DRAFT PROPOSAL

ILLINOIS COLLEGE OF OPTOMETRY AND
ILLINOIS INSTITUTE OF TECHNOLOGY
COMBINED 3 + 4
BACHELOR OF SCIENCE IN BIOLOGY &
DOCTOR OF OPTOMETRY DEGREE PROGRAM

The Faculty of the Department of Biological, Chemical, and Physical Sciences
Illinois Institute of Technology

Fred R. McMorris, Dean of the College of Science and Letters
Illinois Institute of Technology

Mark Colip, Vice President for Student Affairs
Illinois College of Optometry

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AGREEMENT BETWEEN
ILLINOIS COLLEGE OF OPTOMETRY AND
ILLINOIS INSTITUTE OF TECHNOLOGY FOR
COMBINED DEGREE PROGRAM

This Agreement is made this ___ day of _____, 2004, between Illinois College of Optometry ("ICO"), and Illinois Institute of Technology ("IIT").

The parties intend by this Agreement to establish a 3 + 4 program of studies (the "Program") under which a student can earn the Bachelor Science ("B.S.") *in Biology* from IIT and the Doctor of Optometry degree ("O.D.") from ICO in a seven year period. The parties agree as follows.

1. Purpose of the Program – See Attachment A

Under the provisions of this Agreement, selected students who successfully complete the specified coursework at IIT and satisfy other requirements of the Program will be granted admission to ICO. Students accepted into the Program will attend IIT for three academic years and will then attend ICO for four years.

2. Eligibility for the Program

Students interested in the Program must successfully complete the pre-optometry curriculum (Attachment C to this Agreement) with a cumulative grade point average of 3.2 or better. Such students must also attain satisfactory scores on the Optometry Admissions Test and otherwise qualify for admission to ICO.

3. Application Process

Students interested in the Program will apply to IIT using IIT's normal admission process. Upon completion of three full academic years (or the equivalent in credit hours) at IIT, students who have completed the requirements for admission to ICO will be admitted to ICO, subject to successful performance on the Admissions Interview at ICO. ICO will give priority in processing of applications to candidates from IIT who are participating in the Program.

4. Joint Academic Credit

Students participating in the Program will follow the Academic program (Attachment C to this Agreement). During the fourth academic year, the student will take courses at ICO and will receive transfer credit from IIT for approved courses taken at ICO which are part of the curriculum for the Program. *Courses will be applied to both degree programs.*

5. Awarding of Degrees

Upon completion of the first full academic year at ICO and satisfaction of all other requirements for the B.S. degree, the student will be awarded that degree by IIT. Upon completion of four full academic years at ICO and satisfaction of all other requirements for the O.D. degree, the student will be awarded that degree by ICO.

6. Advising

An advisor from IIT's Pre-health Professions Office will meet with each student interested in the Program every semester after he or she has expressed interest in the Program for advising and to monitor the progress of the student. The advisor will also serve as a liaison to the ICO Admissions Office. Students interested in the Program will be encouraged to visit ICO as soon as possible after determining interest in the Program.

7. Marketing the Program

ICO and IIT agree to market the program at both institutions. Marketing activities will include, but not be limited to, the following:

- The parties will market the program on their web sites and in all general promotional literature (catalogs, viewbooks, etc.).
- The program will be mentioned at special events (college fairs, open houses and similar events).

Neither party will advertise or use the name of the other party without that party having reviewed the advertising or use of the name.

8. Coordination between the Parties – See Attachment B

Each party will identify an Advisor/Coordinator for the Program and will notify the other in writing of the name of this individual. The Advisor/Coordinator will *work with the IIT and ICO admissions office who will be responsible for collecting and responding to all applications for admission*, student qualification information and such other administrative details necessary to carry out the Program.

The Advisor/Coordinator from each institution will meet at least once each semester to review the Program and to identify and discuss the progress of any students who have expressed interest in or have enrolled in the Program. *Any such student who wishes to be considered for the program* will be required to execute a release permitting disclosure of his or her academic records to the other institution.

9. Tuition

A student enrolled in the Program will pay tuition to IIT until he or she completes the required IIT courses, and will pay tuition to ICO for courses taken at ICO, in accordance with ICO tuition policies. Room, board and fees will be paid to the institution providing the services. Applications for financial aid will be made to the institution which the student will attend. *Financial aid will be given by only one institution at a time.*

10. Term and Termination

This Agreement shall be effective as of the date first entered above, for enrollment in the class entering IIT in the fall of 2005. The Agreement may be terminated by either party upon one year's written notice. Students enrolled at ICO as of the date of termination will be permitted to complete the Program.

11. Non-Discrimination

Neither ICO nor IIT shall discriminate against any student or Program applicant with respect to age, race, religion, gender, marital status, national origin or disability.

12. Notices

Notices relating to the Program shall be given to the parties as follows:

To ICO: Mark Colip, O.D.
Vice President for Student Affairs
Illinois College of Optometry
3241 S. Michigan Avenue
Chicago, IL 60616

To IIT: Fred R. McMorris, Dean
College of Science and Letters
Illinois Institute of Technology
10 W. 32nd Street, Room 125A
Chicago, IL 60616

13. Governing Law

This Agreement shall be governed by and construed according to the laws of the State of Illinois.

14. Assignment

No assignment of this Agreement or the rights and obligations hereunder will be valid without the prior written consent of the other party.

15. Integration Clause

This Agreement constitutes the entire understanding of the parties, and any change or modification shall be in writing and signed by both parties.

This Agreement has been executed by each of the parties as of the date first above written.

Illinois College of Optometry

By: _____

Illinois Institute of Technology

By: _____
Provost

Attachment A

ILLINOIS COLLEGE OF OPTOMETRY AND
ILLINOIS INSTITUTE OF TECHNOLOGY
COMBINED 3 + 4 PROGRAM

PROGRAM OBJECTIVES

A broad, thorough, and rigorous baccalaureate education is the preferred preparation for students entering the field of optometry. It has been noted that the traditional objectives of undergraduate education should be to sharpen one's critical and analytical skills and to investigate the varieties of human experience through balanced studies in the natural and social sciences and in the humanities. All too often for students planning on competing for admission to health professions schools these fundamental educational goals become displaced by students' preoccupation with doing whatever they think they need to do to get accepted into a professional program. Illinois College of Optometry has established a program that should allow such students to utilize the full potential of their undergraduate experience.

The program provides a unique educational opportunity for the highly motivated high school or college student with a goal of entering the profession of optometry. The program allows for completion of the Bachelor of Science (B.S.) and the Doctor of Optometry (O.D.) degrees in seven years without reducing the educational merits of either program. It allows the mature student to clearly focus on their undergraduate experience while best preparing them for their career objectives and secondarily reducing some of the financial, mental and academic stresses commonly associated with pre-professional and professional education.

The first three years of undergraduate education will offer a blend of liberal arts and basic sciences that will prepare the student for professional study. The four years at the Illinois College of Optometry will provide the credit hours needed for the student to complete the necessary requirements for the bachelor's degree, as well as the professional training required for the doctoral degree (O.D.) in optometry.

The combined program is designed for the academically outstanding student who has a strong and realistic motivation toward the optometric profession. Applicants must be superior high school students or currently enrolled undergraduate students with identified strengths in math and science, and with acceptable (determined by the undergraduate institution) ACT/SAT scores. Applicants will be interviewed by representatives of the undergraduate school and at the appropriate time the Illinois College of Optometry.

Attachment B

ILLINOIS COLLEGE OF OPTOMETRY AND
ILLINOIS INSTITUTE OF TECHNOLOGY
COMBINED 3 + 4 PROGRAM

IIT'S RESPONSIBILITIES:

a) Offer a three-year Pre-Optometry academic program in which the curriculum shall include the courses that are prerequisite for admission to ICO's Doctor of Optometry Program.
b) Designate a 3 + 4 Program Advisor to identify and counsel students interested in the program as well as liaison with ICO's Admissions Office.
c) IIT'S 3 + 4 Advisor will communicate to the ICO Admissions Office a list of all students, and their expected ICO matriculation dates, participating in the program each year.
d) IIT'S 3 + 4 Advisor will communicate to the ICO Admissions Office a list of all students who will be submitting applications for admission under the program for the following fall. These students must have plans for completing at least 90 semester equivalent hours at IIT and will have satisfactorily met the requirements for continuation in this program.
e) As a part of the student's application to ICO, the 3 + 4 Advisor will submit a statement that each student has fulfilled the college's requirements for the awarding of the baccalaureate degree upon successful completion of the first year at ICO.
f) The 3 + 4 Advisor will supply ICO with a letter of reference for each candidate.
g) IIT will award a Bachelor of Science (B.S.) degree to each matriculating student(s) who have satisfactorily completed the first year requirements of this program at ICO.

2) **ICO'S RESPONSIBILITIES**:

a) Offer a four-year professional education program leading to the Doctor of Optometry (O.D.) degree in which the curriculum shall include the requisite courses for the awarding of the bachelor's degree from the College after one year of study at ICO.
b) Provide availability to IIT'S 3 + 4 Program Advisor to discuss the program and provide assistance in the counseling of students interested in the program.
c) Provide priority handling and processing of applications for candidates from IIT.
d) Provide the 3 + 4 Advisor yearly updates regarding student's progress in the program.
e) Encourage and assist ICO students in visiting IIT to speak with candidates for the program.
f) Furnish to IIT a transcript of courses and grades of students participating in the program at the end of the students first year at ICO (requires student's written release/request).
g) Award a Doctor of Optometry (O.D.) degree to students who have satisfactorily completed the 7-year program as well as all graduation requirements in the ICO Student Guide.

3) **JOINT RESPONSIBILITIES**:

a) Both parties hereto agree that, in the administration of this cooperative education program, there shall be no discrimination against otherwise qualified students on the basis of age, race, religion, creed, sex, national origin, disability or veteran status.
b) Both parties hereto agree that students participating in this program who wish to apply for financial assistance should apply to IIT for the years in the program taking place at IIT

and to ICO for the years taking place at ICO. Students participating in the program will be evaluated for financial assistance on the same basis as other students applying for financial assistance. Students participating in the program will be charged current rates for tuition, housing, service fees, etc.

c) Each party hereto agrees that it will communicate to the other in writing the identity of its Advisor/Coordinator for this program. Such Advisor/Coordinator shall be responsible for collecting and responding to all applications for admission, student qualification information, and such other administrative details necessary to carry out this cooperative education agreement.

4) **STUDENTS RESPONSIBILITIES**:

a) Students must obtain an overall cumulative grade point average of 3.2/4.0 during the undergraduate program.
b) Students must complete each pre-requisite course with a minimum grade of "C" (2.0/4.0) or higher.
c) Students must demonstrate throughout the program that they are of good moral character, possess a sense of responsibility and sound judgement, as well having an aptitude for success in professional school.
d) Students must sit for the OAT examination no later than the spring offering of the examination immediately before their year of matriculation at ICO. (Fall prior is preferred)
e) Students must obtain acceptable results on the Optometry Admissions Test (OAT).
f) Students must meet each year with the designated 3 + 4 Advisor and review their progress.
g) Students must visit the ICO campus for an interview during the year prior to expected matriculation at ICO.

5) **IIT/ICO CONNECTION PROGRAM**

a) Students in their first year at ICO will be required to maintain a state of connectivity to the BCPS department.
   - Students will be invited and are strongly encouraged to attend all BCPS events including student social activities, special lectures etc…
   - Students will be advised to take Biology Colloquia (BIOL 495) at IIT during their first year at ICO.

b) The IIT health professions advisor and BCPS faculty advisor will meet with the student each month during the first year at ICO to discuss academic progress.

c) An academic portfolio including copies of ALL course syllabi and exams taken at ICO during the first year will be on file in the BCPS office. The student will be responsible for collecting the information and submitting it to the IIT health professions advisor at the end of each semester.

6) Attachment C

IIT Academic Program Requirements of the 3 + 4 Optometry Program

The first three years of undergraduate education will be taken at Illinois Institute of Technology, which will offer a blend of liberal arts, mathematics and basic sciences that will prepare the student for professional study. The four years at Illinois College of Optometry will provide the credit hours needed for the student to complete the necessary requirements for the Bachelor of Science Degree in Biology from Illinois Institute of Technology as well as the professional training required for the doctoral degree (O.D.) in optometry from Illinois College of Optometry.

Students enrolled in the 3 + 4 optometry program must successfully complete **(1) pre-optometry courses (Table 1)** and **(2) courses required by the undergraduate major (Table 2)** with grades of C or better before enrolling at the Illinois College of Optometry.

To initiate the program, The Combined Bachelor of Science in Biology and Doctor of Optometry will serve as a model program of study. We anticipate additional IIT undergraduate majors in engineering, science and mathematics will enter the program with formal approval of the academic program by both IIT and ICO.

Table 1 – Minimum College Level Pre-Optometry Courses

Requirement	IIT Course		Credits
English Composition	COM 101	Writing in the University[1]	3 credits
	COM 421	Technical Writing	3 credits
Mathematics	MATH 151	Calculus I	5 credits
Biology with Lab	BIOL 107	General Biology Lectures	3 credits
	BIOL 109	General Biology Laboratory	2 credits
	BIOL 115	Human Biology	3 credits
	BIOL 117	Experimental Biology	2 credits
Microbiology with Lab	BIOL 210	Microbiology Lectures	3 credits
	BIOL 225	Microbiology Laboratory	2 credits
General Chemistry with Lab	CHEM 124	Principles of Chemistry I[2]	4 credits
	CHEM 125	Principles of Chemistry II[2]	4 credits
Organic Chemistry	CHEM 237	Organic Chemistry I[2]	4 credits
Physics with Lab	PHYS 123	General Physics I – Mechanics[2]	4 credits
	PHYS 221	General Physics II- Electro. & Optics[2]	4 credits
Statistics	MATH 221	Basic Probability and Statistics	3 credits
Psychology	PSYC 222	Brain Mind and Behavior	3 hours
Social Science	SOC 200	Introduction to Sociology	3 hours
		Total	**55 hours**

[1] Students must substitute COM 428 Verbal and Visual Communication if they place out of this course.
[2] Includes laboratory 3 hours/week

Table 2. Additional Courses Required for the Bachelor of Science in Biology from Illinois Institute of Technology

General Education Requirements		**Credits**
CS 105	Introduction to Computer Programming	2 credits
IPRO 297	Interprofessional Project	3 credits
IPRO 398	Interprofessional Project	3 credits
	Humanities and/or Social Sciences	15 credits
Biology Requirements		
BIOL 100	Introduction to the Professions	2 credits
BIOL 214	Genetics	3 credits
BIOL 320	Biological Literature	2 credits
BIOL 445	Cell Biology	3 credits
BIOL 446	Cell Biology Laboratory	3 credits
BIOL 495	Biology Colloquium	1 credits
Chemistry Requirements		
CHEM 239	Organic Chemistry II	3 credits
CHEM 247	Analytical Chemistry[2]	3 credits
Mathematics Requirements		
MATH 152		5 credits
	Total	**48 credits**

Total Credits Taken at Illinois Institute of Technology (Table 1 + Table 2) = 103 Credits

Table 3. Courses Taken during the First Professional Year at ICO (Represents Fourth Year Courses for Bachelor of Science in Biology)

Course Number	Course Name	Lec-Lab-Credits
Fall Quarter 1.1		
BHS 114	Human Anatomy and General Embryology	4-2-5
BHS 116.1	Human Physiology and Pathology I	4-0-4
BHS 120.1	Geometric and Theoretical Optics I	4-0-4
BHS 140.1	Sensory Aspects of Vision I	3-2-4
BHS 150.1	Biochemistry I	4-0-4
CLE 162.1	Introduction to Optometric Procedures	1-0-1
Winter Quarter 1.2		
BHS 107	Applied Ocular Anatomy	5-2-6
BHS 120.2	Geometric and Theoretical Optics II	4-0-4
BHS 116.2	Human Physiology and Pathology II	4-0-4
BHS 150.2	Biochemistry II	4-0-4
CLE 194	Health Promotion	1-0-1
CLE 162.2	Optometry 1.2	2-2-3
Spring Quarter 1.3		
BHS 106	Histology and Embryology	4-2-5
BHS 111	Neuroanatomy and Neurophysiology	4-2-5
BHS 140.2	Sensory Aspects of Vision II	4-2-5
CLE 162.3	Optometry 1.3	2-2-3
CLE 170	Physiological Optics	3-0-3
	Total	65 credits*
	IIT Equivalent 65(2/3)=	**43 credits**

Sample Pre-Optometry Curriculum

Semester 1		
BIOL 100	Introduction to the Professions**(C)**	(2-0-2)
BIOL 107	General Biology Lectures	(3-0-3)
BIOL 109	General Biology Laboratory **(C)**	(0-4-2)
CHEM 124	Principles of Chemistry I	(3-3-4)
MATH 151	Calculus I	(4-1-5)
		16 credits
Semester 2		
BIOL 115	Human Biology	(3-0-3)
BIOL 117	Experimental Biology**(C)**	(0-4-2)
CHEM 125	Principles of Chemistry II	(3-3-4)
MATH 152	Calculus II	(4-1-5)
COM 101	Writing in the University[3]	(3-0-3)
		17 credits
Semester 3		
BIOL 214	Genetics	(3-0-3)
CHEM 237	Organic Chemistry I	(3-4-4)
PHYS 123	Mechanics	(3-3-4)
SOC 200	Introduction to Sociology (Lower Level SOC)	(3-0-3)
CS 105	Introduction to Computer Programming	(2-1-2)
	100 Level Humanities	(3-0-3)
		19 credits
Semester 4		
CHEM 239	Organic Chemistry II	(3-0-3)
MATH 221	Basic Probability and Statistics	(3-0-3)
PHYS 221	Electromagnetism and Optics	(3-3-4)
PSYC 222	Brain, Mind and Behavior (Swing Course)	(3-0-3)
IPRO 297	Interprofessional Project I	(1-6-3)
		16 credits
Semester 5		
BIOL 210	Microbiology Lectures	(3-0-3)
BIOL 225	Microbiology Laboratory**(C)**	(0-4-2)
BIOL 320	Biological Literature**(C)**	(2-0-2)
CHEM 247	Analytical Chemistry**(C)**	(2-4-3)
COM 421	Technical Writing	(3-0-3)
	300 Level Social Science Elective	(3-0-3)
	300 Level Humanities Elective	(3-0-3)
		19 credits
Semester 6		
BIOL 445	Cell Biology Lectures	(3-0-3)
BIOL 446	Cell Biology Laboratory**(C)**	(0-6-3)
BIOL 495	Biology Colloquium	(1-0-1)
IPRO 397	Interprofessional Project II	(1-6-3)
	300 Level Social Science Elective	(3-0-3)
	300 Level Humanities Elective	(3-0-3)
		16 credits
Semesters 7 & 8		
Taken at Illinois College of Optometry. See Table 3 for courses		43 credits (IIT equivalent)

Total 146 credits

NOTE: It is anticipated that most students will place out of this course by written examination. If students do place out they must replace this with COM 428 Verbal and Visual Communication. If students do not place out they must take an additional 100 Level Humanities course.

Combined (3+4) Bachelor of Science in Biology and Doctor of Optometry Degree

Required Courses	Credit Hours
English Requirements COM 100 (or COM 428); COM 421	6
Chemistry Requirements CHEM 124, 125, 237, 239, 247	18
Biology Requirements BIOL 100, 107,109, 115, 117, 214, 210, 225, 320 445, 446, 495	29
Mathematics Requirements MATH 151,152, 221	13
Physics Requirements PHYS 123, 221	8
Computer Science Requirements CS 105	2
Humanities and Social Science Requirements	21
Interprofessional Projects IPRO 297, 397	6
ICO Courses BHS 106,107,111,114,116.1,116.2,120.1,120.2 140.1, 140.2, 150.1, 150.2 CLE 162.1, 162.2, 162.3, 170	43

Total: 146 credits

IIT Biology Curriculum with Omitted Courses in Bold

Semester 1		**Lect.**	**Lab Hrs.**	**Credit Hrs.**
BIOL 107	General Biology Lectures	3	0	3
BIOL 109	General Biology Laboratory	1	2	2
CHEM 124	Principles of Chemistry I	3	3	4
BIOL 100	Introduction to the Professions	2	0	2
MATH 151	Calculus I	4	1	5
		13	**6**	**16**
Semester 2				
BIOL 115	Human Biology Lectures	3	0	3
BIOL 117	Experimental Biology Laboratory	1	2	2
CHEM 125	Principles of Chemistry II	3	3	4
Humanities 100-level course		3	0	3
MATH 152	Calculus II	4	1	5
		16	**6**	**17**
Semester 3				
BIOL 214	Genetics	3	0	3
CHEM 237	Organic Chemistry I	3	4	4
PHYS 123	General Physics I	3	3	4
Humanities or Social Science Elective		3	0	3
Humanities or Social Science Elective		3	0	3
		15	**7**	**17**
Semester 4				
BIOL 210	Microbiology Lectures	3	0	3
BIOL 225	Microbiology Laboratory	0	4	2
CHEM 239	Organic Chemistry II	3	0	3
PHYS 221	General Physics II	3	4	4
Humanities or Social Science Elective		3	0	3
		12	**7**	**15**
Semester 5				
BIOL 430	**Animal Physiology**	3	0	3
CHEM 247	Analytical Chemistry	2	4	3
PHYS 223	**General Physics III**	3	3	4
CS 105	Computer Science	2	1	2
Humanities or Social Science Elective		3	0	3
		13	**8**	**15**
Semester 6				
BIOL 403	**Biochemistry Lectures**	4	0	4
BIOL 404	**Biochemistry Laboratory**	0	6	3
IPRO 397	Interprofessional Project I	1	6	3
Humanities or Social Science Elective		3	0	3
Free Elective		3	0	3
		11	**12**	**16**
Semester 7				
BIOL 320	Literature in Biology	2	0	2
BIOL 445	Cell Biology Lectures	3	0	3
BIOL 446	Cell Biology Laboratory	0	6	3
BIOL 495	Biology Colloquium	1	0	1
Biology Elective		3	0	3
Biology Elective		3	0	3
		12	**6**	**15**
Semester 8				
Biology Elective		3	0	3
Biology Elective		3	0	3
Free Elective		3	0	3
BIOL 495	**Biology Colloquium**	1	0	1
IPRO 497	Interprofessional Project II	1	6	3
Humanities or Social Science Elective		3	0	3
		14	**6**	**16**
Total Credit Hours				**127**

IIT/ICO Course Replacement Table[4]

IIT Biology Course		Accepted ICO Replacement[5]	
BIOL 430	Animal Physiology	BHS 116.1	Human Physiology & Anatomy I
		BHS 116.2	Human Physiology & Anatomy II
BIOL 403	Biochemistry Lectures	BHS 150.1	Biochemistry I
BIOL 404	Biochemistry Laboratory	BHS 150.2	Biochemistry II
	Biology Elective	BHS 140.1	Sensory Aspects of Vision I
	Biology Elective	BHS 140.2	Sensory Aspects of Vision II
	Biology Elective	BHS 106	Histology and Embryology
	Biology Elective	BHS 111	Neuroanatomy and Physiology
	Free Elective	BHS 107	Applied Ocular Anatomy
	Free Elective	CLE 170	Physiological Optics

[4] NOTE: PHYS 223 General Physics III has been omitted from this program. BHS 120.1 Geometric and Theoretical Optics I and BHS 120.2 Geometric and Theroetical Optics 2 suitable replacement for the optics portion of this course. Students will attend optometry colloquia to replace BIOL 495 Biology Colloquium. [5.] This program was approved unanimously by the biology, chemistry and physics faculty at it's November 30, 2004 meeting of the full faculty.

Descriptions of Courses Taken at Illinois College of Optometry

Taken from the ICO Webpage
http://www.ico.edu/ico2/accpro/firsty.html

BHS 114
Human Anatomy and General Embryology
4 hours of lecture, 2 hours of laboratory per week

A detailed study of human anatomy and general embryology is presented, with emphasis placed on thorax, abdomen, pelvis and a regional study of head and neck. Clinical relevance of gross anatomical relationships is included whenever possible. Laboratory sessions include detailed study of the human skull and demonstration of body systems on prosected cadavers. (5 credits)

BHS 116.1
Human Physiology and Pathology I
4 hours of lecture per week

This is a comprehensive course in general and systemic human physiology and pathology. Topics are presented in order to promote the understanding of physiologic principles that form the basis for normal bodily functions. The interaction between organ systems and their relationship to health and disease are also presented. This integration of normal physiology and pathologic processes will form the knowledge base for further study of pharmacology, clinical medicine and ocular disease. (4 credits)

BHS 120.1
Geometric and Theoretical Optics I
4 hours of lecture per week

This course deals with all facets of geometric and theoretical optics. Topics include the basic study of refraction at plane and curved surfaces, thin lenses, prisms, thin lens systems and single refracting surfaces. (4 credits)

BHS 140.1
Sensory Aspects of Vision I
3 hours of lecture, 2 hours of laboratory per week

This course presents instruction in the nature of light as a stimulus in vision; photometry; energy reception and detection; absorption processes; retinal photo-chemistry; excitation and transduction; physiological processing of information; threshold phenomena and psychophysics. Laboratory sessions include discussions of clinical implication of these processes where applicable. (4 credits)

BHS 150.1
Biochemistry I
4 hours of lectures per week

An introduction to biochemistry with particular emphasis on clinical applications. Topics in the first course in this two-course sequence will include cellular biology, structure reactions and

functions of proteins and enzymes, elementary bioenergetics, and the metabolism of carbohydrates and lipids. (4 credits)

CLE 162.1
Introduction to Optometric Procedures
1 hour of lecture per week

This course introduces the components of a primary care eye examination. The initial focus of this course centers on how these components relate to the investigation of patient complaints in a problem oriented approach. The latter portion of this course focuses on patient interviewing through the case history concentrating on 1) components of the case history; 2) recording a case history; 3) patient interviewing techniques; and 4) ethical and clinical-legal considerations pertaining to the case history. Concepts introduced in this course will be further developed in subsequent clinical education courses and patient care experiences. (1 credit)

BHS 106
Histology and Embryology
4 hours of lecture, 2 hours of laboratory/demonstration per week

This course presents the developmental, genetic, and histological aspects of cells and tissue relationships in human organ systems. The accompanying laboratory is devoted to the study of tissue microstructure. This course forms the foundation for understanding the basis of pathology and disease processes. (5 credits)

BHS 107
Applied Ocular Anatomy
5 hours of lecture, 2 hours of laboratory per week

This course describes the gross and microscopic anatomy of the eye, its accessory organs and the extraocular muscles and their attachments. Emphasis is placed on the laminar structure of the globe and its constituent elements including the cornea-sclera, uveal tract, retina and lens and upon the functional anatomy of the vitreous, anterior angle, and blood supply. The course is concluded with a description of the embryological development of these components. The laboratory is devoted to the use of the biomicroscope to observe elements of ocular anatomy as they are seen in clinical perspectives; it also includes illustrative demonstrations and models. (6 credits)

BHS 120.2
Geometric and Theoretical Optics II
4 hours of lecture per week

This course is the second in the BHS 120 sequence. (4 credits)

BHS 150.2
Biochemistry II
4 hours of lecture per week

This is a continuation of the material presented in Biochemistry I. The topics include amino acid

metabolism, molecular biology and the biochemistry of specialized tissues. (4 credits)

CLE 162.2
Optometry 1.2
2 hours of lecture and 2 hours of laboratory per week.

Fundamental clinical techniques used in the examination of the eye are included in this follow-up course to CLE 162.1. The techniques of visual acuity measurement and entrance testing will be introduced as well as the skills of lensometry and retinoscopy. In addition to emphasizing the proper performance of techniques, this course will emphasize the integration of these skills into a comprehensive general eye examination. (3 credits)

BHS 111
Neuroanatomy and Neurophysiology
4 hours of lecture, 2 hours of laboratory per week

This course develops an appreciation for the basic principles of structure, function and organization of the human nervous system. Topics include organization of central nervous system, cerebral spinal fluid and meninges, histology of neurons and glia, neural development, degeneration and regeneration, and basic principles of neurophysiology such as ionic mechanisms of membrane potential and action potential as well as synaptic transmission. This course also presents functional neuroanatomy. Structure and function of sensory systems and motor systems are included. Analyses of the visual system are emphasized. Case histories of representative neurological disorders are also presented. Laboratory examines the internal anatomy of the brain stem. (5 credits)

BHS 116.2
Human Physiology and Pathology II
4 hours of lecture per week

This course is the second in the BHS 116 sequence. (4 credits)

CLE 194
Health Promotion
1 hour of lecture per week

Topics that will be covered in this course include preventive health care, health promotion and health education. This course is an introduction of the optometry student to different avenues they may use during their professional lives to effectively educate their patients and the public on health issues and become involved in their communities. (1 credit)

BHS 140.2
Sensory Aspects of Vision II
4 hours of lecture, 2 hours of laboratory per week

This course discusses visual sensitivity changes in dark and light adaptation, adaptation theories, spatial phenomena and visual acuity, modulation transfer function, contrast sensitivity, temporal sensitivity and other temporal phenomena. (5 credits)

CLE 162.3
Optometry 1.3
2 hours of lecture and 2 hours of laboratory per week

The first year concludes with a procedures course that introduces the fundamental aspects of a refractive sequence. The components of a refractive analysis, in addition to the previously introduced skill of retinoscopy, include keratometry, manitest refraction, accommodation balance, and red-green balance. These new techniques will once again be integrated into a comprehensive eye examination sequence. (3 credits)

CLE 170
Physiological Optics
3 hours of lecture per week

This is the first in a series of courses presenting the theory and application of ophthalmic optics. Cylindrical lenses, prescription writing, lens power measurement, optics of instruments, and magnification are considered from an application viewpoint. The mathematical concepts supporting these topics are presented. (3.0 credits)