strong knowledge and skill in the area chosen, as well as a well-rounded experience in other specialty services provided at The Eye Institute and at external locations.

All residents participate in emergency eye care, various specialty services, residents practice, Grand Rounds presentations, case conferences, labs and independent study.

External hospital-based optometric residencies are offered at VA hospitals located in: Fort Howard, Md.; Wilkes Barre, Pa.; Lebanon, Pa.; Lyons, N.J.; and Vancouver, Wash. (geriatric). Other external residencies are offered at Wilford Hall Medical Center at Lackland Air Force Base, Texas, and at the Neumann Eye Institute in Deland, Fla.

Trustees, Administration and Faculty



Board of Trustees

Officers

Ira Silverman, O.D., Chairman
 Donald M. Gleklen, J.D., First Vice Chairman
 J. Donald Kratz, O.D., Second Vice Chairman
 A. Michael Iatesta, O.D., Secretary
 Benjamin Fishbein, C.P.A., Treasurer
 John J. Crozier, O.D., Assistant Secretary

Members

G. Richard Bennett, O.D., Faculty Representative, Rydal, PA
 J. Benjamin Brumberg, O.D., Dania, FL
 L. Kennedy Bumgarner, O.D., Alumni Representative, Pinchurst, NC
 Barry Farkas, O.D., Alumni Representative, New York, NY
 Benjamin Fishbein, CPA, Elkins Park, PA
 Elmer Friedberg, O.D., Pottstown, PA
 Michael A. Friedberg, O.D., Pittsburgh, PA
 Donald M. Gleklen, J.D., Newtown Square, PA
 Victor Greco, O.D., Alumni Representative, Hazelton, PA
 Edward K. Hueber, B.A., Penn Valley, PA
 A. Michael Iatesta, O.D., Broomall, PA
 Stanley E. Jacke, B.S., Malvern, PA
 Robert J. Johnson, Sr., Emeritus, Latrobe, PA
 J. Donald Kratz, O.D., Palm Coast, FL
 Thomas Lynch, Emeritus, Horseheads, NY
 William A. Meehan, LL.B., Associate, Philadelphia, PA
 John D. Perry, Jr., O.D., Emeritus, Advance, NC
 Carl A. Polsky, Esq., Roslyn, PA
 Philip Schwartz, O.D., POA Representative, Lancaster, PA
 Ira Silverman, O.D., Doylestown, PA
 Daniel Touchek, Student Representative, Pittsburgh, PA
 Albert Tordella, Cherry Hill, NJ
 Congressman John H. Ware, III, B.S., Associate, Oxford, PA
 Robert C. Wilburn, Ph.D., Pittsburgh, PA
 Thomas L. Lewis, O.D., Ph.D., Ex-officio, Dresher, PA

Faculty (1990-91)

Sarah Appel, Associate Professor, B.S., O.D., Pennsylvania College of Optometry
 Sitaramayya Ari, Associate Professor, B.S., Andra University; M.S., Ph.D., Lucknow University
 Sheree J. Aston, Assistant Professor, B.S., O.D., Pennsylvania College of Optometry
 Felix M. Barker, II, Associate Professor of Optometry, B.A., B.S., O.D., Indiana University; M.S., University of Houston
 Edwin Barkdoll, Research Assistant Professor of Biochemistry, B.A., University of Rochester; Ph.D., University of Pennsylvania
 Marvin G. Baum, Adjunct Instructor, B.S., O.D., Massachusetts College of Optometry
 Michael Beckerman, Adjunct Instructor, O.D., Southern College of Optometry
 Monica Beliveau, Adjunct Instructor, M.Ed., Boston College, Ed.D., Columbia University
 G. Richard Bennett, Associate Professor of Optometry, B.S., Allegheny College; M.S., Clarion State College; B.S., O.D., Pennsylvania College of Optometry
 Robert J. Berman, Associate Professor of Optometry, O.D., Pennsylvania College of Optometry
 Marc M. Berson, Adjunct Instructor, B.S., Muhlenberg College; B.S., O.D., Pennsylvania College of Optometry
 Jerry N. Black, Adjunct Instructor, B.S., West Virginia Wesleyan College; Ph.D., Michigan State University; M.D., University of Miami
 Pamela Blaskev, Assistant Professor, B.S., M.Ed., Ph.D., Temple University
 Bernard Blaustem, Associate Professor of Optometry, B.S., University of Maryland; O.D., Pennsylvania College of Optometry
 Bernard Bloom, Adjunct Instructor, Ph.D., University of Pennsylvania
 Allen J. Blume, Adjunct Instructor, O.D., Southern College of Optometry
 Anna L. Bradfield, Assistant Professor, B.S., Stephen Austin State University; M.Ed., Peabody College of Vanderbilt University; Ph.D., Peabody College of Vanderbilt University
 Herbert Bressler, Adjunct Instructor, B.S., O.D., Pennsylvania College of Optometry
 Richard L. Brilliant, Associate Professor of Optometry, B.S., New Paltz State College, B.S., O.D., Pennsylvania College of Optometry

- L. Kennedy Bumgarner, Adjunct Instructor, B.A., Lenoir Rhyne College; B.S., Appalachian State University; B.S., O.D., Pennsylvania College of Optometry
- Andrew Buzzelli, Associate Professor of Optometry, A.A., Monmouth College; M.S., State College of New York; B.S., O.D., Illinois College of Optometry
- Alvin Byer, Associate Professor of Theoretical and Physiological Optics, B.S., M.S., Drexel University; O.D., Pennsylvania College of Optometry
- James P. Carroll, Associate Professor of Physiological Optics, B.S., DePaul University; M.S., Ph.D., Indiana University; O.D., Pennsylvania College of Optometry
- Randal Carter, Adjunct Instructor, O.D., Southern College of Optometry
- Louis J. Catania, Associate Professor, A.B., Seton Hall University; B.S., O.D., Pennsylvania College of Optometry
- Albert Chang, Adjunct Instructor, I.D., Pennsylvania College of Optometry
- James Check, Adjunct Instructor, B.S., University of Scranton; B.S., O.D., Pennsylvania College of Optometry
- Elise Ciner, Assistant Professor, B.S. Cornell University; O.D., New England College of Optometry
- Connie Chronister, Assistant Professor of Optometry, B.S., O.D., Pennsylvania College of Optometry
- Richard Clompus, Adjunct Instructor, B.S., Wilkes College; B.S., O.D., Pennsylvania College of Optometry
- Robert Cole, Assistant Professor, O.D., Pennsylvania College of Optometry
- Glenn S. Corbin, Adjunct Instructor, B.S., Hofstra University; B.S., O.D., Pennsylvania College of Optometry
- Carson Cox, Adjunct Instructor, B.S., O.D., Pennsylvania College of Optometry
- Shelley Cutler, Adjunct Instructor, B.A., Syracuse University; B.S., O.D., Pennsylvania College of Optometry
- Roger W. Cummings, Associate Professor of Optometry, A.B., Middlebury College; O.D., Pennsylvania College of Optometry
- Kenneth Daniels, Adjunct Instructor, B.A., Temple University; O.D., New England College of Optometry
- John K. Davis, Adjunct Associate Professor, B.S., Clark University
- Pierrette Dayhaw Barker, Associate Professor of Physiology, B.A., University of Ottawa; Ph.D., University of Houston
- Edward A. Deglin, Associate Professor of Ophthalmology, B.S., Pennsylvania State University; M.D., Jefferson Medical College; M.Sc., Georgetown University
- William R. De FAune, Adjunct Instructor, B.S., University of Southwestern Louisiana; M.S., Ph.D., Florida State University
- William M. Dell, Associate Professor, B.A., New York University; B.S., O.D., New England College of Optometry; M.P.H., Harvard School of Public Health
- Anthony E. Di Stefano, Associate Professor of Public Health, B.A., LaSalle College; B.S., O.D., Pennsylvania College of Optometry; M.Ed., Temple University, M.P.H., John Hopkins University
- Maureen A. Duffy, Adjunct Instructor, B.A., Dominican College; M.S., Pennsylvania College of Optometry
- Scott Edmonds, Adjunct Instructor, B.S., Indiana University of Pennsylvania; B.S., O.D., Pennsylvania College of Optometry
- Laura A. Edwards, Assistant Professor, B.A., College of William and Mary; M.S., Virginia Commonwealth University
- Murray Fingeret, Adjunct Instructor, O.D., New England College of Optometry
- Mitchell J. Fink, Assistant Professor of Optometry, B.S., O.D., Pennsylvania College of Optometry
- Sarah Foster, Instructor of Optometry, B.A., University of Rochester; B.S., O.D., Pennsylvania College of Optometry
- Elmer S. Friedberg, Adjunct Associate Professor, O.D., Pennsylvania College of Optometry
- Elmer Friedman, Adjunct Instructor, O.D., Pennsylvania College of Optometry
- Louis Friedner, Adjunct Instructor, O.D., Pennsylvania College of Optometry
- Michael F. Gallaway, Associate Professor of Optometry, B.S., Carnegie Mellon University; O.D., New England College of Optometry
- Duane Geruschat, B.S., Duquesne University; M.A., Western Michigan University; Ph.D., Temple University
- Marcy J. Grayboyes, Instructor, B.A., University of Pennsylvania; M.S.W., Temple University
- Lawrence G. Gray, Associate Professor of Optometry, B.A., Temple University; B.S., O.D., Pennsylvania College of Optometry
- Sanford Gross, Adjunct Instructor, B.S., O.D., Ohio State University, College of Optometry
- Andrew Gurwood, Instructor of Optometry, B.S., Indiana University of Pennsylvania, O.D., Pennsylvania College of Optometry

- Irving Gurwood, Associate Professor of Optometry, B.S., O.D., Pennsylvania College of Optometry
- Chaya Herzberg, Instructor, B.S., O.D., Pennsylvania College of Optometry; B.A., University of Pennsylvania
- Kent Higgins, Associate Professor of Physiological Optics, B.A., University of California; M.A., San Francisco State College; Ph.D., University of Virginia
- Jerome Hirsch, Professor of Optometry, O.D., Pennsylvania College of Optometry
- Edward Holland, Adjunct Instructor, O.D., Pennsylvania College of Optometry
- Debby O. Holzapfel, Adjunct Faculty, B.S., Lock Haven State College; M.Ed., University of Pittsburgh
- Bette Homer, Adjunct Instructor, B.S., Albright College; M.S., St. Joseph's University
- Francis Irzyk, Adjunct Instructor, B.A., St. Peter's College; M.A., Manhattan College; Ed.M., Columbia University
- Amy F. Johnson, Adjunct Faculty, B.S., University of Pittsburgh; M.Ed., University of Pittsburgh
- Martin Kane, Adjunct Instructor, O.D., Pennsylvania College of Optometry
- Harry Kaplan, Assistant Professor of Optometry, O.D., Pennsylvania College of Optometry
- Susan M. Kershman, Associate Professor, B.A., McGill University; M.A., Columbia University; Ph.D., University of Pittsburgh
- Eileen S. Klitsch, Assistant Professor, B.A., Farleigh Dickinson University; Ph.D., Temple University
- Joanne Klopfer, Associate Professor Optometry, B.A., Cornell University; B.S., O.D., Pennsylvania College of Optometry, M.P.H., Yale University School of Medicine
- Adrienne R. Koller, Adjunct Instructor, B.S., Kutztown State College; M.Ed., Vanderbilt University
- Peter Lalle, Adjunct Assistant Professor, O.D., Pennsylvania College of Optometry
- John W. Laney, Associate Professor Ophthalmic Optics, B.S., O.D., Pennsylvania College of Optometry
- James Larimer, Adjunct Instructor, B.S., M.S., Ph.D., Purdue University
- Jeanne Leiper, Adjunct Instructor, B.S., M.Ed., University of Pittsburgh
- Bernard P. Lepri, Assistant Professor, B.S., University of Pittsburgh; O.D., M.S., Pennsylvania College of Optometry, M.Ed., Temple University
- Brian L. LeStrange, Adjunct Instructor, Le Moyne College; O.D., Illinois College of Optometry
- Alan L. Lewis, Adjunct Instructor, B.S., O.D., New England College of Optometry; M.Sc., Ph.D., Ohio State University
- Thomas L. Lewis, Associate Professor of Anatomy, B.S., O.D., Pennsylvania College of Optometry; Ph.D., Thomas Jefferson University
- Anthony Litwak, Adjunct Instructor, B.S., O.D., Pennsylvania College of Optometry
- Rita Livingston, Assistant Professor, B.S., Illinois State University; M.Ed., University of Texas; Ph.D., University of Texas
- Dale Lockhart, Adjunct Assistant Professor, B.A., University of California; O.D., Indiana University
- Lorraine Lombardi, Associate Professor of Anatomy, B.S., Geneva College; M.S., Drexel University; Ph.D., Hahnemann University School of Medicine
- John McGreal, Jr., Adjunct Instructor, B.S., O.D., Pennsylvania College of Optometry
- M. Alan McLin, Adjunct Instructor, B.A., Johns Hopkins University; B.S., O.D., Pennsylvania College of Optometry
- Brian Mahoney, Adjunct Instructor, B.S., O.D., Pennsylvania College of Optometry
- Jon Marberger, Teaching Associate, B.S., O.D., Pennsylvania College of Optometry
- Michael E. Margaretten, Adjunct Instructor, O.D., Pennsylvania College of Optometry
- Carla K. Mariscotti, Adjunct Instructor, B.S., California University of Pennsylvania; B.S., O.D., Pennsylvania College of Optometry
- Susan Marren, Assistant Professor, B.S., O.D., University of Houston, College of Optometry
- Gerald G. Melore, Adjunct Assistant Professor, B.A., New York University; B.S., O.D., Massachusetts College of Optometry; M.P.H., University of North Carolina
- N. Ron Melton, Adjunct Instructor, B.S., O.D., Pennsylvania College of Optometry
- Timothy Messner, Adjunct Instructor, B.S., O.D., University of California at Berkeley
- Susan M. Millaway, Adjunct Instructor, B.S., Kutztown State University; M.Ed., Temple University
- Paul C. Mitchell, Adjunct Instructor, B.S., O.D., Indiana University School of Optometry
- Sr. Judith A. Moeller, L.H.M., Adjunct Instructor, A.B., Immaculata College; M.Ed., Temple University
- William Monaco, Adjunct Instructor, B.S., O.D., Los Angeles College of Optometry, M.S., University of Southern California; Ph.D., University of Houston, College of Optometry

- Robert J. Morrison, Adjunct Associate Professor, O.D., Pennsylvania College of Optometry
- Tonia Mortelliti, Adjunct Instructor, B.A., Syracuse University; M.A., Columbia University; M.A., University of Wisconsin; O.D., State University of New York
- Bruce G. Muchnick, Assistant Professor, B.A., Temple University; B.S., O.D., Pennsylvania College of Optometry
- Holly Myers, Assistant Professor of Optometry, B.S., O.D., Pennsylvania College of Optometry
- Kenneth J. Myers, Adjunct Assistant Professor, B.S.E.E., B.S., University of Akron; M.Sc., Ph.D., Ohio State University; O.D. Massachusetts College of Optometry
- Elliot Myrowitz, Adjunct Instructor, B.S., O.D., Pennsylvania College of Optometry
- James M. Novak, Adjunct Instructor, B.A., Colgate University; O.D., New England College of Optometry
- Jeffrey S. Nyman, Associate Professor of Optometry, B.S., McGill University; B.S., O.D., Massachusetts College of Optometry
- Neal N. Nyman, Associate Professor of Optometry; B.S., McGill University; B.S., O.D., Massachusetts College of Optometry
- Lizabeth O'Donnell, Adjunct Instructor, B.A., Cleveland State University; M.S., Pennsylvania College of Optometry
- Susan Oleszewski, Associate Professor of Anatomy, M.S., Temple University; B.S., O.D., Pennsylvania College of Optometry
- Olee J. Olsen, Adjunct Instructor, B.S., O.D., Illinois College of Optometry; M.Ed., University of North Carolina
- Gale Orlansky, Staff Optometrist, B.A., Queens College; O.D., State University of New York
- Jean Marie Pagani, Instructor, B.S., Villanova University; B.S., O.D., Pennsylvania College of Optometry
- Susan L. Parthasarthy, Adjunct Faculty, B.S., Stephen F. Austin State University
- Maria Parisi, Instructor, B.S., O.D., Pennsylvania College of Optometry
- Lisa Porch, Adjunct Instructor, B.S., Edinboro State College; M.S., Pennsylvania College of Optometry
- Paul Pryzbyla, Adjunct Instructor, O.D., Southern California College of Optometry
- Francine Pearlman Storch, Teaching Associate, A.B., Lafayette College; B.S., O.D., Pennsylvania College of Optometry
- John Ray, Assistant Professor, B.S., Utica College; B.S., O.D., Pennsylvania College of Optometry
- Roy Rengstorff, Adjunct Instructor, B.S., O.D., Illinois College of Optometry; M.S., Pacific University; Ph.D., Ohio State University
- Christopher A. Rinehart, Associate Professor of Optometry, B.S., M.A., Drexel University; O.D., Pennsylvania College of Optometry
- Paul H. Robinson, Assistant Professor of Optometry, B.S., O.D., Pennsylvania College of Optometry
- George Rooney, Adjunct Instructor, B.S., O.D., Indiana University, School of Optometry
- Joseph P. Ruskiwicz, Associate Professor of Public Health, O.D., Illinois College of Optometry; M.P.H., University of Illinois
- Thomas Scarino, Adjunct Instructor, B.S., Pennsylvania State University; B.S., O.D., Pennsylvania College of Optometry
- Mitchell Scheiman, Associate Professor, B.S., O.D., New England College of Optometry
- Joseph Showlin, Adjunct Instructor, B.A., Gettysburg College; B.S., O.D., Pennsylvania College of Optometry
- John B. Siegfried, Professor of Psychology and Physiological Optics, A.B., University of Rochester; M.S., Ph.D., Brown University
- Charles V. Sikes, Jr., Adjunct Instructor, B.S., Campbell University; O.D., Pennsylvania College of Optometry; M.Sc., North Carolina State University
- Joel A. Silbert, Associate Professor of Optometry, B.A., University of Pennsylvania; B.S., O.D., Pennsylvania College of Optometry
- Audrey J. Smith, Associate Professor, B.A., M.Ed., University of Pittsburgh; Ph.D., University of Pennsylvania
- Marvin B. Smith, Associate Professor of Pharmacology and Physiology, B.S., Temple University School of Pharmacy; M.S., Ph.D., Philadelphia College of Pharmacy and Science
- Michael R. Spinell, Associate Professor of Optometry, B.A., University of Connecticut; B.S., O.D., Pennsylvania College of Optometry
- Janet Steinberg, Adjunct Instructor, B.S., O.D., Pennsylvania College of Optometry
- Mark Steciw, Adjunct Instructor, B.A., M.Ed., Temple University
- Randall K. Thomas, Adjunct Instructor, B.S., O.D., Pennsylvania College of Optometry
- Joseph C. Toland, Professor of Pathology, O.D., Pennsylvania College of Optometry; M.D., Hahnemann Medical College and Hospital

Laurel Ann Tucker, Adjunct Instructor, B.B., University of Florida; M.S., Pennsylvania College of Optometry
 Joseph Udvari, Adjunct Instructor, B.S., O.D., Pennsylvania College of Optometry
 Sarya B. Verma, Assistant Professor of Optometry, D.R. Opt., School of Optometry, Gandhi Eye Hospital (India); B.A., Delhi University (India); O.D., Pennsylvania College of Optometry
 Bruce Walker, Adjunct Instructor, B.S., O.D., Pennsylvania College of Optometry
 Robert Walker, Adjunct Instructor, O.D., Pennsylvania College of Optometry
 Gale Watson, Associate Professor, M.A. Ed., University of Alabama
 George White, Associate Professor of Optometry, B.S., Siena College; O.D., Pennsylvania College of Optometry
 John C. Whitener, Adjunct Instructor, O.D., Illinois College of Optometry; M.P.H., University of North Carolina at Chapel Hill
 Stephen Whitaker, Associate Professor of Physiological Optics, B.S., Hobart College; M.A., Ph.D., University of New Hampshire
 John R. Williams, Adjunct Instructor, B.S., Virginia Union University; O.D., Illinois College of Optometry
 Joan Wing, Instructor, B.S., California State University at Sacramento; B.S., O.D., Pennsylvania College of Optometry
 Sui Wong, Adjunct Instructor, B.S., O.D., M.P.H., University of California at Berkeley
 Charles M. Wormington, Associate Professor of Biophysics & Optometry, B.A., University of California; M.A., Ph.D., Johns Hopkins University; O.D., New England College of Optometry

Administration

Office of the President

Thomas L. Lewis, O.D., Ph.D., President
 Elizabeth A. Cochran, B.S., Executive Assistant to the President
 Robert E. Horne, M.S., Affirmative Action Officer

Office of Academic Advancement

Anthony F. DiStefano, O.D., M.P.H., Vice President & Dean for Academic Advancement
 William M. Dell, O.D., M.P.H., Associate Dean for Education
 Pierrette Dayshaw Barker, Ph.D., Assistant Dean for Basic Sciences
 Susan Oleszewski, O.D., M.S., Assistant Dean for Clinical Sciences

Robert Ellis, Director of Technical Services
 Ronald Davidoff, Director of Instructional Media
 Marita I. Krivda, M.S., Librarian
 Lorraine Lombardi, M.S., Ph.D., Assistant Dean for Faculty Affairs
 Audrey J. Smith, M.Ed., Executive Director for The Institute for the Visually Impaired
 Anna Bradfield, Ph.D., Director for Low Vision Research
 Susan M. Kershman, Ph.D., Chairperson, Department of Graduate Studies
 Sheree J. Aston, B.S., O.D., Executive Director for Planning & Development
 Director of Public Relations (TBN)
 Donna W. Dagnon, Director of Alumni Relations & Annual Giving
 Patricia Valecce, Director of Sponsored Programs Administration

Office of Student Affairs

John J. Crozier, O.D., Vice President & Dean for Student Affairs, Director of Admissions
 Robert E. Horne, M.S., Associate Dean for Student Affairs & Director of Minority Student Affairs
 Virginia Kennedy, Registrar
 Marilyn Woods, Ph.D., Director of Counseling Services
 Nancy M. Griffin, Assistant Director of Admissions
 James M. Caldwell, O.D., Assistant Director of Admissions
 Stacey Simpson, Admissions Officer
 B. Christopher Dougherty, Admissions Officer

Office of Finance

Patrick J. Sweeney, M.B.A., Vice President for Finance & Business Administration
 Eugene C. Wayne, M.B.A., Executive Director of the Eye Institute
 Charles Schweitzer, Director of Institutional Services
 Sgt. Kenneth Earl, Chief of Security
 Alex Anderson, Director of Management Information Systems
 Lawrence H. McClure, M.A., Associate Dean for Student Financial Affairs
 Kitty Heard, M.Ed., Assistant Director for Student Financial Aid
 Sue Keenan, Bursar
 Charles Daly, Bookstore Manager
 Maureen A. Brusca, B.S., Controller
 Jim Gallagher, Director of Physical Plant

The Center for Continuing & Post-Graduate Education

Eleanor Hought, Coordinator of the Center for Continuing Education

The Eye Institute

Christopher J. Cakanac, O.D.
 Robert M. Cole, III, O.D.
 I. William Collins, O.D.
 Scott A. Edmonds, O.D.
 Paul B. Freeman, O.D.
 Elmer S. Friedberg, O.D.
 Joe B. Goldberg, O.D.
 George Gottschalk, O.D.
 James R. Hall, O.D.
 Harvey P. Hanlen, O.D.
 Robert J. Johnson, O.D.
 Arthur Jordan, O.D.
 James P. McAvoy, O.D.
 Barry G. Miliis, O.D.
 William A. Monaco, O.D.
 Robert J. Morrison, O.D.
 Benson W. Olenick, O.D.
 Stanley R. Palko, O.D.
 Martin Rawdin, O.D.
 Harvey M. Rosenwasser, O.D.
 Jacob Rosner, O.D.
 Janet M. Russavage, O.D.
 Freda Sattel, O.D.
 Joseph Smith, O.D.
 Janet E. Summers, O.D.
 Nathan Torrens, O.D.
 Robert L. Walker, O.D.
 Harold Wiener, O.D.

Other Professional Staff

Najee Ali, Certified Optician
 Mark J. Bernhardt, A.S., Certified Optician and Optical Service Manager
 Penni Blaskey, Ph.D., Director, Assistant Professor, Education/Psychological Services
 Anna Bradfield, Ph.D., Coordinator, Graduate Studies
 Christine Brisson, O.D., Consultant, Primary Care Optometry
 Cherie G. Broch, M.Ed., Reading Therapist
 Robert Cohen, M.Ed., Reading Therapist
 Edward J. Collins, Supervisor, Optical Fabrication Lab
 Beverly Cutler, Ph.D., Consultant Psychologist
 Shelley Cutler, O.D., Consultant, Primary Care Optometry
 Edward A. Deglin, M.D., Ophthalmological Consultant in Retinal Disease
 Therese Deschenes, O.D., Consultant, Primary Care Optometry
 Esther Eglick, Vision Therapist
 Theresa Elliot, Certified Optician
 Martin A. Foley, M.Ed., Reading Therapist

Carl Freedman, M.Ed., Reading Therapist
 Ivan Goldman, Certified Optician
 Marcy J. Graboyes, M.S.W., Low Vision Counselor
 Judi Greenwood, Opt.T.,R., Optometric Technician
 Charles E. Harris, M.Ed., Reading Therapist
 Madge Hinman, O.D., Consultant, Primary Care Optometry
 Amy Johnson, Low Vision Specialist
 Sheryl D. Russ-Klapper, M.Ed., Reading Therapist
 Joan LaMar, M.Ed., Reading Therapist
 Sue McNulty, M.Ed., Reading Therapist
 Catherine E. Muhr, Opt.T.,R., Educational Coordinator, Department of Clinical Sciences
 Lizabeth O'Donnell, M.S., Orientation and Mobility Instructor
 Gale Orlansky, O.D., Consultant, Pediatric Optometry
 Linda Pipher, M.Ed., Reading Therapist
 Karen Pollack, Vision Therapist
 Mitzi Reisenwitz, Opt.T.,R., Optometric Technician
 Eileen Schanel-Klitsch, Ph.D., Electrodiagnostic Consultant
 Judith M. Schwartz, M.Ed., Reading Therapist
 Richard M. Selznick, Ph.D., Staff Psychologist
 Jane T. Stein, B.A., Fluorescein Angiographer and Ophthalmic Photographer
 Mary Jameson Stein, Opt.T.,R., Optometric Technician
 Glenda Such, B.A., Coordinator, Research Recruitment
 Kathleen A. Thompson, M.Ed., Reading Therapist
 Laurel Tucker, M.S., Vision Rehabilitation Specialist
 Diane Villiers, M.Ed., Reading Therapist
 Theresa Waltrich, Opt.T.,R., Optometric Technician
 Gail Wheatley, M.S., Low Vision Specialist
 Debra Williamston, Optician
 Valjean Wright, M.Ed., Reading Therapist

Hahnemann University

Department of Ophthalmology

Robert Davis, Practice Manager
 Gary R. Diamond, M.D., Associate Professor
 James S. Lewis, M.D., Assistant Professor
 Amram Shapiro, M.D., Associate Professor
 Stephen H. Sinclair, M.D., Vice Chairman & Associate Professor
 Elliot B. Werner, M.D., Associate Professor
 Myron Yanoff, M.D., Chairman & Professor

Other Hahnemann University Faculty

Mary A. Delaney, M.D., Assistant Professor, Psychiatry
 David S. Kountz, M.D., Clinical Instructor, Internal Medicine
 David P. Roeltgen, M.D., Associate Professor, Neurology

1990-92 Academic Calendar

Fall Quarter 1990

September 4	First day of instruction
September 20-21	Holiday recess
November 21	End of Fall Quarter
November 22-23	Holiday recess

Winter 1990-91

November 26	First day of instruction
December 24-	
January 1, 1991	Holiday recess
January 2	Instruction resumes
January 21	Holiday recess
February 19	End of Winter Quarter

Spring 1991

February 25	First day of instruction
March 29-	
April 1	Holiday recess
April 9-11	NBEO
May 24	End of Spring Quarter
May 25	Commencement

Summer Quarter 1991 (*Third & Fourth Year Students Only*)

June 3	First day of instruction
July 4	Holiday recess
August 13-15	NBEO
August 23	End of Summer Quarter

Fall 1991

September 3	First day of instruction
September 9	Holiday recess
September 17-18	Holiday recess
November 27	End of Fall Quarter
November 28-29	Holiday recess

Winter 1991-92

December 2	First day of instruction
December 23-	
January 1, 1992	Holiday recess
January 2	Instruction resumes
January 21	Holiday recess
February 27	End of Winter Quarter

Spring 1992

March 2	First day of instruction
April 14-16	NBEO
April 17-20	Holiday recess
May 22	End of Spring Quarter (First & Fourth Year Students)
May 23	Commencement Exercises
May 25	Holiday recess
May 28	End of Spring Quarter (Second & Third Year Students)

Directions to the Pennsylvania College of Optometry



The Philadelphia College of Optometry and its Eye Institute are located in the Oak Lane section of Philadelphia, bordering suburban Montgomery County. For out-of-town visitors, the campus is easily accessible from train and bus stations, the airport and major highways. In-city public transportation includes Southeastern Pennsylvania Transportation Authority (SEPTA) subway, bus, or commuter train lines; taxicab; and limousine and express bus service from the airport. Local transportation costs indicated are approximated one-way charges and are subject to change. For more information on SEPTA fares and schedules, call 580-7800.

From Train (*Amtrak's 30th Street Station*)

- 1) SEPTA Warminster Commuter Train to Fern Rock Station (S3). Walk 3 blocks West on Godfrey Avenue to College entrance.
- 2) Taxicab direct to the College (S20-S25).

From Bus (*Greyhound & Trailways Station, 10th & Filbert Sts.*)

- 1) Walk across street (eastward toward JC Penney's) to Market East Station. Board SEPTA Warminster Commuter Train to Fern Rock Station (S3.75). Walk 3 blocks West on Godfrey Avenue to College entrance.
- 2) Taxicab direct to the College (S16-S18).

From Airport (*Philadelphia International*)

- 1) Taxicab direct to the College (S25-S30).
- 2) Airport High Speed Line (S4.75 one way (pre-paid) which leaves the airport every 30 minutes from 6:10 a.m. to 12:10 a.m. to Market East Station (11th & Market Streets). Board SEPTA Warminster Commuter Train (S3.25) to Fern Rock Station. Walk 3 blocks West to the College.
- 3) Automobile: Refer to directions below for the auto route from the South, via I-95.

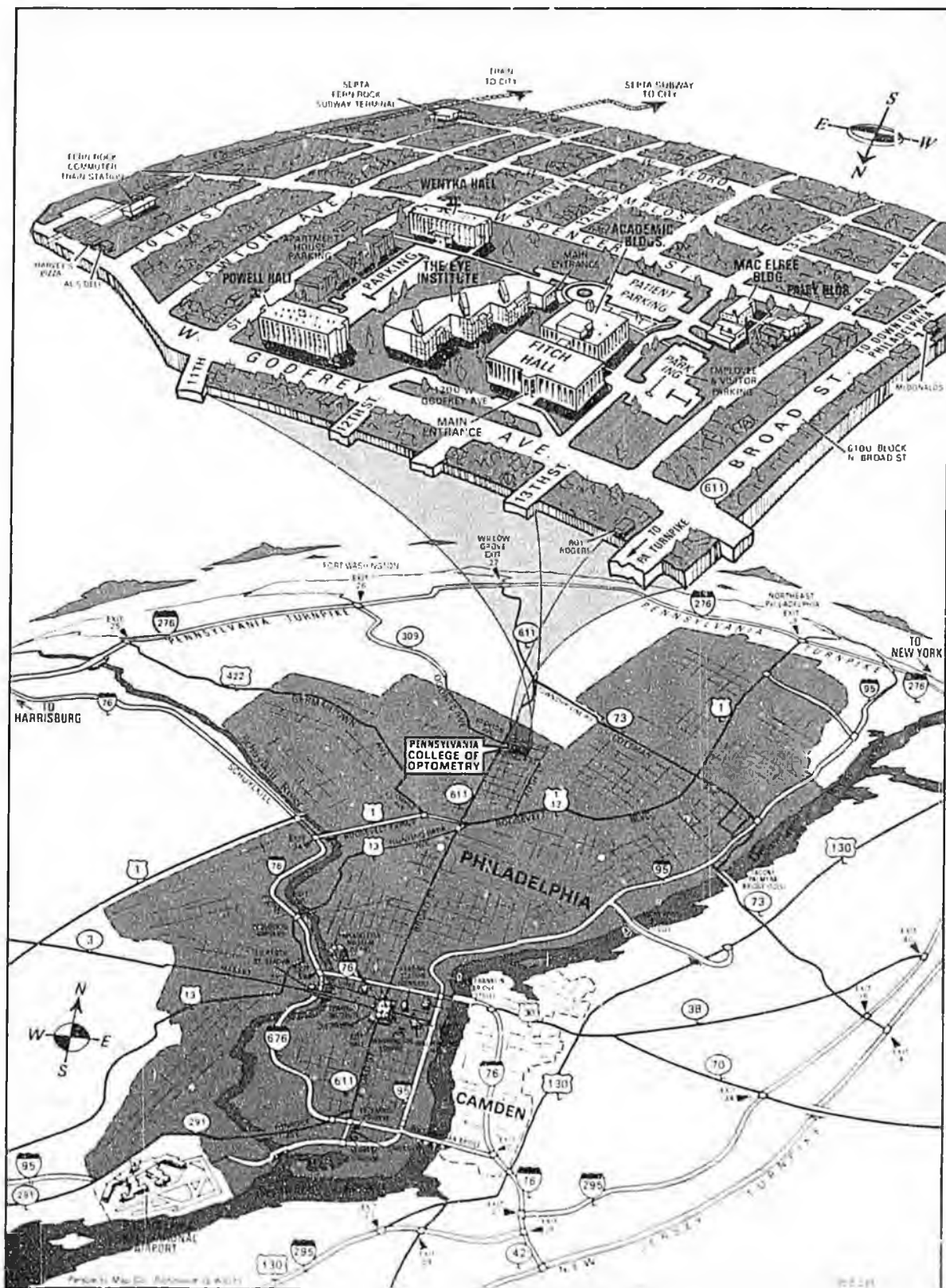
By Automobile

From the North, East and West — via Pennsylvania Turnpike

Take turnpike to Exit 26 (Fort Washington — Route 309). Follow Route 309 South crossing Cheltenham Avenue. (309 becomes Ogontz Avenue here). Proceed South on Ogontz Avenue to Stenton Avenue, turn left. (Stenton Avenue becomes Godfrey Avenue at Broad Street.) Proceed 1½ blocks East on Godfrey Avenue to College entrance.

From the South — via I-95

Follow I-95 North to the George C. Platt Memorial Bridge (just beyond Airport). Follow signs 1 mile to I-76 West, the Schuylkill Expressway. Follow the Schuylkill Expressway to the Roosevelt Expressway (Route 1 North). Take the Broad Street exit off the Expressway. Turn left on Broad Street and continue for 15 blocks to Godfrey Avenue and turn right. Proceed 1½ blocks East to College entrance.



The Pennsylvania College of Optometry, by choice, declares and reaffirms its policy of complying with federal and state legislation and does not in any way discriminate in educational programs, employment, or in services to the public on the basis of race, color, creed or religion, sex, national origin, age or physical or mental handicap. In addition, the College complies with federal regulations issued under Title IX of the Educational Amendments of 1972, and Section 504 of the Rehabilitation Act of 1973, as amended.

NOTE: All statements in this publication are announcements of present policies only and are subject to change at any time without prior notice.

Recruitment Series Credits

Photographs

Terry Bisbee
Rita Davidoff

Graphic Design

Vivian A. A. Gast

Editorial Supervision

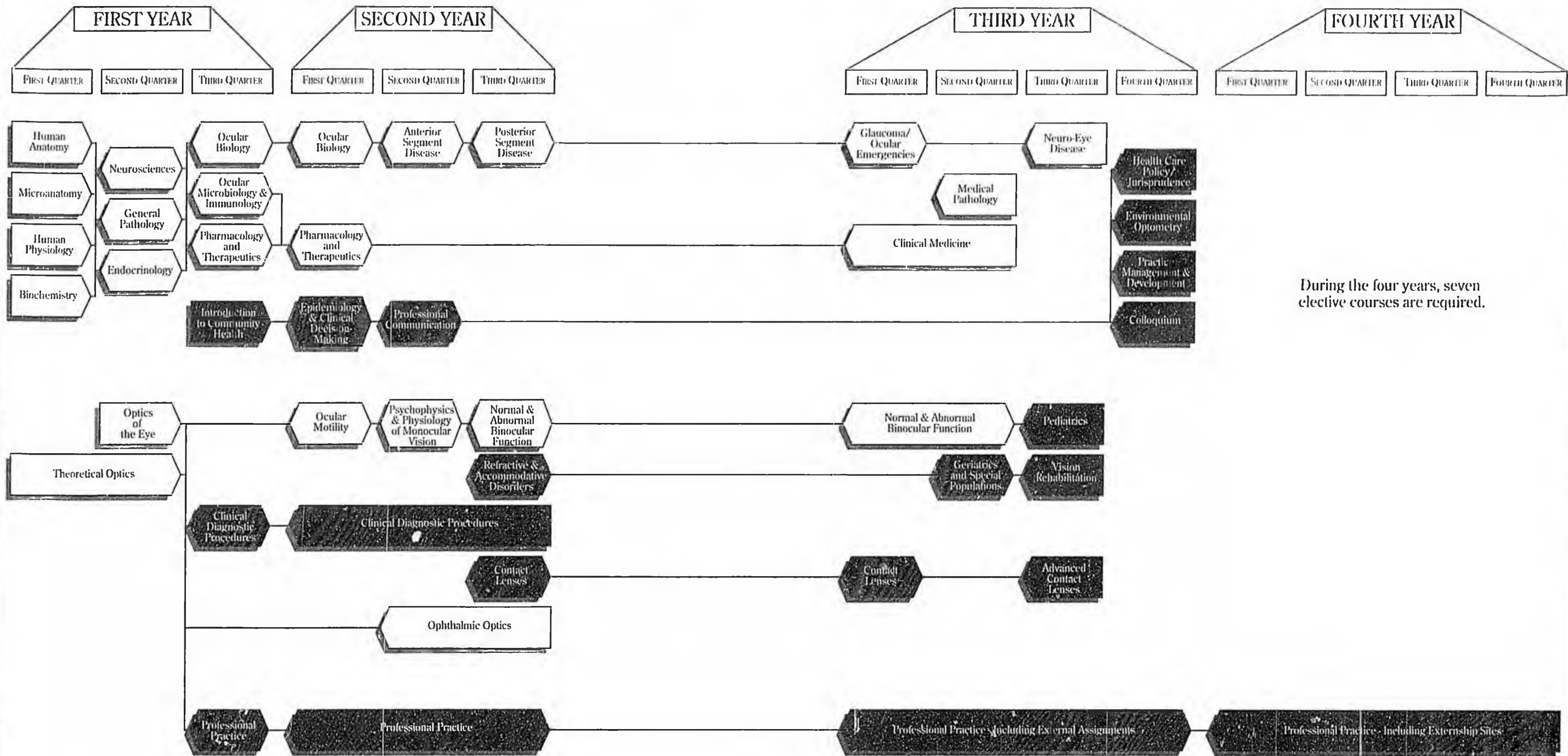
Rebecca Kowchuck, Steege-Thomson
Communications

Pennsylvania College of Optometry
Office of Admissions
1200 West Godfrey Avenue
Philadelphia, PA 19141

215 276-6262
Outside Pennsylvania, 800 824-6262

Catalog 1990-1992
PCO-200

Four-Year Optometric Degree Program



During the four years, seven elective courses are required.

 Department of Clinical Sciences
 Department of Basic Sciences



OPTOMETRY: THE PROFESSION

Optometry is an independent primary health care profession.

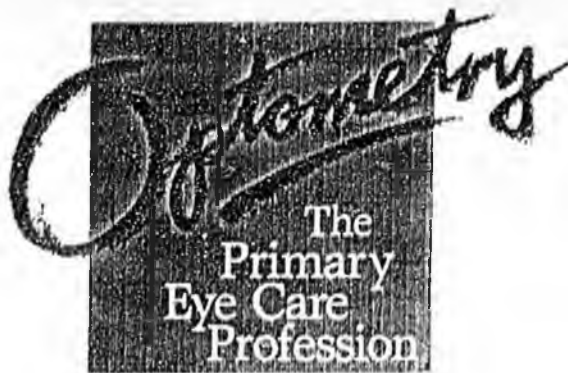
It encompasses the prevention and remediation of disorders of the eye/vision system through the examination, diagnosis, treatment and/or management of visual efficiency and eye health. The recognition and diagnosis of related systemic manifestations are designed to preserve and enhance the quality of life and environment.

Doctors of Optometry are primary health care providers who diagnose, manage and treat conditions and diseases of the human eye and visual system as regulated by state law.

These health care professionals are specifically educated, clinically trained and state licensed to examine the eyes for the presence or absence of vision problems, eye diseases or ocular manifestations of systemic diseases such as diabetes, hypertension, hyperthyroidism, etc. The primary vision care needs of consumers have shaped the scope of optometric practice as it is today.



American Optometric
Association



EDUCATION OF THE DOCTOR OF OPTOMETRY

To establish perspective, there is value in comparing the general characteristics of the education of selected health professionals: optometry, medicine, podiatry, nursing and pharmacy.

Perhaps the most current review is reported by Robert F. Rushmer, M.D.¹ noted author and Director, Center for Advanced Studies in Biomedical Sciences, School of Medicine, University of Washington. He observed that each has state board requirements; all but pharmacy have national boards. All these educational institutions require accreditation at regular intervals. The admission requirements for medicine are less specific or demanding than in some other categories.

Each of these educational processes involves some years of basic sciences, preclinical education and clinical experience. Rushmer concludes, "In general, the basic educational experience of these five professions are remarkably similar and cannot account for consistent under utilization of 'non-medical' health professionals."

Addressing the concern for the provision of primary care, Dr. Rushmer makes the observation that the numbers of general practitioners and family physicians are grossly inadequate to afford the luxury of initial contact with physicians as the standard procedure; this is compounded in remote areas and central cities.

He points to the need for utilization of other health professions. Dr. Rushmer states, "Pharmacists undoubtedly have a sounder education in the details of dosage and distinctions among pharmaceutical agents than do physicians. Similarly, optometrists have a more extensive exposure to the basic principles of physiological optics than do physicians."

"From earliest times, the training of physicians has been based in large measure on apprenticeship, and vestiges of this orientation are clearly visible today in the clinics and the wards of teaching hospitals." "The residents, training to be specialists, usually serve as surrogate faculty for both interns and medical students." In contrast the training of optometrists can be described as a combined didactic, laboratory and clinical curriculum, the design of which has many parallels to dentistry.

By being exempt from the provisions of the statutes governing the practice of optometry, physicians in general are legally entitled to test eyes and prescribe glasses. Ophthalmologists complete a three year apprenticeship-style residency program concerning diseases of the eye; ophthalmology being a subspecialty of surgery. Beyond that of general medicine no licensing is required to practice ophthalmology.

In comparing the specialties Dr. Rushmer states, "...the upgraded curricula of optometry schools generally provide more extensive basic knowledge, training and experience in correcting refractive errors that most ophthalmologists receive. Training and clinic experience in detection of eye pathology now renders recent graduates of optometry school capable of filling an extremely important role in this specialized area of health care. The persistent opposition of the medical profession has retarded but only partially impeded optometrists from providing ever expanding service in the care of the eye."

1. Rushmer, R.F.: National Priorities for Health: New York, Wiley, 1980.



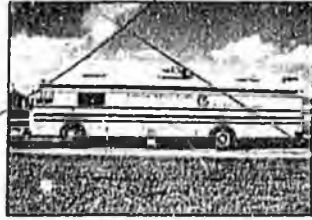
American Optometric
Association

CATARACT SURGEONS HIT THE ROAD

Some Florida cataract surgeons are hitting the road to search for prospective patients.

Several large cataract surgery centers have purchased specially-outfitted screening vehicles, which make the rounds of the retirement communities, mobile home parks and shopping malls.

Inside the vans, technicians—and sometimes optometrists—perform free cataract and glaucoma screenings. When they find problems, they refer patients first



Eye Center of Florida's 40-foot screening vehicle.

to their own eye doctors for complete eye exams. If the patient doesn't have an eye doctor, they refer to area O.D.s friendly to the van's owner. And they offer the surgeon's services as well.

The idea is to find cataract patients, and reap the \$1,549 to \$1,821 per eye Medicare

pays for surgery in Florida.

"It's a gimmick designed to find patients for surgery. The more cataracts, the better," says Fort Myers O.D. Donnie Dance.

Those who manage the vans admit to ulterior motives. "It's a marketing thing," says Richard A. Nixon, director of professional services for the Ft. Myers-based Eye Center of Florida. He is responsible for the comings and goings of a specially-equipped 40-foot vehicle that cruises throughout six counties, five to six

(Continued on p. 9)

IN THE NEWS: U.S. VISION SETTLES SUIT

U.S. Vision has settled out of court with Indianapolis O.D. Christopher OBeime, who sued the optical chain last September for "wrongfully" terminating an unwritten lease he had with the company and for refusing to return his patient records. Details of the settlement were not released.

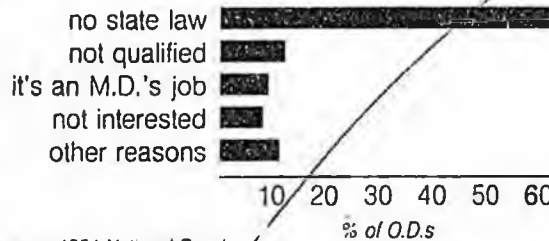
Carl Zeiss, Inc. has denied an accusation by some newspapers and TV stations that it is among a group of German firms that sold military equipment to Iraq and supported the production of chemical weapons. Zeiss did sell medical equipment and surveying instruments to Iraq during the 1980s, a company spokesman said.

DRUGS BECOME A GREATER PART OF PRACTICE

Using drugs to diagnose and treat eye diseases could soon be the norm rather than the exception in optometric practice. O.D.s are more likely to use diagnostic and therapeutic drugs today than they were in 1989, and they're handling nearly twice as many treatment-based office visits.

So says our latest National Panel, Doctors of Optometry, survey. Forty-four percent of our 500 panelists responded. More O.D.s today are

Why don't you prescribe therapeutics?



Source: 1991 National Panel

licensed to use diagnostic and therapeutic drugs than in 1989. Today, nine in 10 panelists may use DPAs; three in 10 may use TPAs. With these privileges, one California O.D. proclaims, "Patients no longer have

an excuse to see an ophthalmologist for primary eye care."

It appears that O.D.s with licensure are more likely than two years ago to use drugs in daily practice. In 1989, only 6 percent of our

(Continued on p. 9)

Blindness in rural areas nearly doubles the national rate, according to a study by researchers at Johns Hopkins. The researchers found that half the cases of blindness and impaired vision in their study could have been prevented with proper treatment. ■

REVIEW OF OPTOMETRY (USPS 087-350) is published the 15th of each month for \$36 per year (\$49 per year in Canada, \$57 in all other countries) by Chilton Company, Chilton Way, Radnor, PA 19089. Chilton Company is a division of American Broadcasting Companies, Inc., New York, NY. Second Class Postage Paid at Wayne, Pa., and other mailing offices. POSTMASTER—Send address changes to Review of Optometry, P.O. Box 2080, Radnor, PA 19089-9926. COPYRIGHT—The entire contents of Review of Optometry are copyrighted, and may not be reprinted, duplicated, stored or transmitted except under the following conditions: up to 500 COPIES of an article may be made without charge or modification for a base fee of \$1 per copy plus \$0.25 per page to the Copyright Clearance Center, 21 Congress St., Salem, MA 01970. 500 COPIES OR MORE may be ordered as reprints. For costs, consult Production Manager, Review of Optometry, Chilton Way, Radnor, PA 19089, or call (215) 964-4374. — (0147-7633/87 — \$1 plus \$0.25). Canadian GST Registration No.: R125906743.

An Analysis of Pharmacology Training in Schools of Optometry, Medicine and Dentistry

Marti Waigandt, B.S.
Alex Waigandt, Ph.D.

1985

Introduction

In recent years, a great deal of controversy has existed over the issue of drug licensure for optometrists. Members of the medical community have come out on both sides of the issue, some stating that optometrists are neither qualified to use nor require pharmaceuticals in practice and others stating that pharmaceuticals are both necessary and important in optometric practice.^{1,2,3}

The role of the optometrist has changed markedly from the mid-19th century entrepreneur who merely corrected refractive errors to the highly skilled professional licensed to examine, diagnose and treat conditions of the visual system.^{4,5} In addition to correcting refractive errors, the optometrist can often recognize early stages of pathological conditions such as diabetes, hypertension, arteriosclerosis, cataracts and glaucoma.⁶ Since many of these conditions are asymptomatic at the onset, it is of vital importance that optometrists serve as portals of entry and make referral to the appropriate health care provider.⁷ Optometrists refer 5.6 percent of their patients each week.⁸ Improved and more complete ocular and visual care would undoubtedly be accomplished with the use of pharmaceutical agents. This would

result in increased benefits and service to the patient. With the use of these agents, the training and skills of the optometrist would be maximized.

Not only has the role of the optometrist expanded, but so has the public need for his services. In the United States, approximately two out of every five persons require eye care, most of which is provided by optometrists.⁹ Approximately 19,300 optometrists currently provide eye and vision service to 69 percent of the counties in the United States. About 9,500 active ophthalmologists provide service in only 33 percent of the counties in the U.S. and they are concentrated primarily in metropolitan areas.¹⁰ Therefore, where a large proportion of the population has no access to an ophthalmologist they may have access to an optometrist.¹¹ It is important that every adjunct to diagnosis, including pharmaceutical agents, be made available to the optometrist in order to serve the public.

With regard to the diagnostic agents utilized by optometrists, the risks of adverse drug reactions are minimal. The safety and efficacy of these drugs has been established and substantiated in the professional literature.^{12,13,14} One study showed that, for an 85 year period, "possibly ten deaths were reported associated with the topical application of these drugs, but only when misused."¹⁵ Additionally, use of diagnostic pharmaceutical agents by optometrists in England, the United States Armed Services and in over thirty states in which use of these drugs is allowed

has not resulted in any incidence harmful to the welfare of the public.¹⁶

The public need for optometrists to use drugs has been stated and the safety of these drugs has been demonstrated. Therefore, the question is: Are optometrists qualified to use pharmaceuticals? It is the intent of this study to analyze optometrists in terms of academic qualifications as compared to clinicians currently licensed to use pharmaceuticals.

Methods

Fourteen states contain colleges of optometry: Alabama, California, Illinois, Indiana, Massachusetts, Michigan, Missouri, New York, Ohio, Oklahoma, Oregon, Pennsylvania, Tennessee and Texas. These states were designated as study states and collectively contain 111 colleges of medicine, dentistry and optometry. Of these school types, 37 colleges of medicine, 31 colleges of dentistry and 15 colleges of optometry were selected for participation in the study. The department chairperson or director of pharmacology in each school was identified as the study respondent.

Data were generated from the subjects' responses to an instrument whose purpose was to query the amount of hours devoted to the study of pharmacology. The investigation, being descriptive in nature¹⁷ viewed hours spent in each of 13 major pharmacology study categories and total class hours in the study of pharmacology as separate dependent variables. These categories included: (1) basic principles in pharmacology, (2) drug effects on the nervous

Marti Waigandt, B.S., is a second year student in the College of Optometry at the University of Houston. Alex Waigandt, Ph.D., is an assistant professor in the Department of Health, Physical Education and Recreation at the University of Houston.

system, (3) psychopharmacology, (4) central nervous system stimulants and depressants, (5) anesthetics, (6) cardiovascular agents, (7) ocular pharmacology, (8) respiratory and gastrointestinal tract agents, (9) endocrine pharmacology, (10) chemotherapy, (11) poisons and antidotes, (12) drug interactions and (13) prescription writing. A 14th variable involved the total hours each school type spends on the study of pharmacology. This instrument was designed through a review of the literature¹⁸ and with the consultation of experts in the field; and, indicative of a pharmacology education sequence for health practitioners.

Results from the instrument were analyzed using the statistical package for the social sciences (SPSS) and calculated on an AS 9000 computer system at a major university. Treatment of the data was performed implementing: (1) descriptive tables utilized to analyze the demographic data, (2) means, standard deviations and analysis of variance (ANOVA) to analyze the major pharmacology study categories and (3) comparative analyses on the major pharmacology study categories whose F-ratio indicated significant differences. The .01 level was selected for statistical significance.

Results

Of the 83 schools surveyed, 41 schools responded (49.4 percent response rate overall). (Note: Several schools responded after the study deadline of May 1, 1984, but those data are not reflected in these results.) Eight were schools of optometry (53.3 percent response rate), 19 were schools of medicine (51.3 percent response rate) and 14 were schools of dentistry (45.2 percent response rate). Table 1 presents the states surveyed and the schools whose responses are reflected in the research data. With only one exception (Massachusetts), every state is represented by at least one school type and five states are represented by all school types studied.

The results of the pharmacology study questionnaire in terms of mean responses and statistical comparisons between the study groups in each of the 14 categories are presented in Tables 2, 3 and Figure 1. Table 2 presents means, standard deviations and analysis of variance of classroom hours spent on major pharmacological study categories for

TABLE 1
States surveyed and schools reflected in the research data

State	School Type	Number of Schools Responding
Alabama	Optometry	1
	Medical	2
	Dental	1
California	Optometry	2
	Medical	3
	Dental	1
Illinois	Optometry	1
	Medical	2
	Dental	1
Indiana	Optometry	1
	Medical	1
	Dental	0
Massachusetts	Optometry	0
	Medical	0
	Dental	0
Michigan	Optometry	0
	Medical	1
	Dental	1
Missouri	Optometry	1
	Medical	0
	Dental	0
New York	Optometry	0
	Medical	2
	Dental	1
Ohio	Optometry	1
	Medical	2
	Dental	2
Oklahoma	Optometry	0
	Medical	1
	Dental	1
Oregon	Optometry	0
	Medical	0
	Dental	1
Pennsylvania	Optometry	0
	Medical	2
	Dental	3
Tennessee	Optometry	0
	Medical	2
	Dental	0
Texas	Optometry	1
	Medical	1
	Dental	2
TOTAL		41

the school types. Table 3 shows the comparisons between school type for major pharmacology study category whose F-ratio indicates significant differ-

ences. Figure 1 illustrates the total class hours in pharmacology training for schools of optometry, medicine and dentistry.

Basic Principles in Pharmacology

The range of hours in category 1 of the instrument is 15. Four schools spend only three hours and two spend 18 hours on this category. The overall mean for the entire sample is 8.71 hours. An F-ratio of 5.48 shows that there are significant differences among the three school types in hours spent in this study category.

Schools of optometry are not significantly different than either schools of medicine ($t=2.51$, $df=16.2$, $p=.02$) or schools of dentistry ($t=0.04$, $df=14.3$, $p=.97$). Medical schools do, however, spend more hours on this category than schools of dentistry ($t=3.01$, $df=30.8$, $p=.005$).

Drug Effects on the Nervous System

The second category for comparison within the pharmacology study instrument involves class hours spent studying drug effects on the nervous system. The range of hours was found to be 23 with two schools spending only five hours and one school spending 28 hours on this category.

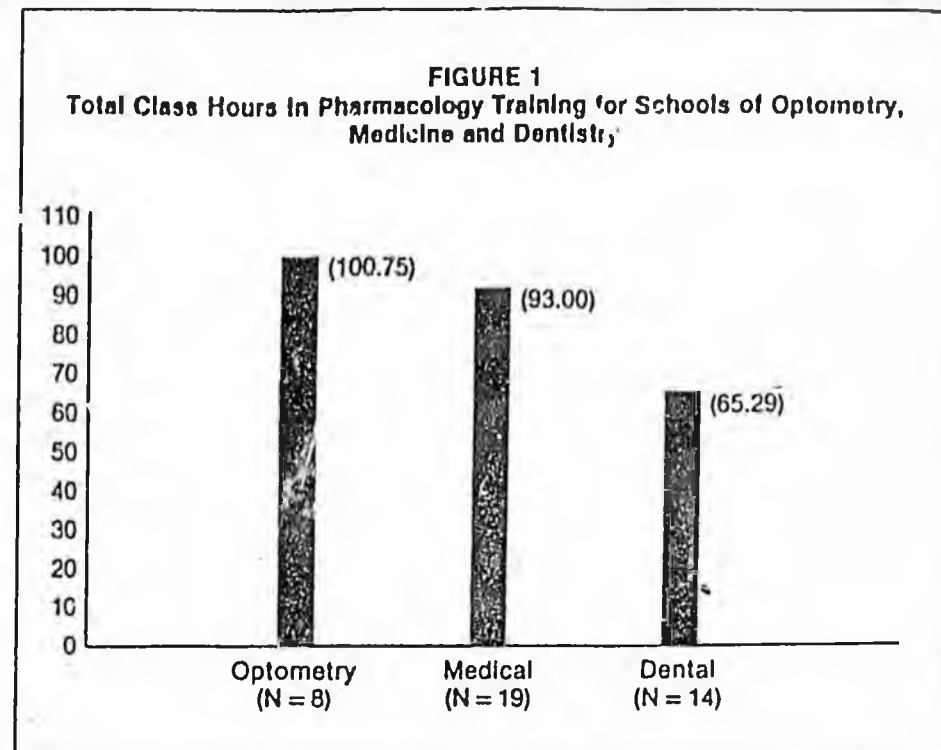
The mean is 13.24 overall and an F-ratio of 8.61 showed that there are significant differences among the three school types on this category of the instrument. Comparatively, optometrists and dentists do not differ on this category ($t=0.99$, $df=13.1$, $p=.922$), whereas medical schools devote more hours than either optometry ($t=2.97$, $df=14.8$, $p=.009$) or dental schools ($t=3.83$, $df=30.9$, $p=.001$).

Psychopharmacology

The range for hours spent teaching psychopharmacology is 10. The grand mean for this category is 4.75 with the three school types averaging between four and six class hours. According to the calculations, there are no significant differences ($F=1.74$, $p=.189/n.s.$) among optometry schools ($\bar{X}=4.37$, $SD=3.25$), schools of medicine ($\bar{X}=5.47$, $SD=2.24$) and schools of dentistry ($\bar{X}=4.00$, $SD=1.80$).

Central Nervous System Depressants and Stimulants

The fourth category within the questionnaire involves classroom hours spent on the CNS depressants and stim-



ulants. No significant differences are present among schools of optometry, medicine and dentistry for hours spent in this content area ($F=1.02$, $p=.368/n.s.$). The three school types average between seven and ten class hours on the CNS depressants and stimulants.

Anesthetics

The hourly range on the instrument category identified as anesthetics is 10. The overall mean for the entire sample is 4.63. Although schools of optometry and medicine are not significantly different in this category ($t=1.56$, $df=21.0$, $p=.133$), an F-ratio of 6.91 indicates that significant differences do exist among the three groups. The comparisons between schools on hours spent teaching anesthetics show that schools of optometry require significantly less hours than schools of dentistry ($t=3.80$, $df=18.9$, $p=.001$).

Cardiovascular Agents

Category six within the pharmacology study questionnaire deals with cardiovascular agents. An F-ratio of 14.31 shows that significant differences exist among the school types on this category. According to the analysis, optometry schools and schools of dentistry do not differ on this category ($t=1.24$, $df=19.8$, $p=.229$). The

mean hours for schools of medicine ($\bar{X}=12.26$) fall above the grandmean of 9.49 and indicate that medical schools spend more time on cardiovascular agents than dental schools and schools of optometry (Med vs Den, $t=3.74$, $df=23.8$, $p=.001$; Med vs Opt, $t=6.41$, $df=20.7$, $p=.000$).

Ocular Pharmacology

The seventh category within the instrument asks for classroom hours spent on ocular pharmacology. The overall mean hours spent by the sample schools is 7.12. According to the data, schools of optometry average ($\bar{X}=34.00$) more than the grand mean whereas medical and dental schools spend less time than the overall average ($\bar{X}=0.63$ and 0.57 respectively). All three groups had relatively large standard deviations that indicate extensive variability.

The results of the analysis of variance (ANOVA) show that there are statistically significant differences among the groups on this category of the pharmacology study questionnaire. The comparative analyses show that optometry schools spend more hours than schools of medicine ($t=8.97$, $df=7.0$, $p=.000$) and schools of dentistry ($t=8.94$, $df=7.0$, $p=.000$) teaching ocular pharmacology to their students.

TABLE 2
Means, Standard Deviations and Analysis of Variance of Class Lecture Hours Spent on Major Pharmacological Study Categories by Optometry, Medical and Dental Schools

Category	Optometry N=8 \bar{X} (SD)	Medical N=10 \bar{X} (SD)	Dental N=14 \bar{X} (SD)	Grand Mean (SD)	F-ratio	F
Basic Principles in Pharmacology	7.12 (3.04)	10.58 (3.75)	7.07 (2.95)	8.71 (3.36)	5.48	*
Drug Effects on Nervous System	10.75 (4.23)	16.26 (4.76)	10.57 (3.71)	13.24 (4.33)	8.61	**
Psychopharmacology	4.37 (3.25)	5.47 (2.24)	4.00 (1.80)	4.75 (2.37)	1.74	n.s.
CNS Stimulants and Depressants	7.75 (3.72)	9.89 (4.21)	8.57 (3.20)	9.02 (3.84)	1.02	n.s.
Anesthetics	3.12 (1.13)	4.05 (1.93)	6.29 (2.73)	4.63 (2.13)	6.91	*
Cardiovascular Agents	6.12 (1.88)	12.26 (2.99)	7.64 (3.83)	9.49 (3.15)	14.31	***
Ocular Pharmacology	34.00 (10.57)	0.63 (0.89)	0.57 (0.65)	7.12 (4.59)	170.14	***
Respiratory and GI Tract Agents	2.00 (1.77)	3.26 (1.66)	2.29 (2.02)	2.68 (1.85)	1.88	n.s.
Endocrine Pharmacology	5.50 (2.83)	7.11 (3.40)	4.14 (2.51)	5.78 (3.23)	3.93	n.s.
Chemotherapy	8.37 (4.75)	14.05 (5.50)	8.64 (4.24)	11.10 (4.96)	6.28	*
Poisons and Antidotes	1.00 (1.07)	3.31 (2.56)	1.35 (1.22)	2.19 (1.96)	5.90	*
Drug Interactions	1.50 (0.93)	1.47 (0.70)	1.71 (0.99)	1.56 (0.84)	0.35	n.s.
Prescription Writing	1.12 (0.64)	1.11 (0.87)	1.64 (1.15)	1.29 (0.95)	1.46	n.s.
Total Hours in Pharmacology	100.75 (14.24)	93.00 (15.47)	65.29 (19.40)	85.05 (16.71)	15.46	***

*p <.01 **p <.001 ***p <.0001

Respiratory and Gastrointestinal Tract Agents

An analysis of variance (ANOVA) conducted on responses to category eight of the Instrument indicate that optometry, medical and dental schools are not significantly different (F=1.88, p=.166/n.s.) in terms of hours spent teaching respiratory and GI tract agents.

The overall mean, in terms of hours, is 2.68 and the schools devote an average of two to four hours on this category.

Endocrine Pharmacology

The ninth category within the pharmacology study questionnaire deals with hours spent teaching endocrine pharmacology. An F-ratio of 3.93 (p=.028/n.s.) indicates that no signifi-

cant differences exist among the school types in terms of hours devoted to this category. All three school types are close to the grand mean of 5.78 class hours.

Chemotherapy

The range of hours the school types spend teaching chemotherapy is 30. Over 40 percent of the schools studied

TABLE 3
Comparisons Between School Type for Significant Differences ($p < .01$)
on Major Pharmacology Study Category

		t-ratio	df	t Probability
Basic Principles in Pharmacology	Optometry and Medical	2.51	16.2	.023
	Optometry and Dental	0.04	14.3	.969
	Medical and Dental	3.01	30.8	.005*
Drug Effects on the Nervous System	Optometry and Medical	2.97	14.8	.009*
	Optometry and Dental	0.10	13.1	.922
	Medical and Dental	3.86	30.9	.001*
Anesthetics	Optometry and Medical	1.56	21.9	.133
	Optometry and Dental	3.80	18.9	.001*
	Medical and Dental	2.62	22.2	.016
Cardiovascular Agents	Optometry and Medical	6.41	20.7	.000*
	Optometry and Dental	1.24	19.8	.229
	Medical and Dental	3.74	23.8	.001*
Ocular Agents	Optometry and Medical	8.97	7.0	.000*
	Optometry and Dental	8.94	7.0	.000*
	Medical and Dental	0.22	31.0	.820
Chemotherapy	Optometry and Medical	2.70	15.3	.020
	Optometry and Dental	0.13	15.3	.890
	Medical and Dental	3.19	30.9	.003*
Poisons and Antidotes	Optometry and Medical	3.31	25.0	.003*
	Optometry and Dental	0.77	16.4	.480
	Medical and Dental	2.92	27.2	.007*
Total Lecture Hours in Pharmacology	Optometry and Medical	1.26	14.3	.230
	Optometry and Dental	4.90	18.5	.000*
	Medical and Dental	4.41	24.2	.000*

* $p < .01$

spend 10 hours or less on this category while only five percent spend more than 20 hours. The grand mean for this category is 11.10 hours. The ANOVA indicates that significant differences ($F=6.28$) exist among the school type in terms of hours spent teaching chemotherapy.

Optometry schools are not significantly different than medical schools ($t=2.70$, $df=15.3$, $p=.02$) or schools of dentistry ($t=0.13$, $df=15.3$, $p=.89$). Dental and medical schools are significantly different ($t=3.19$, $df=30.9$, $p=.003$), however, with medical schools spending more time on chemotherapy than dental schools.

Poisons and Antidotes

Category eleven within the pharmacology study questionnaire asks for the number of hours the school types spend

on poisons and antidotes. An F-ratio of 5.90 indicates that there are significant differences among the school types on this category. A comparative analysis between school type shows that medical schools spend more time than schools of optometry and dentistry (Med vs Opt, $t=3.31$, $df=25.0$, $p=.003$; Med vs Den, $t=2.92$, $df=27.2$, $p=.007$) but that optometry and dental schools do not differ on hours spent teaching poisons and antidotes ($t=.88$, $df=16.4$, $p=.48$).

Drug Interactions

The overall mean within school types for this category of the instrument is 1.56 hours. All three school types average approximately one and a half hours teaching drug interactions. An analysis of variance ($F=0.35$, $p=.71/n.s.$) conducted on this category indicates

that schools of optometry, dentistry and medicine are not significantly different in terms of hours spent on category twelve.

Prescription Writing

The thirteenth category within the pharmacology study questionnaire involves responses relating to hours spent on prescription writing. No significant differences are found among the school types ($F=1.46$, $p=.24/n.s.$) with all three school types devoting approximately one hour on this category.

Total Hours in Pharmacology

The last category for comparison within the pharmacology study questionnaire deals with the total classroom hours the school types spend studying pharmacology. The range of hours is 88. Of the schools surveyed, one school

spends only 39 hours teaching pharmacology whereas another spends 127. The overall average within the school types is 85.05 hours. Figure 1 shows a graphic comparison for total class hours in pharmacology training for schools of optometry ($\bar{X} = 100.75$), medicine ($\bar{X} = 93.00$) and dentistry ($\bar{X} = 65.29$).

An analysis of variance indicates that significant differences exist among the groups for total hours spent teaching pharmacology. Comparisons between schools show that no significant differences exist between optometry and medical schools ($t = 1.26$, $df = 14.3$, $p = .23$). This is consistent with what Hegeman found when she compared the pharmacology content for optometry and medical students at Indiana University, Bloomington.¹⁹ Both schools of optometry and medicine devote more total class hours than

schools of dentistry to the study of pharmacology (Opt vs Den, $t = 4.90$, $df = 18.5$, $p = .000$; Med vs Den, $t = 4.41$, $df = 24.2$, $p = .000$).

Conclusions

The safety of the pharmaceuticals in question and the need for optometrists to use such agents has been established. In the opinion of some members of the medical community, optometrists are not properly educated in the area of pharmacology, thus unqualified to utilize pharmaceuticals. However, there is no justification for this belief on the basis of the data presented. Some ophthalmologists are presumptuous enough to believe that they are the only persons qualified to conduct comprehensive eye examinations.²⁰ This may be due to their lack of knowledge regarding academic training for optometrists.

Based upon the results of this study, optometrists receive sufficient training in the area of pharmacology. In no category were optometrists significantly lower than both medicine and dentistry. This indicates that optometry offers at least as much training in any study area as one of the other two health professions.

The significant differences present among the groups can be attributed to the professional requirements. Ocular pharmacology is emphasized for optometry while dentistry spends more time studying anesthetics and medicine, concentrates on cardiovascular agents, drug effects on the nervous system and poisons and antidotes. Therefore, all optometrists should be permitted to utilize ocular pharmaceutical agents in order to provide the maximum benefit and service to the public. □

References

1. Antony ML: "Letter to the Louisiana Ophthalmology Association" in Ophthalmic Physicians Education Network, 1976, pp. 29-30.
2. Jordan JS: "Letter to Senator Mellow" in Oklahoma Optometric Association, RE: HB 1316, 1981.
3. Duckett LR: "Letter to Senators Field and Kamas" in Oklahoma Optometric Association, RE: HB 1316, 1981.
4. American Optometric Association. Information for applicants to schools and colleges of optometry. A.O.A. Publication, No. CG-25-80, 1981.
5. Peters HB: Public health and the practicing optometrist. In Newcomb RD, Jolley JL (eds): *Public Health and Community Optometry*. Springfield, Charles C. Thomas, 1980, p. 12.
6. American Optometric Association. Information for applicants to schools and colleges of optometry. A.O.A. Publication, No. CG-25-80, 1981.
7. American Optometric Association. Optometry and the nation's health: Recommendations for the implementation of Congress' National Health Priorities. A.O.A., 1982.
8. American Optometric Association. Optometry and the nation's health: Recommendations for the implementation of Congress' National Health Priorities. A.O.A., 1982.
9. *Facts About Medical and Dental Practitioners, United States*. DHEW Publication No. (HRA) 76-82, US Dept of Health, Education and Welfare, Bureau of Health Manpower, 1980.
10. Whitener JC: Population trends, in Newcomb RD, Jolley JL (eds): *Public Health and Community Optometry*. Springfield, Charles C. Thomas, 1980, p. 62.
11. American Optometric Association. Optometry and the nation's health: Recommendations for the implementation of Congress' National Health Priorities. A.O.A., 1982.
12. Garston JR: A closer look at diagnostic drugs for optometric use. *J Am Optom Assoc*, 1975; 46(1): 39-43.
13. Yollen DP, Dandel JS, Yollen RL: Diagnostic pharmaceutical agents: side effects encountered in a study of 15,000 applications. *J Am Optom Assoc*, 1980; 51(2): 113-117.
14. Jose JG, Polse KA, Holden EK: *Optometric Pharmacology*. New York, Harcourt, Brace & Jovanovich, 1984, pp 117-142.
15. Transcript of the testimony by Dr. James F. Koetting "Urging support of HB 104 permitting optometrists to use topically applied pharmaceutical agents in the examination of the eye and the evaluation of vision" before the Subcommittee on Health, Committee on Pension, Social Welfare and Public Health, Mississippi House of Representatives, January 26, 1981.
16. Transcript of the testimony by Dr. James F. Koetting "Urging support of HB 104 permitting optometrists to use topically applied pharmaceutical agents in the examination of the eye and the evaluation of vision" before the Subcommittee on Health, Committee on Pension, Social Welfare and Public Health, Mississippi House of Representatives, January 26, 1981.
17. Godio LB, Rubin BK, Simons MH: Research methodology and statistics, in Newcomb RD, Jolley JL (eds): *Public Health and Community Optometry*. Springfield, Charles C. Thomas, 1980, p. 92.
18. Goh A: *Medical Pharmacology*, ed 10. St. Louis, Mosby, 1981, pp lx-xi.
19. Hegeman S: Comparison of pharmacology courses for optometry and medical students. *J Optom Educ*, 1983; 9(1): 22-23.
20. Antony ML: "Letter to the Louisiana Ophthalmology Association" in Ophthalmic Physicians Education Network, 1976, pp 29-30.

The institutional affiliation of Dr. Rogers Reading was incorrectly identified on page 23 of the Summer 1984 (Volume 10, Number 1) issue of JOE. Dr. Reading is a long-time and respected faculty member at Indiana University School of Optometry. JOE regrets the error.

THE NEW ENGLAND COLLEGE OF OPTOMETRY

FACULTY POSITION

Applications are now being accepted for full time clinical faculty positions beginning in the fall of 1985. Applicants must hold an OD degree and be eligible for licensure in Massachusetts. Rank and salary will be awarded commensurate with qualifications and experience. Advanced degrees (e.g., MPH, PhD) or residency training in an area of concentration are desirable. Preference will be given to individuals with advanced education or experience in one or more of the following areas: Contact Lenses, Binocular Vision, Rehabilitative Vision.

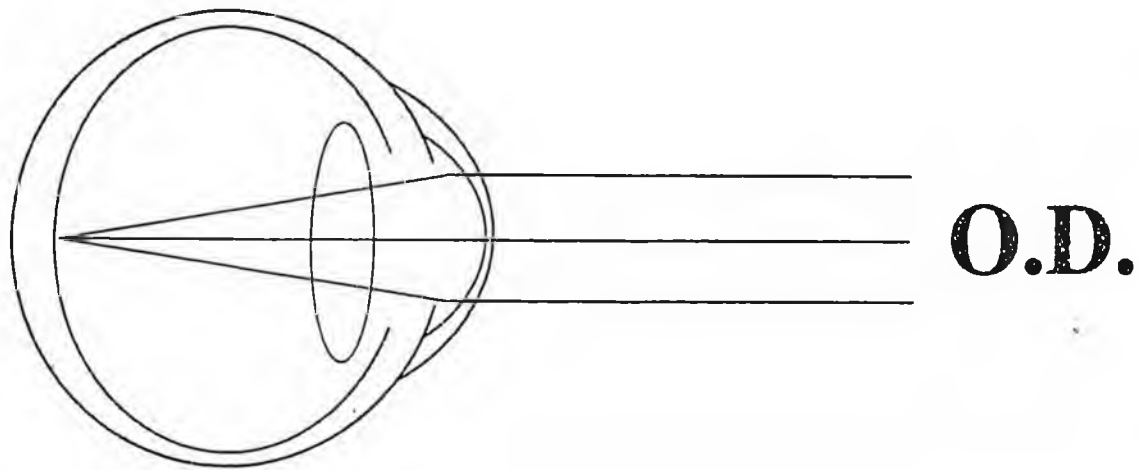
Interested persons should send curriculum vitae by March 1, 1985, to:

Dr. Lester E. Janoff
Chairman, Faculty Search Committee
The New England College of Optometry
424 Beacon Street, Boston MA 02115

An Equal Opportunity/
Affirmative Action Employer



FOCUS ON THE FACTS



A LEGISLATORS' GUIDE TO OPTOMETRIC LEGISLATION IN TEXAS

**Texas Optometric Association
Texas Association of Optometrists**

CONTENTS

- I. PURPOSE OF THIS LEGISLATION
- II. CLARIFICATION OF PHARMACEUTICAL AGENTS USED IN EYE CARE
- III. THE OPTOMETRIC PROFESSION
- IV. TEXAS OPTOMETRY'S EXPERIENCE WITH PHARMACEUTICAL AGENTS
- V. WHY THIS LEGISLATION IS GOOD PUBLIC POLICY
- VI. IS THERE A CONTROVERSY?
- VII. CONCLUSION

I. PURPOSE OF THIS LEGISLATION

The purpose of this legislation is to update the statutory definition of the practice of optometry in Texas. Unlike general medicine, optometrists practice under a restricted license and must amplify legislation as optometric education and eye care technology expand. Passage of this legislation would allow qualified Texas optometrists to treat the conditions they diagnose in a manner consistent with their education and training. *As a result, the citizens of Texas will have greater access to high quality, cost-effective eye care.*

II. CLARIFICATION OF TOPICAL PHARMACEUTICAL AGENTS UTILIZED IN EYE CARE

Diagnostic pharmaceutical agents (DPA's) are medications used by the optometrist in examining the eye and diagnosing vision disorders and eye disease.

Therapeutic pharmaceutical agents (TPA's) are medications used to treat an ocular disease that the optometrist has already diagnosed.

III. THE OPTOMETRIC PROFESSION

OPTOMETRISTS: Doctors of optometry diagnose, manage, and, where permitted by state law, treat conditions and diseases of the human eye and visual system. A doctor of optometry completes four years of undergraduate education and four additional years of post-graduate optometric training. Optometry is one of the largest independent health care provider groups in the United States.

OPHTHALMOLOGISTS: Doctors of medicine who specialize in surgical and advanced medical care of the human eye. Due to the low prevalence of eye disease requiring surgical care, most ophthalmologists spend the majority of their time dealing with routine eye care needs, the same care provided by the optometrist.

GENERAL MEDICAL PRACTITIONER: A medical doctor who may or may not specialize in a particular health care area. General practitioners are permitted to treat diseases of the eye.

OPTICIAN: A person trained to fabricate and dispense corrective lenses from the prescription of a doctor of optometry or medicine.

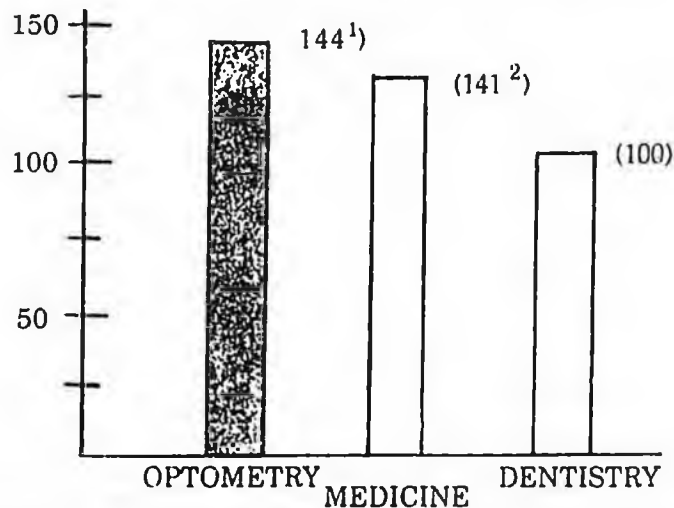
IV. TEXAS OPTOMETRY'S EXPERIENCE WITH PHARMACEUTICAL AGENTS

Texas optometrists have safely and effectively utilized diagnostic pharmaceutical agents for many years. As a result, Texans have received better primary eye care. Proper diagnosis is the most difficult aspect of treatment. Optometrists are already legally required to diagnose eye disease - *establishing a treatment plan is the next logical step.*

In 25 states, where optometrists routinely use drugs to diagnose and treat eye disease, problems have virtually been non-existent. Texas optometrists do not have this earned and justified privilege. The University of Houston College of Optometry trains doctors for eight other states that allow optometrists to prescribe and administer therapeutic medications, including our neighboring states of New Mexico, Oklahoma, and Arkansas. This training is equal to or greater than that of other health care practitioners (Graph I). Many highly qualified optometrists trained at the University of Houston College of Optometry leave their home state of Texas to practice where they can care for patients to the full extent of their training. These state education funds would be better spent if these doctors could practice their healing arts in their own native state.

Graph I

OPTOMETRIC EDUCATION IN PHARMACOLOGY SURPASSES OTHER HEALTH CARE PROFESSIONS



TOTAL CLASS HOURS IN PHARMACOLOGY TRAINING

- ¹⁾ Catalogue listing University of Houston College of Optometry
- ²⁾ Average of catalogue listings of Baylor College of Medicine, UT Medical School at Houston, and Texas A&M Medical School.

V. WHY THIS LEGISLATION IS GOOD PUBLIC POLICY

This legislation is needed for one main reason - *it will be beneficial to the citizens of Texas.* Allowing highly trained and certified optometrists to treat ocular disease will increase patient's access to care, be cost-effective, and be more consistent with optometric education.

BETTER ACCESS TO EYE CARE

According to the American Public Health Association, more than one third of all U.S. residents have eye problems, yet only half of those needing treatment receive it.

Optometrists are the largest group of eye care providers in Texas as well as the nation.

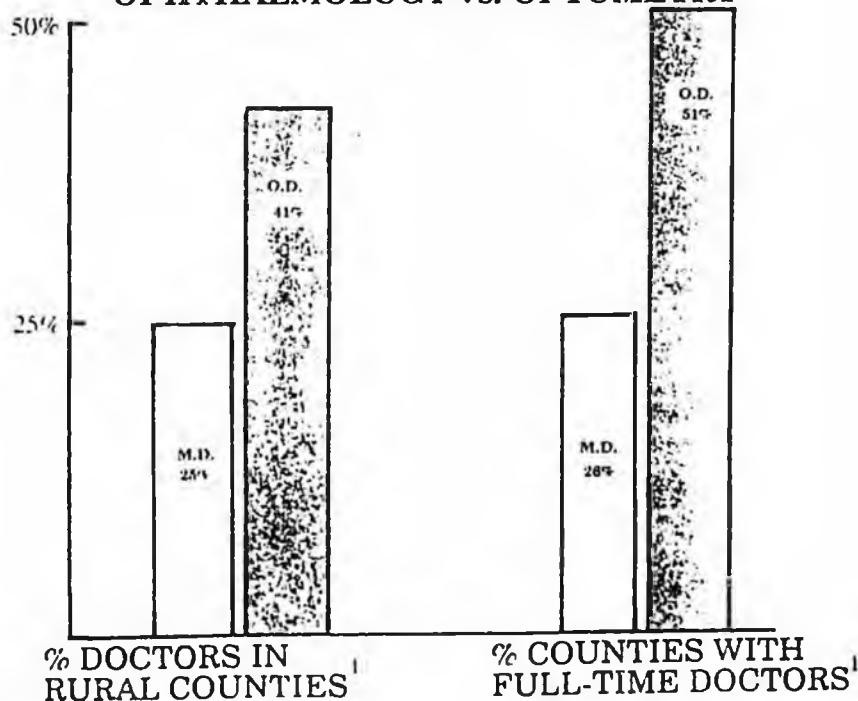
According to the Texas Medical Association and the Texas Optometry Board, optometrists outnumber ophthalmologists two to one in Texas (1658 optometrists vs. 886 ophthalmologists). Unlike ophthalmology, doctors of optometry are widely distributed across the vast state of Texas (Graph II). In many communities, optometrists are the only doctor specifically educated and trained as eye care specialists. *The American Public Health Association has recognized the need for better access to quality eye care and supports legislation that updates optometry to a therapeutic profession.*

The rural health care crisis is forcing medical doctors to leave rural Texas and hospitals to close. Under current law, many patients must travel long distances to costly specialty clinics. Allowing optometrists who already practice in rural areas to treat eye disease would fill these eye care gaps. Optometrists also routinely provide evening and weekend appointments, a practice rarely provided by ophthalmologists.

The optometrist is usually the first contact for a patient suffering from an eye disorder. In most cases, needed treatment will begin more promptly, an important aspect in the treatment of many eye diseases. Early diagnosis and treatment allows the optometrist to eliminate patient suffering and, in many cases, prevent serious complications from ocular and systemic disease.

Graph II

RURAL vs. URBAN EYECARE COVERAGE IN TEXAS OPHTHALMOLOGY vs. OPTOMETRY



¹ Source: state licensure records

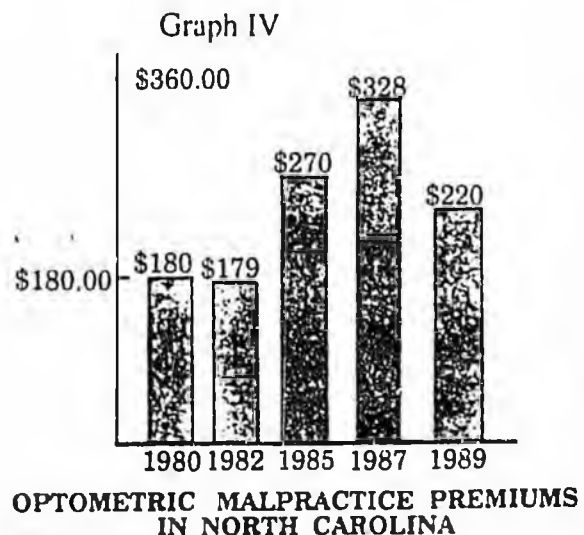
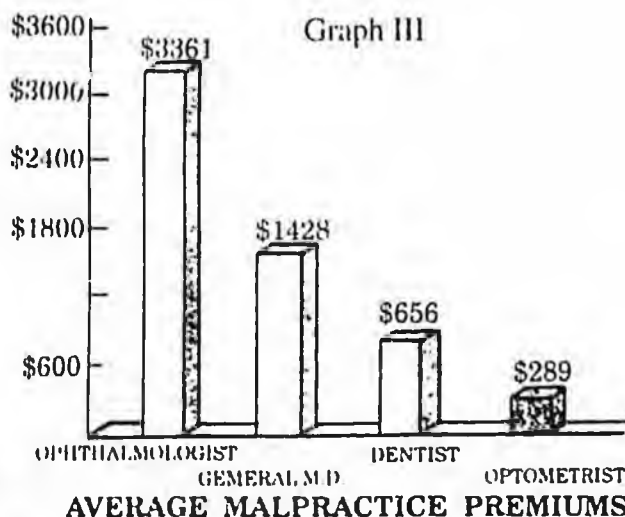
COST-EFFECTIVE CARE

It is cost-effective to allow optometrists to practice at their highest level of competence. Allowing optometrists to treat what they have already diagnosed will save the public money by eliminating unnecessary visits to and long waits at another doctor. Extra travel time and time away from work will also be reduced.

Doctors of optometry in 25 other states, in military service, the U.S. Public Health Service and in VA Hospitals have utilized diagnostic *and* therapeutic medications for many years. A legislative analysis on reducing health care costs in North Carolina cited the optometric use of diagnostic and therapeutic drugs as one of the greatest means of addressing spiraling health care costs. Due to the higher cost of training, equipment, and liability insurance, ophthalmology services are often more expensive than optometric services, even though their specialized training is not warranted for the condition under treatment. According to the journal of American Medical Association, April 1985, "The cost of primary care increases when it is provided by specialists, without necessarily improving its quality..."

An unbiased reflection of quality, cost-effective care is malpractice insurance rates. Optometric professional liability insurance is among the lowest of any profession (Graph III). The insurance marketplace, which usually overreacts to the slightest risk, is so comfortable with the safety of optometric treatment of patients that therapeutic laws do not even make a blip on the premium scale. There is no better evidence of the safety of permitting optometrists to treat to the full level of their training than this marketplace response of the insurance industry. Poe and Associates, which is the biggest insurer of optometrists, has found no reason to and does not charge different rates in states that allow optometrists to use therapeutic drugs. (Graph IV).

Many Texas optometrists accept Medicaid and Medicare assignment. This greatly reduces the out of pocket expenses for senior citizens and with passage of this legislation, would decrease the monetary burdens placed on these programs by unnecessary referrals to surgical specialists (ophthalmologists).



SOURCE. CRUMPTON INSURANCE AGENCY

OPTOMETRIC TRAINING

"My 16 years of joint clinical teaching experience confirms the fact that ophthalmological training programs concentrate more on advanced medical and surgical cases while clinical optometric programs provide equal teaching experience in eye disorders and disease at the primary care level."

Joseph C. Toland, O.D., M.D.
Optometrist, Ophthalmologist, and Professor
Jefferson County Medical College
Pennsylvania College of Optometry

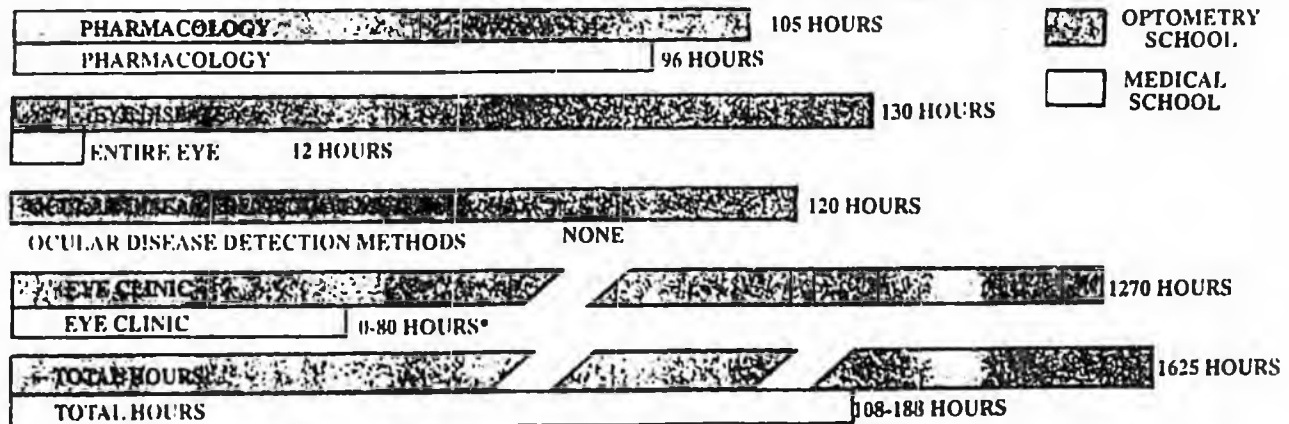
Source: Update Care Minnesota Optometric Association

Health care practitioners, including optometrists, are responsible for providing their patients with the highest level of care consistent with their education and training. Optometric education has expanded well beyond the limitations of current Texas law. State and national funding utilized in the training of health care practitioners are better served when those doctors are allowed to care for patients to the full extent of their training. Legislation allowing optometrists to treat eye disease would be consistent with their training and education.

Other medical and non-medical health care practitioners (physicians, dentists, podiatrists) routinely prescribe topical, oral, and injectable therapeutic medications. The curriculum in optometry school closely resembles that of medical, dental, and podiatry schools, including courses in anatomy, physiology, biochemistry, microbiology, pathology, and pharmacology. None of these other practitioners, including general medicine, have the extensive training and education specific to eye disease and ocular pharmacology (Graph V). Archives of Ophthalmology, October 1990, reports that *less than "50% of the medical students in the United States have exposure to a curriculum that teaches ophthalmic fundamentals that will provide them with the knowledge and skills necessary for a good medical practice"*. Yet of all these practitioners, only optometry is restricted by law in the use of pharmaceutical agents.

Graph V

AVERAGE CLASSROOM HOURS DEVOTED TO DETECTION AND MANAGEMENT OF EYE DISEASE OPTOMETRY SCHOOL vs. MEDICAL SCHOOL



*optional, only 15% choose it

Source: Analysis of Pharmacology Training in Schools of Optometry, Medicine and Dentistry Journal of Optometric Education, Vol. 10, No. 3, Winter 1985.

THIS LEGISLATION HAS SUFFICIENT SAFEGUARDS

There has been significant change in optometric legislation over the past fifty years. This legislation will include comprehensive safeguards to assure the public's safety.

- No "grandfathering" of currently licensed optometrists will be allowed. Optometrists wishing to utilize therapeutic agents will have to be certified by the Texas State Board of Optometry.
- Practitioner competency will be assured. Strict educational requirements will be established by the Texas State Board of Optometry. Optometrists are the only doctors in Texas required by their own law to stay abreast with their field through annual continuing education requirements.

VI. IS THERE A CONTROVERSY?

"With both their incomes and egos in jeopardy, it's not surprising at all that ophthalmologists or any other similarly situated group would react the way they are. What we're seeing is economic guerilla warfare...it's a straight pocket-book issue. Ophthalmology's attempts to limit optometry's scope of practice are, not surprisingly, cloaked in the garb of public health and welfare. But they're nothing of the sort. Ophthalmology is trying to protect its source of revenue."

Douglas J. Colton, J.D.

Anti-trust Attorney, Washington, D.C.

Source: Update Care Minnesota Optometric Association

Generally speaking, there is no controversy. Certain segments of the medical profession will voice opposition to this legislation. A recent publication of the American Academy of Ophthalmology contains the following observation - "according to a study commissioned by the federal government in 1982, the number of ophthalmologists already exceeds the need for them and continues to increase". Because the ophthalmological population exceeds the need for advanced specialty and surgical eye care, most ophthalmologists spend the majority of their time providing routine or primary eye care services, the same services provided by optometrists. Ophthalmology itself is divided on the issue of optometric use of therapeutic medications with many surgeons being in favor of this legislation. The basic economic reality is that a segment of ophthalmology opposes this legislation because it affects them economically. In Rhode Island, Florida, and West Virginia state courts, ophthalmology went on record that this was in fact an economic issue for them.

All doctors have a primary responsibility - their professional training and ethics mandate they provide the highest quality care possible. This legislation does not alter this professional responsibility. In reality, *if this legislation fails to be enacted there is only one group of individuals that lose - the citizens of this state.*



American Public Health Association

1015 Fifteenth Street, NW
Washington, DC 20005
202/789-5600

January 10, 1991

Hal V. Marsell
Chairman, Utah State Optometry Board
Utah State Legislature
190 South Fort Lane, #1
Layton, UT 84041

Dear Chairman Marsell:

I am very pleased to write in support of the legislation soon to be introduced which would update your state's laws concerning optometric care.

As you may know, at its 118th Annual Meeting, the American Public Health Association (APHA), which represents a combined national and affiliate membership of over 52,000 public health professionals and community health leaders, adopted a resolution entitled "Access to Treatment for Eye Care by Optometrists." A copy is enclosed for your immediate reference.

This resolution acknowledges that the expansion of clinical privileges of optometrists has increased the availability, accessibility, and cost effectiveness of eye care to the American public. The resolution recommends that States update their optometric practice acts to allow for optometric use of those diagnostic and therapeutic pharmaceuticals which have been determined by the State Board of Examiners in Optometry as being within the scope of competency of pharmaceutically certified optometrists. We further recommend that dispensing of such pharmaceuticals be regulated by state pharmacy laws.

Currently, ~~25~~ ³⁰ states allow optometrists to use therapeutic drugs for the benefit of their patients. APHA urges your support for legislation which encompasses the principles endorsed in the APHA resolution, and would result in better access to comprehensive eye care of the American citizens.

I am confident that the citizens of Utah will be well served and will benefit greatly if comparable legislation is adopted by your state. As an MD, a Dean of a School of Public Health, and President-elect of APHA, I strongly endorse its passage.

Sincerely,

Joyce C. Lashof, MD
President-elect, APHA and
Dean, School of Public Health
University of California at Berkeley

JCL:mam/APHA

enclosure

Jeff Keller, O.D.
is one of the leaders
of Utah's optometry bill

LEGISLATURE 1991



Panel OKs Bill Allowing Optometrists to Prescribe Drugs

A bill allowing optometrists to prescribe a limited range of drugs received the Senate Business, Labor and Economic Development Committee's endorsement Wednesday.

The committee voted 8-5 to send House Bill 168 to the full House for consideration. The bill is sponsored

by nearly two dozen legislators, including several on the committee.

The lengthy debate before the committee pitted optometrists against ophthalmologists.

Optometrists contend the extension of powers would allow them to provide better and less expensive

care to patients, particularly those in rural areas, and that they have received enough training to prescribe certain drugs for the treatment of common diseases and minor injuries.

Optometrists also maintain ophthalmologists want to defeat the bill to limit economic competition.

Ophthalmologists said money has nothing to do with their opposition and that their primary interest is protecting public health. They insist that optometrists have not received sufficient training to justify the right to prescribe medicine, increasing the potential for errors.



NEW JERSEY STATE
CHAMBER OF COMMERCE
ONE STATE STREET SQUARE
50 WEST STATE STREET - SUITE 1110
TRENTON, NEW JERSEY 08608

M E M O R A N D U M

TO: Members of the New Jersey General Assembly
FROM: James C. Morford, Vice President
Governmental Relations *JCM*
DATE: January 10, 1991
SUBJECT: ASSEMBLY BOARD LIST - JANUARY 10, 1991

The New Jersey State Chamber of Commerce respectfully asks that you favorably consider our position on the following bill on the Assembly Board List for Thursday, January 10, 1991:

SUPPORT A-743

To permit doctors of optometry with advanced certification to prescribe and provide medications for the treatment of eye ailments and diseases. By bringing New Jersey up to similar standards in place in 25 other states, the State Chamber believes cost savings can be realized for our already overburdened health care system.

Thank you.

JCM/lvw



Bringing lifetimes of experience and leadership to serve all generations.

NEW JERSEY STATE LEGISLATIVE COMMITTEE

CHAIRMAN
Mr. DeWitt Reinecke
17 Primrose Trail
Morristown, NJ 07960
(201) 766-2406

VICE CHAIRMAN
Mr. David Brown
16 Woodbridge Avenue
Metuchen, NJ 08840
(201) 549-0001

SECRETARY
Mrs. Carol Kenny
352 E. Virginia Ave.
Manasquan, NJ 08736
(201) 223 8342

December 6, 1990

Dr. Larry C. Wallis
Legislative Chairman
New Jersey Optometrist Association
88 Lakedale Drive
Trenton, NJ 08648

Dear Dr. Wallis:

The members of the New Jersey State Legislative Committee (NJSLC) of the American Association of Retired Persons (AARP) have reviewed the provisions of Assembly Bill A-743. The bill would allow optometrists to prescribe and utilize eye medications, limited to eye drops or ointments. The NJSLC also conferred with your association and the Academy of Ophthalmology and Otolaryngology before making a decision.

I am happy to report that the committee strongly supports Bill A-743. Its passage would be in the best interests of our members and would benefit all New Jerseyans. The facts weigh heavily in favor of expanding the responsibility of optometrists to include the use of therapeutic pharmaceuticals. Some of these compelling facts are:

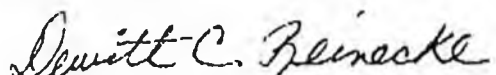
- a) It will be less costly, especially for seniors and the disabled, to be treated by an Optometrist for Optometrists are more readily accessible than Ophthalmologists.
- b) Optometrists receive excellent training including training in Pharmacology.
- c) The need for a second visit to an Ophthalmologist for treatment would be eliminated.

Dr. Larry C. Wallis
Page 2

- d) Optometrists have been using therapeutic eye drops and ointments in 21 states and the District of Columbia without any significant or prevailing problems.

In the interests of good eye health and easier access to such, AARP supports A-743.

Sincerely,



DeWitt C. Reinecke
Chairman, New Jersey State Legislative Committee

DCR/rg

cc: Honorable Joseph I. Roberts, Jr.
655 Creek Road
Bellmawr, NJ 08031

V2532



Southern California College of Optometry

2575 Yorba Linda Boulevard • Fullerton • California 92631-1699 • (714) 449-7450

Richard L. Hopping, O.D.
President

December 5, 1989

Ms. Virginia Corwin
Executive Director
North Dakota Optometric Association
418 E. Broadway, C-13
Bismarck, ND 58501

Dear Ms. Corwin:

The Dean of Academic Affairs, the Director of Clinics and I have studied the request of Mr. James Ganje, Counsel for information on behalf of the North Dakota Legislative Council. It is our belief that graduates of this institution have consistently been fully qualified for the State Board examinations in all 50 states. Specifically our graduates are prepared to meet the requirements in those states where legislation is in effect permitting licenced optometrists the use of pharmacological agents for treating and managing anterior segment ocular conditions.

All accredited schools and colleges of optometry must and do give serious study to changing curricular needs to ensure that their graduates fully meet the demands of the various state, regional, and professional accrediting agencies. The Southern California College of Optometry gives close and continued study to the changing laws and the evolving scope of optometric practice and when necessary makes curriculum changes in order that our graduates are fully qualified and prepared to take and pass any national or state board licensing examination.

In response to each of the questions raised by Mr. Ganje:

1. Appendix A fully describes our curricular requirements which relate to the treatment of ocular disease. The curriculum at SCCO is comprehensive and numerous courses related to this critical area are integrated throughout the four year professional program. Our students receive comprehensive education in Anatomy and Physiology, Ocular Anatomy, Clinical Medicine, Pharmacology, Primary Care Optometry, Ocular Diagnostic and Therapeutic Pharmacology, Optometric Clinical Services together with course work and clinical experiences in clinical ocular pharmacology, and ocular disease diagnosis, treatment and management.

Our curriculum currently provides students with a total of 50 quarter credit units or 550 class contact hours of education in courses related to the treatment of ocular diseases. In addition to this, a series of fourth year seminars and grand rounds emphasizing treatment and management of ocular diseases has been implemented.

2. A total of 1330 patient contact hours are devoted to the diagnosis and treatment of ocular disease. The specific courses and hours are:

<u>COURSE(S)</u>	<u>BOURS</u>
493, 494	16
595	74
596, 597, 598	249
691	239
692, 693, 694	721
691 Enhancement, Screening Convalescent Home	31
	1330

3. Each student is scheduled to examine a minimum number of patients in the Primary Care/Ocular Disease Service during their Third Professional Year. The College also has a requirement that each student must have a minimum number of Primary Care exams at the Optometric Center of Fullerton Clinic in order to graduate. During their four years at the College, each student will have participated in provision of professional services to a minimum of 1100 patients. A high percentage of these patients present signs or symptoms of ocular disease or ocular manifestations of systemic disease; each student then has the responsibility to participate in the diagnosis, treatment and management of these disease conditions.
4. All Students are required to successfully complete a prescribed curriculum in didactics and clinical training to prepare them for the entry level requirements of optometric practice. The required training regimens in the use of therapeutic drugs are provided in courses throughout the four year curriculum which includes prerequisite knowledge in the basic biomedical sciences followed by clinical courses in ocular disease diagnosis, management & treatment which are integrated within the clinical program. Specifically these courses are described on pp. 4-8 of Appendix A and include:

#301 Anatomy & Physiology I	#596 Optometric Clinical Serv. VI
#406 Clinical Medicine II	#597 Optometric Clinical Serv. VII
#455 Primary Care Optometry V	#598 Optometric Clinical Serv. VIII
#493 Optometric Clinical Serv. III	#610 Ocular Disease Diag. Mgmt.
#494 Optometric Clinical Serv. IV	#690 Optometric Clin. Serv. IX
#515 Ocular Dis. Diag. & Mgmt. I	#691 Outreach Clinical Serv. I
#517 Adv. Ocular Disease Proced.	#692 Outreach Clinical Serv. II
#518 Ocular Dis. Diag. & Mgmt. II	#693 Outreach Clinical Serv. III
#595 Optometric Clinical Serv. V	

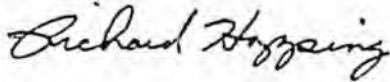
Ms. Virginia Corwin -3

5. The Southern California College of Optometry provides fourth year Professional students an extensive series of off-campus clinical experiences in the College's Outreach Program. At the present time, the Outreach Program offers education at 59 clinical sites in 17 states. Included in the Outreach Program are College operated community optometric centers; Veteran's Administration hospitals and outpatient clinics; Public Health Service and Indian Health Service medical centers and clinics; Army, Navy, Air Force and Marine medical centers, HMO's, specialty clinics emphasizing such areas as contact lens fitting and research, low vision care at a Center for the Partially Sighted and the Low Vision Clinic at a State Bureau of Service to the Blind.

Of the 59 Outreach clinical education sites, 37 currently offer students direct hands-on experience in the treatment of ocular disease. In addition, students are afforded the opportunity to participate in co-managed treatment of ocular disease at 5 other clinical sites. The Southern California College of Optometry offers students an outstanding clinical experience in the use of therapeutic agents in the treatment of ocular disease at 42 different clinical sites. All students will have had actual experience in the treatment of ocular disease at between 1 and 4 of these 42 clinical sites by the time they graduate.

The College also has three different nationally and regionally accredited residency programs which offer experience in the treatment of ocular disease. These residencies are in the areas of Rehabilitative Optometry, Hospital-Based/Geriatrics Optometry, and Secondary Ophthalmic Care.

Sincerely,



Richard L. Hopping, O.D.
President

cc: Dr. Daniel J. Long, President
Dr. Harvey Bonner
Dr. Berman, Dean of Academic Affairs
Dr. Applebaum, Director of Clinics

RLH:mt
(59)

Lesley L. Walls, O.D., M.D.
Post Office Box 78
Glenpool, Oklahoma 74033

January 2, 1991

Representative Joedy George
Mississippi House of Representatives
P.O. Box 1018
Jackson, Mississippi 39203

Dear Representative George:

I am writing you in support of the Mississippi State Optometric Association in their attempt to update a law and broaden the scope of practice of optometry. I know this topic is an emotional one, however, I feel that careful review of other states' experience with such an expanded law, etc. will substantiate the fact that with proper education and training it is safe. As well, in the present day of astronomical health care costs I feel it is cost effective to allow optometrists to practice to the limit of their education and training. I also feel that such a law will demonstrate better and more appropriate referrals to physicians from optometrists.

Mississippi is a mostly rural state where in a large number of communities the optometrist may often be the best trained and best equipped health care provider to treat common eye diseases.

Let me offer some specific observations of my own on optometric and medical education since I happen to be both an optometrist and a medical practitioner.

Medical school traditionally prepares the student in general medical and surgical background for post-graduate training programs. Detailed anatomy and physiology of organs such as the eye is not emphasized during medical school. As well, during surgical rotation in medical school it is uncommon to be exposed to ocular surgery. Because heart disease, cancer, and stroke are the biggest killers of the U.S. population, medical school clinical training is heavily devoted to general internal medicine, general surgery, obstetrics/gynecology, and pediatrics. There are usually fourth year electives in 4-12 week blocks whereby a student may increase his/her exposure to subspecialty medical and surgical areas such as: ophthalmology, ear/nose/ and throat, urology, pulmonary medicine, cardiology, etc. In my experience a small minority of students choose ophthalmology as a clinical rotation.

By a small personal survey in the area of Oklahoma in which I reside, most primary care physicians (general practitioners, family physicians, internists, and pediatricians) state that they had from one to three weeks of medical school devoted to

ophthalmological care. This includes both didactic coursework and clinical experience. I do not need to remind you that these practitioners treat eye diseases on an unrestricted basis regardless of the small amount of specific ocular training.

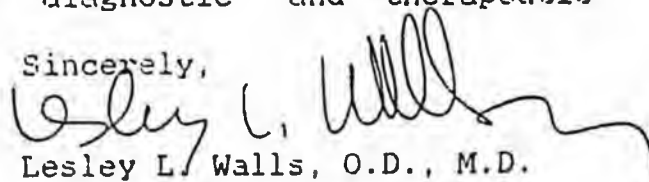
On the other hand, optometry school is mostly devoted to ocular training. There are courses in general pathology and ocular signs of systemic disease because the optometrist is responsible to detect systemic diseases with ocular manifestations and to make appropriate referrals. The detailed ocular anatomy, ocular physiology, ocular pathology, and ocular pharmacology training in optometry school is far superior to the same ocular topics in any general medical school course in the country. This is not to slight medical education, there simply is not enough medical school curriculum time to devote to the eye because of training in vital organ systems such as the heart, lung, vascular system, etc.

Secondly, I will discuss my personal experience with side effects of ocular pharmacologic therapeutic agents. This section will be very brief as I have never had a patient with anything other than a very minor side effect from ocular pharmaceutical agents. I have seen a few mild allergic reactions and none of these serious and certainly none of the patients had any evidence of systemic reactions such as elevated blood pressure, rapid heart rate, heart arrhythmias, etc. None ever required hospitalization and certainly there were no deaths. I have seen very few significant side effects and all which occurred were very minor in nature.

In summary, I would like to point out that ophthalmologists are vitally needed. The medical profession would be in sad shape without them because of their expertise in the area of ocular trauma, cataract surgery, retinal surgery, serious ocular infections, ocular tumors, etc. However, in a state like Mississippi the ophthalmologists are primarily in larger cities with a poor distribution in the rural areas.

I also strongly feel that optometrists are vitally needed. Optometrists are well distributed into rural communities and by definition serve as primary care health professionals. In my opinion, the patient, particularly in a state like Mississippi, will be the beneficiary of modern optometric practice. With the use of pharmaceutical agents, for diagnostic and therapeutic purposes, serious disease detection will be facilitated thus making the referral system into medicine more efficient. As well, this will save the patient a lot of inconvenience and time. I feel optometrists should be allowed to practice modern optometry which includes both diagnostic and therapeutic pharmaceutical agents.

Sincerely,



Lesley L. Walls, O.D., M.D.

JOSEPH C. TOLAND, M.D.
PROFESSIONAL CORPORATION

5927 N. FIFTH STREET
PHILADELPHIA, PA 19120

(215) 548-2323

1270 MILL ROAD
MEADOWBROOK, PA 19046

November 5, 1990

The Honorable Joseph J. Roberts, Jr.
655 Creek Rd.
Bellmawr, NJ 08031

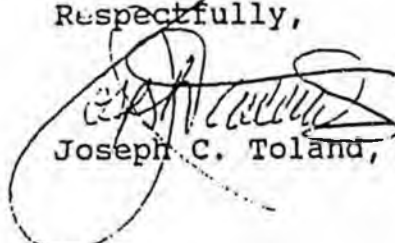
Dear Assemblyman Roberts:

I am a board certified ophthalmologist and also an optometrist who has been involved in education for over 20 years. Since 1970, I have been on the faculty of the Pennsylvania College of Optometry, where I currently am a tenured professor.

During this time, I have taught extensively both in the classroom and clinics to optometry students and practicing optometrists. Each week I work with optometry students, directly supervising the delivery of care to patients, which I have also actively participated in the training of ophthalmological residents. Therefore, I am in an unique position to compare the training of both professions.

Without a doubt, optometrists are prepared through their knowledge, skills and clinical experience to diagnosis all eye diseases and to treat diseases of the eye consistent with the limitation of the legislation being considered in New Jersey. Claims by ophthalmology to the contrary are inaccurate and usually made by individuals with no first hand experience in the education of optometrists.

Respectfully,


Joseph C. Toland, M.D.

BC - D. Gimm ✓

North Dakota
1987

Optometric Education

The growth of the optometric profession is in no small measure due to the remarkable expansion of optometric education during the past thirty years. Because optometry is a relatively young profession, it has been able to benefit from the tremendous expansion in technology during recent years. Many people are not aware of the truly significant changes that have recently taken place in the profession and its educational base.

Fifteen schools and colleges of optometry in the United States now provide an educational experience that is equivalent in length and scope to that which is provided by schools of medicine and dentistry. All medical, dental and optometry programs are four years in length and require the same level of professional training. In fact, a comparison of the current catalogs of the University of North Dakota School of Medicine (UND) and Southern California College of Optometry (SCCO) demonstrates that the admission requirements of SCCO are actually more stringent than those of the UND.

Admission Requirements (Quarter Units)

	UND	SCCO
Calculus	Not required	3-4
Biology or zoology	8	8
Microbiology	Not required	4
Physics	8	12
General chemistry	8	12
Organic chemistry	8	4
Psychology	3	8
English	6	8
College Algebra	3	Not required
Total hours required	90	90

During the first two years of both professional programs, students receive extensive training in basic health sciences, such as pharmacology, anatomy, physiology, neurosciences, and pathology. The second two years are more clinically oriented; the medical student is trained in all aspects of medical care while the optometry student concentrates on the eye and visual system. The result is that the optometry graduate completes his training with much more extensive and in-depth training in the eye and in the diagnosis and treatment of its abnormalities than does the medical school graduate.

After graduation from the four-year professional programs, both the optometrist and the physician are examined and licensed by appropriate agencies of the state. This license allows the physician to practice all aspects of medicine and surgery, including the diagnosis and treatment of eye diseases and the performance of eye surgery. Although most physicians undergo additional training in

one of the medical or surgical specialties, no further testing or licensure is required in order for them to practice as a specialist. Therefore, even though some physicians have undergone several years of additional training to become pediatricians, any physician is permitted to treat diseases of children, and even though some physicians have undergone several years of additional training to become obstetricians, any physician is permitted to deliver babies. Similarly, even though some physicians undergo several years of additional training to become ophthalmologists, any physician may treat diseases of the eye.

For legal and licensure purposes, it is assumed that the training received in the four years of medical school qualifies the graduate to practice all aspects of medicine with reasonable competency. This assumption appears to work very well since there appears to be little pressure for changes to the Medical Practice Act which would require that only specialists be allowed to treat various types of conditions.

This same assumption might well be applied to other health professions as well. If it can be demonstrated that the training a health professional receives in a given area is equivalent to or superior to that received by a physician, there seems to be no logical reason why he should not be allowed to do what the physician does in that area of health care. Since only about 4.5 percent of all physicians are ophthalmologists, it makes good sense to permit the doctor of optometry to provide primary eye care whenever possible.

Benefits of Use of DPAs Continue

Since the use of diagnostic pharmaceutical agents (DPAs) by optometrists was authorized by the 1979 North Dakota legislature, the benefit to the public of this action has continued to be demonstrated. More than 90 percent of North Dakota optometrists have been certified, and most use DPAs routinely in their diagnosis and treatment of vision problems. Contrary to the dire predictions of those who opposed the 1979 legislation, no adverse effects have been reported. In fact, the Optometry Board has not received any formal complaints or reports of problems associated with the use of DPAs by optometrists. Professional liability premiums, perhaps the best indicator of whether or not problems are occurring, have not been affected. The action of the 1979 legislature has proven to have been prudent and in the best interests of the people of North Dakota.

The North Dakota experience is the same as that in the other forty-eight states that currently permit optometrists to use DPAs. In none of these states has significant evidence been brought forth to suggest that any adverse effects are occurring. It is also worthy of special note that in the twelve states which permit optometrists to use therapeutic as well as diagnostic agents, no reports have been made of any problems associated with their use. In fact, it has been well

-25
now
199c

documented that the therapeutic agents are even less likely to cause complications than are the diagnostic agents. This underscores the fact that the optometrist of today is capable of using both diagnostic and therapeutic pharmaceuticals safely and effectively in his or her practice.

Because of the much broader geographic distribution of optometrists and the fact that fees charged by them are generally less than those charged by ophthalmologists, major savings to the public are realized when optometrists are permitted to practice at their highest level of training. The necessity of referring persons with relatively minor eye injuries or infections to a surgical eye specialist or a hospital emergency room always results in a charge for the second examination and frequently results in the loss of several additional hours from the patient's work and/or the travel of many additional miles.

Optometry IS Primary Eye Care

Analysts of the health-care delivery system have divided it into three broad categories which they have labeled primary care, secondary care, and tertiary care.

Primary care is that level of care delivered by "first contact" providers. These are the doctors first contacted by a person in need of health care, and they are able to diagnose and treat the great majority of persons they see. It has been estimated that from 85 to 95 percent of all health care can be classified as primary care. In general, primary-care providers do relatively little of their work in hospitals. The American Medical Association considers family and general practitioners, pediatricians, internists, and obstetrician/gynecologists to be primary medical care providers. Other primary-care providers include general dentists, optometrists and podiatrists.

Secondary-care providers are generally those who have received additional specialized training beyond that which is required of primary-care providers. Persons with unusual or complicated problems or those who require more than very minor surgery are generally referred to a secondary-care provider by a primary-care provider. Most surgeons are classified as secondary-care providers, and secondary care involves more use of hospitals and specialized facilities than does primary care. Among the medical specialties, orthopedic surgeons, ophthalmologists, anesthesiologists, and cardiologists are examples of secondary-care providers. Non-medical secondary-care providers would include dental specialists, such as orthodontists and periodontists, and optometrists who limit their practice to contact lenses.

Tertiary-care providers are those who specialize in the diagnosis and treatment of rare conditions. Their practice is almost always hospital based and requires additional training beyond the secondary level and use of sophisticated

techniques and instruments. Examples of tertiary-care providers would be open-heart surgeons, brain surgeons, ophthalmologists who repair retinal detachments, and organ transplant specialists.

Because of the additional training and skills required to practice at the secondary and tertiary levels, the care provided is usually more expensive than that provided at primary level. Even in cases where the fees charged are the same, when the costs to society of education and training are considered, the cost of secondary and tertiary care is higher. Since the vast majority of all care can be provided at the primary level, it makes good sense from an economic standpoint to have as much care as possible provided at that level, and in most cases, it is. For example, even though a cardiologist may have more training in the management of high blood pressure, family practitioners are perfectly capable of managing uncomplicated cases. And even though an orthopedic surgeon may have more training in the anatomy and function of the joints, a pediatrician is perfectly capable of treating a child's simple sprained ankle.

Similarly, optometrists, although they do not have the same training as do ophthalmologists, are perfectly capable of managing uncomplicated eye conditions. Their education and training in the diagnosis and treatment of eye problems is much more extensive than that of most physicians, and their past record of conscientious, conservative care is evidence of their ability to recognize and refer to other providers those conditions that require care at the secondary or tertiary level.

Health Care Not Necessarily Medical Care

Although the terms *health care* and *medical care* are often used interchangeably, they do not really mean the same thing.

Health care is a broad term that refers to the entire area of maintenance of physical well-being. *Medical care* is much more limited in that it refers to health care which is provided by medical doctors.

Although the various areas of health care seem to be fairly well defined, many areas overlap. For example, the Medical Practice Act, since it was the first to be enacted, is all-encompassing and permits the physician to practice all aspects of health care regardless of whether or not he or she has any training in that area. Thus, any physician may legally fill teeth or prescribe eyeglasses. On the other hand, certain procedures which would usually be considered the exclusive domain of physicians are done by some other health-care providers. Dentists are permitted to use general anesthetics and prescribe oral antibiotics and potent pain-

killers. Podiatrists are also permitted to prescribe antibiotics and pain killers and are allowed to perform surgery. Nurse practitioners are also permitted to diagnose illness and prescribe drugs with only limited supervision and review by a physician who may be many miles away and who never sees the patient.

For many years the fact has been recognized that formal medical education is not required to provide high-quality health care. Those who currently argue that such education is necessary are ignoring the obvious examples to the contrary and appear to be motivated more by the desire to protect their own prestige and economic position than by a true desire to protect the public.

North Dakota a Leader in Education Requirements

Only eight of the fifty states require more hours of continuing education for optometric license renewal than does North Dakota. All optometrists are required to attend a minimum of thirty six hours every three years of approved continuing education courses. Compliance with this requirement has enabled North Dakota optometrists to not only maintain a high level of competence in the use of diagnostic pharmaceutical agents but has also enabled them to expand their knowledge of the use of pharmaceutical agents for other purposes.

Updating the Scope of Optometry Practice Acts Continues Nationwide

With the passage of legislation earlier this year, the number of states which permit optometrists to use diagnostic pharmaceutical agents has risen to forty-eight. In July 1986 a bill was passed in Missouri which permits optometrists to use, administer and prescribe therapeutic pharmaceutical agents. Missouri thereby became the twelfth state to have passed such legislation in recognition of the expanded capabilities of optometrists in the diagnosis and treatment of eye disease. In the central United States - Kentucky, Nebraska, Iowa, South Dakota and Oklahoma have passed similar bills.

Optometry Residency Programs on Increase

Recent issues of optometric publications have contained more than thirty announcements for residency programs in various areas of optometric practice. These programs, most of which are one year in length, provide the graduate optometrist with additional training in specialized areas of optometric practice. Among the most common types of training offered are Rehabilitative Optometry, Hospital Based Optometry, and Pediatric Optometry.

It is significant to note the majority of these programs are offered by Veterans Administration Medical Centers in all parts of the United States, and all include stipends for financial support of the resident. The greatly increased involvement of the Veterans Administration in the training of optometrists in recent years is strong evidence of their recognition of the role of the optometrist in providing high-quality, comprehensive health care to the nation's veterans. The VA has found that by making optometrists the primary eye-care providers in their medical centers, they can render higher quality care at lower cost to the taxpayer.

The availability of residency programs such as these are also an indication of the continued rapid growth in the scope and depth of optometric education.

North Dakota Optometric Association

President

Lyle Hall, O.D.
Grand Forks

President-Elect

Harvey Bonner, O.D.
Williston

1st Vice President

Daniel Long, O.D.
Mandan

2nd Vice President

Mark Emmerich, O.D.
Dickinson

3rd Vice President

Robert Nyre, O.D.
Minot

Secretary-Treasurer

Brian C. Beattie, O.D.
Bismarck

Past President

Richard Privratsky, O.D.
Dickinson

Executive Director

Virginia T. Corwin
418 East Broadway
Bismarck
701-258-9005

John A. Gazaway, O.D.
President



American Optometric Association

243 N. Lindbergh Blvd. • St. Louis, MO 63141 • (314) 991-4100

FAX: (314) 991-4101

December 17, 1990

Dr. Kerry Beebe, President
Minnesota Optometric Association
1821 University Avenue
St. Paul, MN 55104

Dear Kerry:

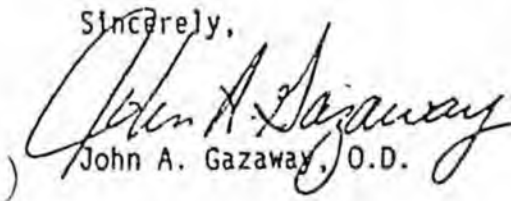
As president of the American Optometric Association, I have been asked to respond to questions concerning optometric legislation that has been proposed in Minnesota. As a practitioner in your neighboring state of Iowa, I have observed the benefits that the people of Iowa have experienced as a result of authorization for optometrists to provide a full scope of care to their patients. Wisconsin has also recently passed such legislation. The similarities between Wisconsin, Iowa and Minnesota lead me to believe that the citizens of Minnesota would benefit from similar legislation.

In response to your questions: All states authorize optometrists to use pharmaceutical agents for diagnostic purposes. Twenty-five states authorize optometrists to use pharmaceuticals for the treatment of eye diseases. The scope of practice for optometrists has never been "scaled back" in any state that has authorized the use of pharmaceutical agents for diagnostic or treatment purposes. In fact, several states, including your neighboring state of Iowa, have significantly "amplified" existing treatment laws to further increase the services an optometrist is authorized to provide.

It is my hope that your legislature will recognize the benefits of proposed optometric legislation so that Minnesotans can experience the benefits currently enjoyed by the citizens of your surrounding states of Iowa, North Dakota, South Dakota and Wisconsin.

If you have further questions, please do not hesitate to contact me. I will see that the resources of the American Optometric Association are mobilized to assist you in serving the people of the great state of Minnesota.

Sincerely,


John A. Gazaway, O.D.

pm/5303g



In the health care field, insurance liability rates are an accurate indication of potential and existing problems in the delivery of medical care.

To date, in the twenty-five states in which TPA use is authorized, there has been no increase in the malpractice rates as a result of optometrists' use of therapeutic pharmaceutical agents.

The following are professional liability rates as given by two different insurance agencies known to insure doctors of optometry in the United States. These rates are based on a liability \$1,000,000 limit occurrence coverage as of December 1, 1990. All of the states listed below, with the exception of Minnesota, have enacted therapeutic pharmaceutical agent (TPA) legislation.

ALLIED GROUP INSURANCE

State	Sole Proprietor	Each Partner	Each Employee
Iowa	\$169	\$203	\$212
North Dakota	190	228	238
South Dakota	169	203	212
Nebraska	159	191	200
Minnesota	169	203	212

Upon reviewing the above data, Allied Group Insurance concluded, "...there is no significant actuarial coordination between therapeutic drug usage and raised rates based on current underwriting results. Allied currently does not charge a premium differential or surcharge for therapeutic drug usage in any of the states in which they are currently providing coverage."* Mike Pollard, Underwriting Manager

POE & ASSOCIATES INSURANCE

State	Individual	Package
Iowa	\$299.00	\$275.00
North Dakota	299.00	275.00
South Dakota	299.00	275.00
Nebraska	299.00	275.00
Wisconsin	299.00	275.00
Minnesota	299.00	275.00

"Poe & Associates, in the past has reviewed on a comprehensive basis the underwriting results for three major carriers for a period of seven years, and found that there is no significant actuarial coordination between therapeutic drug usage and liability insurance rates based on the current underwriting results.

Because claims and premiums are so closely related to incidents of harm and injury to patients, we do not have evidence at this time that there is a correlation between the use of therapeutic drug by Optometrists and malpractice claims."* Kathy Szuszcwicz, Program Coordinator

*Emphasis added.



On October 3, 1990, the American Public Health Association (APHA), which represents a combined national affiliate membership of over 52,000 public health professionals and community health leaders, passed the following resolution, entitled "Access to Treatment for Eye Care."

Noting that more than one-third of all Americans have a disease or physiologic abnormality in one or both eyes;¹ and

Recognizing that only about one-half of the total population in the United States needing treatment for eye disease is receiving it;^{1,2} and

Noting that eye disease and blindness cost the nation an estimated sixteen billion dollars a year,³ and

Realizing that eye health problems and vision care demands will increase significantly in the future as the U.S. population ages;⁴ and

Observing that optometric services are available in approximately 6,400 communities in the United States and that doctors of optometry are the only primary eye care providers in nearly 4,000 communities, and that nationwide optometrists outnumber ophthalmologists nearly two to one;^{5,6} * and

Noting that 60 percent of primary diagnostic eye examinations in the United States⁷ are provided by the 25,000 active optometrists;⁸ and

Realizing that many people who need medical eye care are already being treated by optometrists in many states;⁹ and

Noting that optometric reimbursement rates are typically lower than those of other providers of comprehensive eye care;¹⁰ and

Realizing that many people who want to receive medical eye care are now being treated by optometrists;¹⁰ and

Recognizing that it is prudent public policy to utilize appropriately trained and licensed health professionals at their highest level of skill and training as determined by state licensing laws;¹¹ and

Noting that Medicare reimburses diagnostic and therapeutic eye care services delivered by optometrists as authorized by state practice acts,¹³ and

Noting that 25 states have passed laws and regulations that allow optometrists to use therapeutic pharmaceutical agents⁷ after completing appropriate training and testing requirements, and

Observing that the Department of Veterans Affairs, the U.S. Armed Forces, and the United States Public Health Service have regulations or credentialing statements that allow optometrists to utilize therapeutic pharmaceutical agents to the benefit of their patients, and noting that this expansion of clinical privileges of optometrists has increased the availability, accessibility and cost-effectiveness of eye care to the American public through lower fees for services¹⁰ and by a reduction in double visits and hospital emergency room visits; therefore

1. Recommend that legislators update their state optometric practice acts to allow for optometric use of those diagnostic and therapeutic pharmaceuticals which have been determined by the State Board of Examiners in Optometry as being within the scope of competency of pharmaceutically certified optometrists; and

2. Recommend that dispensing of such pharmaceuticals be regulated by state pharmacy laws.

FIFTH
EDITION,
REVISED

The Gourman Report

A RATING OF

Graduate and Professional

PROGRAMS IN AMERICAN &
INTERNATIONAL UNIVERSITIES



Accounting Aerospace Engineering Bioengineering/
Biomedical Engineering Biology Business Administration
(MBA-Doctoral) Ceramic Sciences/Engineering Chemical
Engineering Chemistry Civil Engineering Classics Com-
puter Science Drama/Theatre Dentistry Economics
Electrical Engineering English Entomology Environmental
Engineering Finance Forestry French Geography
Geology/Geoscience Geophysics German History
Industrial Engineering Journalism Law Library Science
Linguistics Management/Organizational Behavior Market
ing Material Science Mathematics Mechanical Engineer-
ing Medicine Metallurgical Engineering Music Nuclear
Engineering Nursing Operations Research Optometry
Petroleum Engineering Pharmacy Philosophy Physics
Political Science Psychology Public Administration Public
Health Russian Social Welfare/Social Work Sociology
Spanish Statistics Teacher Education Veterinary Medicine
Zoology

Dr. Jack Gourman
NATIONAL EDUCATION
STANDARDS



MORE THAN
1,000 SCHOOLS
RATED

CORRECTION

**THIS DOCUMENT
HAS BEEN REPHOTOGRAPHED
TO ASSURE LEGIBILITY**



On October 3, 1990, the American Public Health Association (APHA), which represents a combined national affiliate membership of over 52,000 public health professionals and community health leaders, passed the following resolution, entitled "Access to Treatment for Eye Care."

Noting that more than one-third of all Americans have a disease or physiologic abnormality in one or both eyes;¹ and

Recognizing that only about one-half of the total population in the United States needing treatment for eye disease is receiving it;^{1,2} and

Noting that eye disease and blindness cost the nation an estimated sixteen billion dollars a year,³ and

Realizing that eye health problems and vision care demands will increase significantly in the future as the U.S. population ages;⁴ and

Observing that optometric services are available in approximately 6,400 communities in the United States and that doctors of optometry are the only primary eye care providers in nearly 4,000 communities, and that nationwide optometrists outnumber ophthalmologists nearly two to one;^{5,6} and

Noting that 60 percent of primary diagnostic eye examinations in the United States⁷ are provided by the 25,000 active optometrists;⁸ and

Realizing that many people who need medical eye care are already being treated by optometrists in many states;⁹ and

Noting that optometric reimbursement rates are typically lower than those of other providers of comprehensive eye care;¹⁰ and

Realizing that many people who want to receive medical eye care are now being treated by optometrists;¹⁰ and

Recognizing that it is prudent public policy to utilize appropriately trained and licensed health professionals at their highest level of skill and training as determined by state licensing laws;¹¹ and

Noting that Medicare reimburses diagnostic and therapeutic eye care services delivered by optometrists as authorized by state practice acts,¹³ and

Noting that 25 states have passed laws and regulations that allow optometrists to use therapeutic pharmaceutical agents⁷ after completing appropriate training and testing requirements, and

Observing that the Department of Veterans Affairs, the U.S. Armed Forces, and the United States Public Health Service have regulations or credentialing statements that allow optometrists to utilize therapeutic pharmaceutical agents to the benefit of their patients, and noting that this expansion of clinical privileges of optometrists has increased the availability, accessibility and cost-effectiveness of eye care to the American public through lower fees for services¹⁰ and by a reduction in double visits and hospital emergency room visits; therefore

1. Recommend that legislators update their state optometric practice acts to allow for optometric use of those diagnostic and therapeutic pharmaceuticals which have been determined by the State Board of Examiners in Optometry as being within the scope of competency of pharmaceutically certified optometrists; and

2. Recommend that dispensing of such pharmaceuticals be regulated by state pharmacy laws.

REFERENCES

1. Eye conditions and Related Need for Medical Care Among Persons 1-74 Years of Age: United States, 1971-72. Vital Health Statistics. Series 11, No., 228. DHHS Pub. No. (PHS) 83-1678. Washington, DC: National Center for Health Statistics, 1983.
2. Eye Care for the American People. Supplement to Ophthalmology: San Francisco, CA: American Academy of Ophthalmology Committee on Eye Care for the American People, April 1987, p. 57.
3. U.S. Department of Health and Human Services: Vision Research; A National Plan. NIH Pub. No. 87-2755. Bethesda, MD: 1987;1.
4. Rosenbloom AA, Morgan AW: Vision and Aging, General clinical Perspective. New York: Fairchild, 1986.
5. The Red Book of Ophthalmology, Who's Who in Ophthalmologists, 38th Ed New York: Professional Press Books/Fairchild, 1989.
6. The Blue Book of Optometrists, 40th Ed New York: Professional Press Books/Fairchild, 1988.
7. Bennett I: State of the profession - 1989. J Am Optom Assoc 1989;60:686-689.
8. USDHHS Health Resources and Services Administration: Sixth Report to the President & Congress on the Status of Health Professions Personnel in the United States. DHHS pub. No. HRS-P-OD-88-1. Rockville, MD: HRSA, June 1988.
9. Graham A: Insights into Primary Eye Care. San Francisco, CA: American Academy of Ophthalmology, 1989;2.
10. Cost and Availability of Routine Eye Care: A comparison of Optometrists and Ophthalmologists. A Research Report prepared by Audits and Surveys for Center for Vision Care Policy, State College of Optometry, State University of New York, 1989.
11. American Public Health Association: Policy Statement No. 8120: Vision Care Manpower Utilization. APHA Public Policy Statements. 1948-present. Washington, DC: APHA, current volume.
12. Public Law 99-509, Section 9335, 1986.

Footnote

* Aron, F: Unpublished data. The number of cities with ophthalmologists and optometrists in each state was based on hand counts from references 5 and 6, respectively. St. Louis, MO: Am Optom Assoc.

FIFTH
EDITION,
REVISED

The Gourman Report

A RATING OF

Graduate and Professional PROGRAMS IN AMERICAN & INTERNATIONAL UNIVERSITIES



Accounting Aerospace Engineering Bioengineering/
Biomedical Engineering Biology Business Administration
(MBA-Doctoral) Ceramic Sciences/Engineering Chemical
Engineering Chemistry Civil Engineering Classics Com
puter Science Drama/Theatre Dentistry Economics
Electrical Engineering English Entomology Environmental
Engineering Finance Forestry French Geography
Geology/Geoscience Geophysics German History
Industrial Engineering Journalism Law Library Science
Linguistics Management/Organizational Behavior Market
ing Material Science Mathematics Mechanical Engineer
ing Medicine Metallurgical Engineering Music Nuclear
Engineering Nursing Operations Research Optometry
Petroleum Engineering Pharmacy Philosophy Physics
Political Science Psychology Public Administration Public
Health Russian Social Welfare/Social Work Sociology
Spanish Statistics Teacher Education Veterinary Medicine
Zoology



Dr. Jack Gourman
NATIONAL EDUCATION
STANDARDS

MORE THAN
1,000 SCHOOLS
RATED

The
GOURMAN
REPORT

A Rating of Graduate
and Professional Programs
in American and
International Universities

FIFTH EDITION
Revised

Dr. Jack Gourman



National Education Standards

Introduction to the fifth edition

THE GOURMAN REPORT is the only qualitative guide to American and International institutions of higher education which assigns a precise, numerical score in assessing the strengths and shortcomings of each school and program. This methodology vastly simplifies the reader's task in examining the effectiveness of a given educational program, or comparing one program against another; and yet the Gourman rating takes into account a wide variety of empirical data, as detailed below.

This text is intended for use by:

- Individuals wishing to make an informed choice about higher education.
- Educators and administrators desirous of an independent evaluation of their program
- Prospective employers who want to avoid retraining of inadequately prepared graduates from ineffective institutions.
- Schools wishing to improve graduate and professional programs.
- Foundations involved in fund-giving to colleges and universities.
- Licensing authorities in need of objective educational assessments.
- Individuals interested in identifying, and eliminating, fraudulent and inferior institutions.
- Citizens concerned about the quality of today's higher education.

If each institution did its utmost to insure a superior educational experience, and then frankly informed the public of any unavoidable compromises caused by funding, geography or educational focus, then there might be no need for a book such as this one. However, the facts remain that:

- Institutional policy often dictates decisions about faculty, curriculum and physical plant for reasons which have little to do with education.
- Faculty members and administrators are intimidated, by internal and external political pressures from making critical comments about their own institutions.
- Public relations efforts by institutions tend to exaggerate strong areas, and ignore weak ones.
- Frankly fraudulent institutions exist as profit centers, rather than as promulgators of quality education.
- Accreditation appears to be mainly a finding that an institution is not conspicuously defective in physical and staff resources.

We must remember that the quality of graduate and professional education affects the future not only of individuals, but of the nation and its economy. If the following pages can make a contribution, no matter how minor, toward raising awareness of the need for better educational standards, then the purpose of THE GOURMAN REPORT is well served.

Method of Evaluation

In an age of disinformation, the user of this text should keep in mind that THE GOURMAN REPORT is not a "popularity contest", or an "opinion poll", but an objective evaluation which synthesizes complex data into a deceptively convenient numerical rating.

Obviously, much of the material used in compiling THE GOURMAN REPORT is internal – drawn from educators and administrators at the schools themselves. These individuals are permitted to evaluate *only* their own programs – as they know them from daily interface with the educational experience – and not the programs of other institutions. Unsolicited appraisals are occasionally considered (and weighed accordingly), but the bulk of our contributions are requested from persons chosen for their academic qualifications, their published works, and their interests in improving the quality of higher education. It attests to the dedication of these individuals (and also to the serious problems in higher education today) that over 90% of our requests for contributions are met with a positive response.

In addition, THE GOURMAN REPORT draws on many external resources which are a matter of record – e.g., funding for public universities as authorized by legislative bodies, required filings by schools to meet standards of nondiscrimination, and material provided by the institutions (and independently verified) about faculty makeup and experience, fields of study offered, and physical plant. Such resources, while public, are not always accessible to the individual researcher; and someone wishing to utilize this data for comparing a number of institutions and programs would face a daunting task.

Finally, THE GOURMAN REPORT is fortunate to have among its contributors a number of individuals, associations and agencies whose business it is to make correct projections of the success graduates from given institutions and disciplines will enjoy in the "real world". While the methods employed by these resources are proprietary, their findings have consistently been validated by experience, and they are an important part of our research.

To critics who might question the feasibility of an evaluation which draws from such diverse resources, we offer the comparison to the grading of a college essay examination. What may appear to be a subjective process is in fact a patient sifting of empirical data by analysts who understand both the "subject matter" (the fields of study under examination), and the "students" (the colleges and universities themselves). The fact that there are virtually no "tie" scores indicates the accuracy and effectiveness of this methodology, as does the consistent affirmation of the ratings in THE GOURMAN REPORT from readers in a position to independently evaluate the attributes of specific educational programs.

Criteria

The following criteria are taken into consideration in the evaluation of each educational program and institution. It should be noted that, because different disciplines vary in their educational methodology, the significance given each criterion will vary from the rating of one discipline to the next; however, our evaluation is consistent for all schools listed within each field of study.

1. Auspices, control and organization of the institution;
2. Total educational programs offered and degrees conferred (with additional attention to "subfields" available to students within a particular discipline);
3. Age (experience level) of the institution and of the individual discipline or program and division;
4. Faculty, including qualifications, experience, intellectual interests, attainments, and professional productivity (including research);
5. Students, including quality of scholastic work and records of graduates both in graduate study and in practice;
6. Basis of and requirements for admission of students (overall and by individual discipline);

7. Number of students enrolled (overall and for each discipline);
8. Curriculum and curricular content of the program or discipline and division;
9. Standards and quality of instruction (including teaching loads);
10. Quality of administration, including attitudes and policy toward teaching, research and scholarly production in each discipline, and administration research;
11. Quality and availability of non-departmental areas such as counseling and career placement services;
12. Quality of physical plant devoted to graduate, law, medicine and other professional levels;
13. Finances, including budgets, investments, expenditures and sources of income for both public and private institutions;
14. Library, including number of volumes, appropriateness of materials to individual disciplines, and accessibility of materials.

A guide to using THE GOURMAN REPORT

Because the actual ratings within this text are presented without extraneous commentary, the following observations should be helpful in guiding both the first-time reader and the experienced user of THE GOURMAN REPORT.

PART I contains ratings of leading institutions (those with scores between 4.0 and 5.0, in rank order) in 65 individual disciplines, from Aerospace Engineering to Zoology. Scores for institutions not scoring 4.0 or above in these disciplines may be found in PART XIV.

PART II includes ratings of leading international law schools (those with scores between 4.0 and 5.0, in rank order); U.S. law schools from "distinguished" (4.0 to 5.0) to "adequate" (2.3 to 2.9), with the additional listings for less-qualified, but still acceptable, institutions included in consideration of the competitive admissions environment facing today's prospective law student; a ranking of Canadian law schools; and a cross-tabulation of leading institutions in the U.S. and abroad.

PART III rates leading Canadian, U.S. and International medical schools and Canadian and U.S. dental (those with scores between 4.0 and 5.0, in rank order), with additional ratings for U.S. schools down to "acceptable plus" (3.0 to 3.5) included for the student seeking admission to a qualified program in today's competitive environment.

Also in Part III, the reader will find a rating of leading graduate programs (4.0-5.0) in veterinary medicine; and a cross-tabulation of leading medical schools in the U.S. and abroad.

PART IV includes leading graduate programs in nursing (3.6 to 5.0) and optometry (4.0 to 5.0); leading Canadian pharmacy schools (4.0 to 5.0); leading U.S. pharmacy schools (3.6 to 5.0); and leading graduate programs in public health (scores between 4.0 and 5.0, in rank order).

PART V lists the U.S. institutions whose research libraries are distinguished by a rating between 4.0 and 5.0.

PART VI is a rating of 139 graduate schools of engineering on the Approved List of THE GOURMAN REPORT. Schools not listed here may be found under the appropriate engineering headings in Part I.

PART VII is a rating of MBA management schools on the Approved List of THE GOURMAN REPORT. Out of 500 institutions surveyed, only 100 schools meet the standards which were applied.

PART VIII lists doctoral schools in business and management on the Approved List of THE GOURMAN REPORT. The two principal degree designations offered by these programs are the Ph.D. (Doctor of Philosophy) and the DBA (Doctor of Business Administration). Those schools cited met basic standards of curriculum, faculty qualifications, administration, admissions and facilities.

PART IX is a rating of selective doctoral programs in business and management for 88 institutions on the Approved List of THE GOURMAN REPORT. Accounting (found in Part I of previous editions) is evaluated alongside finance, management, organizational behavior and marketing programs for each of the qualifying schools.

PART X provides a rating of leading international universities, by administration, curriculum, faculty, libraries and overall quality.

PART XI is an alphabetical listing of departments of teacher education not on the Approved List of THE GOURMAN REPORT. Teaching degrees bestowed by these schools may not be comparable to degrees in fields where faculty members are required to create new knowledge, preserve existing knowledge, or transmit knowledge to others.

PART XII includes departments of graduate education not on the Approved List of THE GOURMAN REPORT because they do not meet the standard of graduate training with regard to administration, curriculum, faculty or library resources. These institutions offer advanced degrees in such fields as philosophy and history of education, learning and instruction, comparative and international education, higher education, educational administration, and curriculum. Such degrees should not be taken as equivalent to master's or doctorate degrees in disciplines such as engineering, geoscience, chemistry, romance languages, mathematics, physics, English, history, political science, etc.

PART XIII lists the top fifty graduate schools in the United States, in rank order. These institutions have distinguished themselves by their commitment to a leadership position in quality education; it is only appropriate that their achievement be recognized in a separate section.

PART XIV rates all accredited graduate schools in the United States, listed alphabetically. This section is intended primarily for use by readers who desire information about a particular institution. By no means should a school's listing be taken as an endorsement or an indication of quality, as ratings vary from "very strong" (4.51 to 4.99) to "unacceptable" (below 2.01).

PART XV -- APPENDIXES contains tables of the number and types of programs evaluated for this fifth edition, as well as listings of the schools included for 13 selected professional fields.

A RATING OF GRADUATE PROGRAMS IN OPTOMETRY
Leading Institutions

Sixteen institutions with scores in the 4.0-5.0 range, in rank order

INSTITUTION	Rank	Score
UNIVERSITY OF CALIFORNIA, BERKELEY School of Optometry	1	4.94
THE OHIO STATE UNIVERSITY College of Optometry	2	4.92
INDIANA UNIVERSITY School of Optometry	3	4.91
UNIVERSITY OF ALABAMA AT BIRMINGHAM School of Optometry	4	4.88
UNIVERSITY OF HOUSTON College of Optometry	5	4.83
SOUTHERN CALIFORNIA COLLEGE College of Optometry	6	4.82
SUNY STATE College of Optometry	7	4.74
ILLINOIS COLLEGE College of Optometry	8	4.73
PENNSYLVANIA College of Optometry	9	4.70
NEW ENGLAND College of Optometry	10	4.65
FERRIS STATE College of Optometry	11	4.61
PACIFIC UNIVERSITY College of Optometry	12	4.55
UNIVERSITY OF MISSOURI - ST. LOUIS School of Optometry	13	4.52
SOUTHERN COLLEGE College of Optometry	14	4.38
NORTHEASTERN STATE UNIVERSITY College of Optometry	15	4.17
INTER AMERICAN UNIVERSITY OF PUERTO RICO School of Optometry	16	4.08

A RATING OF MEDICAL SCHOOLS

U.S.A. MEDICAL SCHOOLS Distinguished

Nineteen institutions with scores in the 4.6-5.0 range, in rank order

INSTITUTION	Rank	Score
HARVARD MEDICAL SCHOOL (Boston)	1	4.94
JOHNS HOPKINS UNIVERSITY School of Medicine (Baltimore)	2	4.92
UNIVERSITY OF PENNSYLVANIA School of Medicine (Philadelphia)	3	4.92
UNIVERSITY OF CALIFORNIA School of Medicine (San Francisco)	4	4.91
YALE UNIVERSITY School of Medicine (New Haven)	5	4.90
UNIVERSITY OF CHICAGO Pritzker School of Medicine (Chicago)	6	4.88
COLUMBIA UNIVERSITY College of Physicians & Surgeons (New York)	7	4.87
STANFORD UNIVERSITY School of Medicine (Palo Alto)	8	4.85
CORNELL UNIVERSITY School of Medicine (New York)	9	4.82
UNIVERSITY OF MICHIGAN Medical School (Ann Arbor)	10	4.79
UNIVERSITY OF CALIFORNIA School of Medicine (Los Angeles)	11	4.78
DUKE UNIVERSITY School of Medicine (Durham)	12	4.73
NEW YORK UNIVERSITY School of Medicine (New York)	13	4.70
NORTHWESTERN UNIVERSITY Medical School (Chicago)	14	4.68
UNIVERSITY OF MINNESOTA Medical School (Minneapolis)	15	4.67
TULANE UNIVERSITY Medical School (New Orleans)	16	4.65
UNIVERSITY OF ROCHESTER School of Medicine & Dentistry (Rochester)	17	4.63
WASHINGTON UNIVERSITY School of Medicine (St. Louis)	18	4.61
VANDERBILT UNIVERSITY School of Medicine (Nashville)	19	4.57

A RATING OF MEDICAL SCHOOLS

U.S.A. MEDICAL SCHOOLS (Continued) Strong

Thirty-two institutions with scores in the 4.0-4.5 range, in rank order

INSTITUTION	Rank	Score
UNIVERSITY OF CALIFORNIA School of Medicine (San Diego)	20	4.50
UNIVERSITY OF VIRGINIA School of Medicine (Charlottesville)	21	4.49
UNIVERSITY OF NORTH CAROLINA School of Medicine (Chapel Hill)	22	4.48
TUFTS UNIVERSITY School of Medicine (Boston)	23	4.47
UNIVERSITY OF CALIFORNIA School of Medicine (Davis)	24	4.46
BOSTON UNIVERSITY School of Medicine (Boston)	25	4.45
INDIANA UNIVERSITY School of Medicine (Indianapolis)	26	4.44
UNIVERSITY OF WISCONSIN Medical School (Madison)	27	4.43
UNIVERSITY OF ILLINOIS College of Medicine (Chicago)	28	4.42
UNIVERSITY OF IOWA College of Medicine (Iowa City)	29	4.41
UNIVERSITY OF WASHINGTON School of Medicine (Seattle)	30	4.40
GEORGETOWN UNIVERSITY School of Medicine (Washington D.C.)	31	4.39
OHIO STATE UNIVERSITY College of Medicine (Columbus)	32	4.38
STATE UNIVERSITY OF NEW YORK AT BUFFALO School of Medicine	33	4.37
GEORGE WASHINGTON UNIVERSITY School of Medicine (Washington D.C.)	34	4.36
TEMPLE UNIVERSITY School of Medicine (Philadelphia)	35	4.35

A RATING OF MEDICAL SCHOOLS

U.S.A. MEDICAL SCHOOLS (Continued) Strong

Thirty-two institutions with scores in the 4.0-4.5 range, in rank order

INSTITUTION	Rank	Score
BAYLOR COLLEGE OF MEDICINE (Houston)	36	4.34
BOWMAN GRAY SCHOOL OF MEDICINE (Winston-Salem)	37	4.33
EMORY UNIVERSITY School of Medicine (Atlanta)	38	4.32
UNIVERSITY OF KANSAS School of Medicine (Kansas City)	39	4.31
LOMA LINDA UNIVERSITY School of Medicine (Loma Linda)	40	4.30
LOYOLA UNIVERSITY OF CHICAGO Stritch School of Medicine	41	4.28
UNIVERSITY OF LOUISVILLE School of Medicine (Louisville)	42	4.27
UNIVERSITY OF CALIFORNIA College of Medicine (Irvine)	43	4.26
SAINT LOUIS UNIVERSITY School of Medicine (St. Louis)	44	4.25
DARTMOUTH MEDICAL SCHOOL (Hanover)	45	4.23
UNIVERSITY OF SOUTHERN CALIFORNIA School of Medicine (Los Angeles)	46	4.21
UNIVERSITY OF MISSOURI School of Medicine (Columbia)	47	4.18
WAYNE STATE UNIVERSITY School of Medicine (Detroit)	48	4.17
ALBERT EINSTEIN College of Medicine of Yeshiva University (New York)	49	4.16
STATE UNIVERSITY OF NEW YORK AT STONY BROOK School of Medicine	50	4.15
BROWN UNIVERSITY PROGRAM IN MEDICINE (Providence)	51	4.13

A RATING OF MEDICAL SCHOOLS

U.S.A. MEDICAL SCHOOLS (Continued) Good

Twenty-eight institutions with scores in the 3.6-3.9 range, in rank order

INSTITUTION	Rank	Score
CASE WESTERN RESERVE UNIVERSITY School of Medicine (Cleveland)	52	3.89
UNIVERSITY OF COLORADO School of Medicine (Denver)	53	3.88
UNIVERSITY OF CONNECTICUT School of Medicine (Farmington)	54	3.87
UNIVERSITY OF PITTSBURGH School of Medicine (Pittsburgh)	55	3.85
CREIGHTON UNIVERSITY School of Medicine (Omaha)	56	3.84
MOUNT SINAI School of Medicine of the City University of New York	57	3.83
UNIVERSITY OF MARYLAND School of Medicine (Baltimore)	58	3.82
HEALTH SCIENCES UNIVERSITY School of Medicine (Portland)	59	3.81
ALBANY MEDICAL COLLEGE of Union University (Albany)	60	3.80
UNIVERSITY OF UTAH College of Medicine (Salt Lake City)	61	3.79
UNIVERSITY OF FLORIDA College of Medicine (Gainesville)	62	3.78
LOUISIANA STATE UNIVERSITY School of Medicine (New Orleans)	63	3.77
UNIVERSITY OF MIAMI School of Medicine (Miami, Florida)	64	3.76
MICHIGAN STATE UNIVERSITY College of Human Medicine (East Lansing)	65	3.75
UNIVERSITY OF TEXAS Southwestern Medical School (Dallas)	66	3.74
UNIVERSITY OF MISSOURI School of Medicine (Kansas City)	67	3.73
UNIVERSITY OF TEXAS MEDICAL BRANCH (Galveston)	68	3.72
UNIVERSITY OF TEXAS MEDICAL SCHOOL (San Antonio)	69	3.71
PENNSYLVANIA STATE UNIVERSITY College of Medicine, The Milton S. Hershey Medical Ctr. (Hershey)	70	3.70
STATE UNIVERSITY OF NEW YORK College of Medicine (Brooklyn)	71	3.69
UNIVERSITY OF CINCINNATI College of Medicine (Cincinnati)	72	3.68
STATE UNIVERSITY OF NEW YORK College of Medicine (Syracuse)	73	3.67
UNIVERSITY OF TENNESSEE College of Medicine (Memphis)	74	3.66
UNIVERSITY OF OKLAHOMA School of Medicine (Oklahoma City)	75	3.65
UNIVERSITY OF NEBRASKA College of Medicine (Omaha)	76	3.64
UNIVERSITY OF KENTUCKY College of Medicine (Lexington)	77	3.63
UNIVERSITY OF VERMONT College of Medicine (Burlington)	78	3.62
LOUISIANA STATE UNIVERSITY School of Medicine (Shreveport)	79	3.61

A RATING OF MEDICAL SCHOOLS

U.S.A. MEDICAL SCHOOLS (Continued) Acceptable Plus

Forty-seven institutions with scores in the 3.0-3.5 range, in rank order

INSTITUTION	Rank	Score
NEW YORK MEDICAL COLLEGE (New York)	80	3.51
JEFFERSON MEDICAL COLLEGE of Thomas Jefferson University (Philadelphia)	81	3.50
UNIVERSITY OF ALABAMA School of Medicine (Birmingham)	82	3.49
WEST VIRGINIA UNIVERSITY School of Medicine (Morgantown)	83	3.48
UNIVERSITY OF TEXAS MEDICAL SCHOOL (Houston)	84	3.47
UNIVERSITY OF ARKANSAS School of Medicine (Little Rock)	85	3.46
HAHNEMANN UNIVERSITY SCHOOL OF MEDICINE (Philadelphia)	86	3.45
UMDNJ-NEW JERSEY MEDICAL SCHOOL (Newark)	87	3.44
UNIVERSITY OF MISSISSIPPI School of Medicine (Jackson)	88	3.43
UNIVERSITY OF NEW MEXICO School of Medicine (Albuquerque)	89	3.42
MEDICAL UNIVERSITY OF SOUTH CAROLINA College of Medicine (Charleston)	90	3.41
UNIVERSITY OF ARIZONA College of Medicine (Tucson)	91	3.40
MEDICAL COLLEGE OF PENNSYLVANIA (Philadelphia)	92	3.39
MeHARRY MEDICAL COLLEGE School of Medicine (Nashville)	93	3.38
RUSH MEDICAL COLLEGE (Chicago)	94	3.37
MAYO MEDICAL SCHOOL (Rochester)	95	3.36
MEDICAL COLLEGE OF VIRGINIA (Richmond)	96	3.35
MEDICAL COLLEGE OF GEORGIA (Augusta)	97	3.34
MEDICAL COLLEGE OF OHIO (Toledo)	98	3.33
CHICAGO MEDICAL SCHOOL University of Health Sciences (Chicago)	99	3.32
HOWARD UNIVERSITY College of Medicine (Washington, D.C.)	100	3.31
UNIVERSITY OF SOUTH FLORIDA College of Medicine (Tampa)	101	3.30
SOUTHERN ILLINOIS UNIVERSITY School of Medicine (Springfield)	102	3.29

A RATING OF MEDICAL SCHOOLS

U.S.A. MEDICAL SCHOOLS (Continued) Acceptable Plus

Forty-seven institutions with scores in the 3.0-3.5 range, in rank order

INSTITUTION	Rank	Score
TEXAS TECH UNIVERSITY		
School of Medicine (Lubbock)	103	3.28
UMDNJ-RUTGERS MEDICAL SCHOOL (Piscataway)	104	3.27
UNIVERSITY OF HAWAII		
School of Medicine (Honolulu)	105	3.28
UNIVERSITY OF MASSACHUSETTS		
Medical School (Worcester)	106	3.25
MEDICAL COLLEGE OF WISCONSIN (Milwaukee)	107	3.24
UNIVERSITY OF PUERTO RICO		
School of Medicine (San Juan)	108	3.23
UNIVERSITY OF SOUTH CAROLINA		
School of Medicine (Columbia)	109	3.22
UNIVERSITY OF NEVADA		
School of Medical Science (Reno)	110	3.21
UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES		
School of Medicine (Bethesda)	111	3.19
UNIVERSITY OF NORTH DAKOTA		
School of Medicine (Grand Forks)	112	3.18
UNIVERSITY OF SOUTH DAKOTA		
School of Medicine (Vermillion)	113	3.17
NORTHEASTERN OHIO UNIVERSITIES		
College of Medicine (Rootstown)	114	3.16
EAST CAROLINA UNIVERSITY		
School of Medicine (Greenville)	115	3.15
MARSHALL UNIVERSITY		
School of Medicine (Huntington)	116	3.14
EASTERN VIRGINIA MEDICAL SCHOOL (Norfolk)	117	3.13
EAST TENNESSEE STATE UNIVERSITY		
College of Medicine (Johnson City)	118	3.12
UNIVERSITY OF SOUTH ALABAMA		
College of Medicine (Mobile)	119	3.11
TEXAS A&M UNIVERSITY		
College of Medicine (College Station)	120	3.10
WRIGHT STATE UNIVERSITY		
School of Medicine (Dayton)	121	3.09
MOREHOUSE SCHOOL OF MEDICINE (Atlanta)	122	3.07
ORAL ROBERTS		
School of Medicine (Tulsa)	123	3.05
MERCER UNIVERSITY		
School of Medicine (Macon)	124	3.04
PONCE SCHOOL OF MEDICINE (Ponce)	125	3.03
UNIVERSIDAD CENTRAL DEL CARIBE		
School of Medicine (Cayey)	126	3.02

**Eye Health Care in
Delaware Should be
More Accessible,
Comprehensive, and
Economical**

Half of the states in America provide better eye care for their citizens; Delaware currently prohibits it. The Delaware Optometric Association supports legislation which will secure needed eye care benefits for the people of Delaware, with no added expenditure of public funds. The proposed legislation will allow qualified doctors of optometry to use and prescribe certain ocular therapeutic pharmaceutical agents (TPAs) to treat diseases and disorders of the human eye, eyelid and related structures. They will not be treating syatemic disease.

Passage of this Bill will permit qualified Delaware doctors of optometry to care for patients in a manner consistent with their current education and training.

**Primary
Eye
Health Care**

A doctor of optometry (O.D.) is a primary health care provider specifically educated and licensed to examine, diagnose, and treat conditions of the human visual system.

Optometry is the largest eye care profession and the third largest independent health care profession in America. Like dentists and family physicians, doctors of optometry are primary care providers who are generally the first professionals to examine, diagnose and treat patients who enter the health care system. Those who require secondary or tertiary care are referred to the appropriate specialists.

There are many good reasons to allow doctors of optometry to use therapeutic medications for the treatment of common eye disease. Competency is just one of them.

Delaware Optometric Association

NOW
1/2

of the country benefits

**Better Eyecare Should Not Be
Against the Law!**

**Doctors of Optometry are
Permitted to Use and
Administer Therapeutic
Medications in 25 States**

**The Delaware TPA Bill:
Overcoming Objections with
Facts.**

As the law currently stands, ophthalmologists are the only eye care specialists allowed to use and prescribe therapeutic drugs. It is important to remember however, that ophthalmologists are surgical specialists and are not necessarily the best primary eye providers. Doctors of optometry provide primary eye care exclusively.

Under the proposed bill, doctors of optometry will be able to prescribe topical and oral anti-infective agents, antihistamines, anti-glaucoma agents, anti-inflammatory agents, analgesic agents and over the counter agents, along with oral non-steroidal anti-inflammatory agents. All of these medications will be used for the treatment of common eye disease. Patients will be referred to proper specialists when necessary.

The most common objections to a Delaware TPA bill are based on inaccurate perceptions:

Objection: Doctors of optometry are trying to "practice medicine" without a medical degree.

FACT: Some say that drugs should only be administered by graduates of medical school. This argument overlooks the fact that dentists, osteopaths and podiatrists do not attend medical school; yet they are permitted under

Delaware law to administer certain drugs, and this practice is widely accepted by the public and other medical professionals. These health care professionals, like doctors of optometry, receive as much or more pharmacological training as is required in medical school.

It is also important to note that doctors of optometry have far more education and knowledge regarding the eye, and have more sophisticated equipment for detailed examination of the eye, than the average non-ophthalmologist physician. These non-ophthalmologist physicians do in fact now treat eye disease.

Objection: Doctors of optometry do not have the education to prescribe therapeutic drugs.

FACT: Actually, doctors of optometry have 7 - 10 years of higher education, including the four year doctoral program in optometry. The optometric doctoral program is equivalent to dentistry and podiatry in the area of pharmacology.

Optometric schools and colleges are accredited by the same national and regional accreditation associations which certify all health care professional schools.

All Delaware optometrists are required to pass a written national and practical state certification exam to demonstrate expertise in the profession before being licensed to practice. They are also required to complete 12 hours of qualified continuing education every two years as a prerequisite for license renewal.

Objection: Therapeutic pharmaceutical agents can have systemic effects on other parts of the human body.

FACT: True. However, doctors of optometry, along with medical doctors, dentists, osteopaths, podiatrists and pharmacists are aware of these effects and will prescribe in a responsible manner. Information on systemic effects is taught to all health care professionals, not just to medical doctors.

An optometrist, like any other doctor, would seek emergency care if a patient exhibited a serious adverse reaction to any drug.

Objection: Allowing doctors of optometry to treat eye disease will increase the cost of eye care in Delaware.

FACT: This statement is unsubstantiated. Evidence from 25 other states allowing doctors of optometry to treat eye disease shows that the cost of eye care is actually reduced. Optometrists' fees are generally lower than those charged by surgical specialists and hospitals for the same procedures. Even malpractice rates, the most impartial and accurate measure of effectiveness, have not increased in states allowing optometrists to prescribe medications.

The patient will, in many cases, avoid the cost of a visit to a second doctor or to a hospital. The patient will also save travel time and time away from work or home.

Better eye care should not be against



New Jersey Optometric Association

88 Lakedale Drive / Trenton, New Jersey 08648 / 609 • 695 • 3456

Q. Why should optometry be allowed to independently treat glaucoma?

A. By virtue of optometric education and geographic distribution, optometrists are prepared and available to prevent unnecessary visual impairment by diagnosis as well as treating glaucoma. Today's optometrist is clinically qualified and has state of the art instrumentation to diagnose glaucoma --- the same instruments, concepts and diagnostic techniques used by physicians. Glaucoma is a sight-threatening disease, but it manifests itself in different degrees of severity. Even ophthalmologists will refer out to specialists a serious glaucoma case.

Q. Isn't the treatment of glaucoma a lot more complex than diagnosis?

A. Once the diagnosis has been established, the pressure inside the eye must be reduced. The use of drops is nearly always indicated; occasionally, oral anti-glaucoma medicine is prescribed, with surgery as an option. When this is necessary the appropriate referral will be made. Treatment of glaucoma is aimed at making sure there is not further damage from the elevated pressure inside the eye. The same processes involved in the diagnosis of glaucoma is also used in managing glaucoma.

Q. Is it dangerous to have optometrists providing post-operative care for cataracts or other eye problems?

A. No. Optometry has been providing post-operative care for years. Insurance carriers, including Medicare, reimburse optometrists for the care provided.

Q. Were studies released by the federal government raising concerns about post-operative care by optometrists?

A. Again, this issue is irrelevant to the current optometric practice act or the proposed legislation. A study was released by the Federal Office of Technological Assessment (OTA) that speculated about "potential risks". However, no scientific conclusion has been drawn from the study, and hypothetical potential concerns in comanagement situations have not been raised by OTA. Where legal issues have been raised in the past by ophthalmic surgeons, post-operative care of cataract surgery patients has been held to fall within the definition of the practice of optometry. Finally, the Code of Ethics of the American Medical Association finds post-operative care by optometrists to be perfectly acceptable and ethical.

Q. Aren't ophthalmologists easily available to any citizen of New Jersey?

A. Although widely distributed through the state, ophthalmologists are not readily available on Wednesdays, weekends, and evenings, especially in the inner cities. Optometrists are forced to refer their patients to a general medical practitioner with minimum training in the eye compared to that of the optometrist, or to the emergency room at a local hospital, where the patient's treatment will be further delayed and the costs greatly increased.

We hope these comments will lead to a better understanding on optometry's position on A-743. If you have any questions on this important legislation, please give me a call at (609) 695-3456.

Dr. Larry Wallis
Legislative Chairman
New Jersey Optometric Association

Q. Won't malpractice claims and malpractice insurance rates increase because of medications used by optometrists?

A. No. In fact, rates have gone down. States have authorized medications for disease treatment by optometrists since 1976 with no trend toward increased claims or rates. Some rates for optometry dropped 40% in 1988. There is no actuarial difference between states with or without treatment legislation, including those states authorizing glaucoma treatment. Optometry malpractice rates are far below the rates for other professions including medicine. The claims-made rate with St. Paul Fire & Marine is \$750 compared to \$12,500 for a non-surgical ophthalmologist.

Q. Wouldn't it be best for the public to keep non-medical professionals limited?

A. These public safety arguments propagated by medicine should be recognized for what they are - the use of licensure laws as a monopolistic tool to protect the economic interest of one profession against another. Dentists and podiatrists are "non-medical" professionals, with treatment and surgical privileges.

Q. Won't giving optometry the use of medications for treatment purposes create problems, with the potential to cause blindness or even death from some medications?

A. Medical claims of lethal effects from optometric use of diagnostic and treatment medications (...people dying in the streets) have proven to be false claims. Optometry has an exceptional record when fairly compared with medicine, dentistry and podiatry - those professions with the legal right to use treatment medications. Optometry in various states has made wide use of treatment medications since 1976 with a very good record. Medicine made the same claim in every state that sought the use of diagnostic pharmaceutical agents. Fifty (50) states now use them without any harm to the public. In fact, many diagnostic drugs also have a therapeutic use.

Q. Isn't optometry attempting these legislative changes just because optometrists are now reimbursed under major medical and by Medicare?

A. Reimbursement by insurance companies and third party payors for services provided by optometrists when those services would be covered if provided by a physician has not been an issue since the passage of anti-discrimination statutes over 20 years ago. Coverage of optometric services is a matter of equity for New Jersey citizens and is also cost effective. Consumers, business and government will benefit as competition increases, costs stabilize and earlier identification of more serious disease problems permits early initiation of treatment.

Q. What about allegations of optometric mismanagement?

A. Optometry is not perfect, but neither is medicine. Many of these allegations have grown from statements made by the North Carolina Society of Ophthalmology. These totally unsubstantiated allegations were first made by ophthalmology in 1984. The North Carolina State Board of Examiners in Optometry acted immediately to gain information about these cases. To date, no documents have even been produced to substantiate the allegations. In fact, the parties making these allegations have consistently refused to produce any evidence supporting the allegations. On May 6, 1987 the North Carolina Board made the following findings: "No documents or evidence exists which would substantiate the claim of the society that there were 203 cases of optometric mismanagement. In addition, there exists no appreciable evidence of neglect, mismanagement or incompetence on the part of any licensee of this board which justifies any further inquiry or investigation based upon claims or contentions of the [ophthalmology] society, its officers, attorneys, public relations staff or other agents."

Q. What public protection exists?

A. There is a virtual "fail-safe" mechanism in optometry to protect the patient. It is the universal characteristic of "professional conservatism". Professional conservatism, actually good independent professional judgment, would dictate consultation with an appropriate practitioner whenever the patient's needs are beyond the scope of training or licensure of the optometrist. Protecting the patient's welfare is the hallmark of any health care provider, including optometry.

Q. Will optometrists try to treat every case of disease that walks in the door?

A. Absolutely not, but we think we should be the ones to decide what to treat and what not to treat. Optometry is an independent health profession and must be allowed the flexibility to make consultation and treatment decisions -- the law should not require optometry or optometric patients to be constantly running to physicians for unnecessary consultations. Consultations and comanagement with secondary and tertiary practitioners is and will continue to be an important part of providing care to our patients, but broad consultation should not be mandated.

Q. Isn't optometric education in pharmacology and the treatment of disease superficial? Shouldn't a "medical education" be required?

A. Optometric pharmacological education is the equivalent to, or greater than that received in most medical schools during the first four years of a general medical education. In fact, in the institutions where both optometry and medical schools exist together as part of a major university (ie, Ohio State University or the University of Alabama at Birmingham), the basic educational and clinical experiences are taught by the same staff and clinical instructors.

Neither podiatrists nor dentists have "medical educations" as defined by MD's, yet both professions have long had the authority to prescribe, with pharmacological education in their own area of specialization equivalent to that received by optometrists in optometry's area of specialization.

Q. Do optometrists have the "hands-on" clinical expertise to treat eye disease?

A. Yes. The graduating optometrist participates in supervised diagnosis, management, and direct case study through clinical experiences in a variety of settings, including public health hospitals, Indian health facilities, military hospitals, veterans hospitals and inner city clinics. This clinical experience includes the diagnosis of eye disease as well as the presence of systemic diseases which require referral to other practitioners. As in other professions, the biomedical and clinical sciences are taught in the classroom, applied in the clinics and refined through internships, externships and residencies.

Practicing optometrists diagnose disease daily in their offices. As a result, practicing optometrists have years of clinical experience in differential diagnosis and follow up care.

Q. Optometrists do not have access to laboratories to do special testing, do they?

A. Optometrists have access to the same laboratories as do physicians. More and more, optometrists are being named to hospital staffs, which allows even greater access for special laboratory tests. For general physical evaluations, consultation is made with family physicians.

Q. Some medical doctors, who are also optometrists, assert that only physicians take four years of undergraduate college. These OD/MDs also assert that medical school covers more and is more intellectually demanding -- is that true?

A. No. Optometrists also typically take four years of undergraduate work, graduate near the top of their classes and then attend four years of intellectually demanding optometric education. The schools and colleges of optometry are accredited by the United States Department of Education and the Council on Postsecondary Accreditation, as are medical schools.

Also, these OD/MDs would have graduated from optometry school nearly a decade ago. Optometric education, just like medical education, has changed in the last decade. If anything, optometric education has changed even more dramatically. Practicing optometrists must also obtain fifty (50) hours of continuing education every two (2) years to update and maintain their professional licensure. In New Jersey, the highest statutory requirement for continuing education in the country.

Q. What is glaucoma?

A. Glaucoma is not simply one disease nor is there a universally accepted definition. However, the general consensus is that glaucoma exists when the pressure inside the eye is higher than that person's eye can tolerate. Glaucoma is evidenced by nerve changes and losses in areas of side vision.