

*The*  
OHIO STATE UNIVERSITY  
BULLETIN

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VOLUME XLI

NOVEMBER 16, 1936

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APPLIED OPTICS

*Including*

PROFESSIONAL COURSES IN  
OPTOMETRY

1937--1938

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**APPLIED OPTICS**  
INCLUDING  
**PROFESSIONAL COURSES IN OPTOMETRY**

1937-1938

**THE OHIO STATE UNIVERSITY**  
**COLUMBUS**

APPENDIX

1888

THE UNIVERSITY OF CHICAGO

CHICAGO

THE UNIVERSITY OF CHICAGO  
PUBLISHED BY THE UNIVERSITY OF CHICAGO PRESS  
CHICAGO, ILL., U.S.A.  
1888

THE UNIVERSITY OF CHICAGO

CHICAGO

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# UNIVERSITY CALENDAR

1937

## SUMMER QUARTER

May 24 to 28  
June 21 to 28  
June 21

Entrance Examinations.  
Physical Examinations for all new students.  
Latest day for registration and payment of fees without penalty. (See page 14.).

June 22  
June 26  
July 4  
July 26, 27, 28  
July 23, 24  
July 28  
July 29  
July 31

Classes begin, 7:30 A.M.  
Intelligence Test for all new students (Saturday P.M.).  
Independence Day.  
Final Examinations, first term (at regular class hours).  
Physical Examinations for all new students.  
First term ends, 5:30 P.M.  
Second term begins, 7:30 A.M.  
Intelligence Test for all new student (Saturday P.M.).

September 1, 2, 3  
September 3  
September 3

Final Examinations (at regular class hours).  
Summer Convocation (Commencement), 2:00 P.M.  
Summer Quarter ends, 6:00 P.M.

## AUTUMN QUARTER

September 20 to 24  
September 22 to 27  
September 27  
September 27

Entrance Examinations.  
Freshman Week.  
Physical Examinations for students other than Freshmen.  
Latest day for registration and payment of fees without penalty. (See page 14.).

September 28  
October 2

Classes begin, 8:00 A.M.  
Intelligence Test for all new students other than Freshmen (Saturday A.M.).

November 11  
November 25, 26, 27  
December 17, 18, 20, 21, 22  
December 22  
December 22

Armistice Day. No classes after 12 M.  
Thanksgiving Recess.  
Final Examinations.  
Autumn Convocation (Commencement), 2:00 P.M.  
Autumn Quarter ends, 6:00 P.M.

1938

## WINTER QUARTER

January 3 to 6  
January 3

Physical Examinations for all new students.  
Latest day for registration and payment of fees without penalty. (See page 14.).

January 4  
January 8  
February 22  
March 15, 16, 17, 18, 19  
March 18  
March 19

Classes begin, 8:00 A.M.  
Intelligence Test for all new students (Saturday A.M.).  
University Day. No classes.  
Final Examinations.  
Winter Convocation (Commencement), 2:00 P.M.  
Winter Quarter ends, 6:00 P.M.

## SPRING QUARTER

March 28

Latest day for registration and payment of fees without penalty. (See page 14.).

March 29  
March 28 to 30  
April 2  
May 27  
May 30  
June 7, 8, 9, 10, 11  
June 11  
June 12  
June 13  
June 13  
June 13  
June 13  
June 20  
September 2  
October 4

Classes begin, 8:00 A.M.  
Physical Examinations for all new students.  
Intelligence Test for all new students (Saturday A.M.).  
R.O.T.C. Review and Presentation of Commissions.  
Memorial Day. No classes.  
Final Examinations.  
Alumni Day.  
Baccalaureate Sermon.  
Class Day.  
Spring Convocation (Commencement).  
Spring Quarter ends.  
Summer Quarter (1938) begins.  
Summer Quarter (1938) ends.  
Autumn Quarter (1938) classes begin.

## ADMINISTRATION

### BOARD OF TRUSTEES

JULIUS F. STONE, Chairman.....	Columbus
LAWRENCE E. LAYBOURNE, Vice Chairman.....	Springfield
HERBERT S. ATKINSON.....	Columbus
NEWTON D. BAKER.....	Cleveland
M. EDITH CAMPBELL.....	Cincinnati
HARRY A. CATON.....	Coshocton
JOHN KAISER.....	Marietta

### ADMINISTRATIVE OFFICERS

<b>President</b> .....	GEORGE W. RIGHTMIRE
Office: Administration Building—UN-3148; Campus 312	
Residence: Ohio State University Campus—UN-3148; Campus 274	
<b>Secretary of the Board of Trustees and Business Manager</b> .....	CARL E. STEEP
Office: Administration Building—UN-3148; Campus 332	
Residence: 198 W. 11th Ave.—UN-4732	
<b>Vice President</b> .....	JAMES LEWIS MORRILL
Office: Administration Building—UN-3148; Campus 628	
Residence: 459 W. 8th Ave.—UN-9427	
<b>Assistant to the President</b> .....	GEORGE W. ECKELBERRY
Office: Administration Building—UN-3148; Campus 380	
Residence: 2023 Collingswood Rd., Upper Arlington—KI-1343	
<b>Registrar, University Editor, Secretary of the University Faculty, and Alumni Recorder</b> .....	EDITH D. COCKINS
Office: Administration Building—UN-3148; Campus 314, 459	
Residence: 1580 Guilford Rd., Upper Arlington—KI-2726	
<b>University Examiner</b> .....	BLAND L. STRADLEY
Office: Administration Building—UN-3148; Campus 412	
Residence: Canal Winchester—Canal Winchester Ex. 71	
<b>Executive Clerk</b> .....	KATHERINE A. VOGEL
Office: Administration Building—UN-3148; Campus 312	
Residence: 1040 Elmwood Ave.—KI-5883	
<b>Comptroller</b> .....	CHARLES A. KUNTZ
Office: Administration Building—UN-3148; Campus 332	
Residence: 123 Jeffrey Pl.—LA-8606	
<b>Cashier</b> .....	FLORIS D. HANE
Office: Administration Building—UN-3148; Campus 372	
Residence: 373 13th Ave.—WA-1054	
<b>Dean of Men</b> .....	JOSEPH A. PARK
Office: Administration Building—UN-3148; Campus 283	
Residence: 1474 Doone Rd., Upper Arlington—KI-1702	
<b>Dean of Women</b> .....	ESTHER ALLEN GAW
Office: Pomerene Hall—UN-3148; Campus 480, 238, 226	
Residence: 60 Jefferson Ave.	
<b>House Superintendent, Residence Halls</b> .....	EMMA E. PROUT
Office: Oxley Hall—UN-3148; Campus 346	
Residence: Mack Hall—UN-3148; Campus 264	



# COLLEGE OF ENGINEERING

## OFFICERS

- Dean Emeritus*.....EMBURY A. HITCHCOCK  
Office: Engineering Experiment Station Bldg.—UN-3148; Campus 546  
Residence: 348 W. 8th Ave.—UN-4663
- Acting Dean*.....WILLIAM D. TURNBULL  
Office: 120 Chemistry Building—UN-3148; Campus 301, 302, 539  
Residence: 151 E. Oakland Ave.—WA-2204
- Acting Junior Dean*.....JOHN M. WEED  
Office: Chemistry Bldg.—UN-3148; Campus 301  
Residence: 1674 Andover Rd.—KI-3100
- Secretary*.....LAWRENCE D. JONES  
Office: 120 Chemistry Building—UN-3148; Campus 301, 298  
Residence: 174 Kenworth Rd.—LA-4625

## APPLIED OPTICS

including  
Professional Courses in Optometry

### TEACHING STAFF 1936-1937

- ALPHEUS W. SMITH, Ph.D., *Professor of Physics; Chairman of the Department of Physics and Astronomy*  
Office: 107 Mendenhall Laboratory of Physics—UN-3148; Campus 218
- GLENN A. FRY, Ph.D., *Assistant Professor of Physiological Optics; in charge of Courses in Optometry*  
Office: 203 Mendenhall Laboratory of Physics—UN-3148; Campus 426
- MARION L. POOL, Ph.D. *Associate Professor of Physics*
- \*CLARENCE R. ELLIS, B.Sc. in App. Optics *Associate in Optometry*
- HOWARD F. HAINES, B.Sc. in Bus. Adm., B.Sc. in App. Optics *Associate in Optometry*
- ELLSWORTH E. REESE, B.Sc. in App. Optics *Assistant in Applied Optics*
- HERBERT C. MOTE, B.Sc., B.Sc. in App. Optics *Assistant in Applied Optics*
- SAMUEL M. STEELE *Superintendent of Optical Dispensary*

\* Absent on leave, 1936-1937.

# THE OHIO STATE UNIVERSITY

## LOCATION

The Ohio State University is situated within the corporate limits of the city of Columbus. It is supported by appropriations from the State and Federal governments. The University has almost 1,400 acres of land with nearly 400 acres in the campus. The total value of land, buildings, and equipment is \$22,888,501.00.

The offices of the President of the University, the University Examiner, the Registrar, and the Bursar are located in the Administration Building.

## ORGANIZATION

For convenience of administration the departments of the University are grouped into organizations called Colleges. The Ohio State University comprises ten Colleges and a Graduate School, each under the administration of a Dean and College Faculty, as follows:

Graduate School, College of Agriculture (including the School of Home Economics), College of Arts and Sciences, College of Commerce and Administration (including the Schools of Journalism and Social Administration), College of Dentistry, College of Education (including the School of Nursing), College of Engineering (including the School of Mineral Industries), College of Law, College of Medicine, College of Pharmacy, College of Veterinary Medicine.

## APPLIED OPTICS

### GENERAL INFORMATION

The curriculum in Applied Optics is designed primarily to meet the needs of students preparing to practice optometry. It covers a period of four years. In the first two years emphasis is laid on such fundamental sciences as chemistry, physics, mathematics, zoology, physiology, and psychology. In the second two years the emphasis is on the more professional subjects—anatomy, pathology, geometrical and physical optics and the theory and practice of optometry. The courses in visual optics are organized and presented in a way to give a fundamental understanding of the visual properties of the eye as related to all branches of applied optics and at the same time to prepare students to detect and correct the errors of the eye by the use of lenses.

Provision is made for clinical practice of optometry and for practical work in the optical shop.

The courses in general science and mathematics form a basis for further specialization and graduate study in theoretical optics and the application of optical principles.

### EQUIPMENT

The courses are thoroughly equipped with the modern and best forms of optical apparatus. The clinic is provided with schematic eyes with pathological slides, C. & I. ophthalmometer, Universal ophthalmometer, Hardy ophthalmometer with corneal microscope, several DeZeng phorometers, a Wolff skiopometer with batteries of spheres and cylinders, various pieces of muscle-testing apparatus, several self-luminous retinoscopes and ophthalmoscopes, a Geneva combined retinoscope and ophthalmoscope, a perimeter, a Rogers diopmeter, interpupillary gauge, vertex diopmeter, trial cases, Hertel keratom-

eter, Stevens tropometer, Stevens cliniscope, a complete Genophthalmic Unit; a complete American Optical Company Unit; Gullstrand Ophthalmoscope; Keratometer; Campimeter; Campograph; Myologic Unit; Wells head and charts; Stereoscopes; Streak retiniscopes; Cameron Diagnostic set; and all the best forms of modern ophthalmic apparatus suitable for refractive and ophthalmic lens purposes. The mechanical laboratory is fully equipped to grind, surface, edge, and mount lenses.

### CLINICAL FACILITIES

The clinical laboratory has been enlarged and new equipment added. Clinics are open to the students and members of the instructional force in particular and to outsiders upon application. They are conducted every afternoon during the week and furnish an endless variety of ocular conditions for the inspection and investigation of the students in these courses. Students make the examinations under the supervision of the instructors in charge of the clinic. Difficult cases form the basis for a subsequent discussion of methods of examination employed and the interpretation of the data obtained.

### UNIVERSITY HEALTH SERVICE

#### HAYES HALL

**Medical Staff:** Dr. J. W. Wilce, Director; Dr. M. F. Osborn, Dr. J. M. Foley, Dr. James A. Beer, Dr. Shirley Armstrong, Dr. Charlotte Winnemore, Dr. Theodore Allenbach, four occasional clinical and examination assistants, eight specialized occasional consultants, two nurses, one technician.

**Office Hours:** When the University is in session, daily 8:30 to 12:00 and 1:00 to 4:30; Saturday, 8:30 to 12:00. Limited service, 12:00 to 1:00. Phone: Campus 461.

The objects of the University Health Service are:

1. To protect, maintain, and improve the health of students by cooperation in entrance examination; early diagnosis and control of all contagious conditions, in cooperation with other health agencies; individual health guidance, through personal conference; first aid and casual treatment of students on the campus; periodic health examinations for seniors, food-handlers, and special cases; consultant specialist service for certain cases; full cooperation with family physician, other physicians, and health agencies; centralized correlation of other health agencies on the campus; maintained emphasis of preventive medicine.

2. To serve as the primary coordinating agency with University Personnel officials in individual student health appraisal and health problems which involve the maintenance, discontinuance, or improvement of students' university relationships.

3. To furnish a limited degree of hospitalization for observation, diagnosis, or treatment of emergency conditions, when in the judgment of University Health Service physicians it is thought necessary. (Responsibility for special hospital treatment is not assumed by the University Health Service.)

### STUDENT AUTOMOBILES

The University does not bar the use of automobiles by students. However, students can be given only very limited parking space on the campus, and the use of autos is discouraged. Unless the student drives a long distance to and from his home each day or is physically incapacitated, he does not need a car while attending the University. The cooperation of parents in this matter is earnestly desired.

### MILITARY SCIENCE

In accordance with the Morrill Act, passed in 1862, under which the University was established, military instruction must be included in the curricula. The Board of Trustees therefore requires all male students, both special and regular, unless excused by the Department of Military Science and Tactics, to receive military instruction during the first two years in Field Artillery, Signal Corps, or Engineer Corps.

The Reserve Officers' Training Corps was established under the National Defense Act of June 8, 1916, and June 4, 1920, the required two years' work being included in its four-year course, the third and fourth years being elective. Instruction is given in Engineer Corps, Field Artillery, and Signal Corps.

Uniform is furnished Freshmen upon deposit of approximately \$25.00 being made with the Contractor. The University has adopted its own style of uniform, which is required to last two years. Last year the Basic Course students were paid commutation of uniform amounting to \$9.00 each for the academic year. This allowance is prorated monthly to students who do not remain in attendance during the entire academic year, but is paid by the Bursar in whole or in part only at the close of the Spring Quarter of each academic year.

Students taking Advanced Courses in Military Science receive commutation of rations which last year amounted to twenty-five cents a day and is payable quarterly, and commutation of uniform which last year amounted to \$29.00 for the First Year Advanced men (Juniors), and to \$7.00 for the Second Year Advanced men (Seniors).

The total credit in this Department allowed toward a degree is 18 Quarter hours, exclusive of Field Artillery 421-422-423, 424-425-426, Signal Corps 441-442-443, 444-445-446, or Engineer Corps 407-408-409, 410-411-412, required of all male students in the first and second years, for which six credit hours are granted.

Enrollment in the Engineer Unit will be confined to students of the Engineering College. Engineering students who intend to take Electrical Engineering or Engineering Physics are eligible for the Signal Corps Unit. All other students required to take Military Science will be assigned to the Field Artillery Unit.

### PHYSICAL EDUCATION

Courses in Physical Education and Health Education are conducted by the Department of Physical Education.

Regular class-exercise, two hours each week, is required during the first year of a male student's residence at the University or until he has successfully completed one year of Physical Education. Women students are required to complete two years' work. Hygiene, one hour each week, is required of both men and women during one Quarter of the first year. A thorough physical examination is required of all undergraduate students entering the University for the first time. Physical defects, abnormalities, and weaknesses are noted, and exercise is prescribed to fit the student's individual needs.

## ADMISSION

## METHOD OF ADMISSION

The admission of students to the University is in charge of the Entrance Board, which determines the credit that shall be issued on all entrance examinations and certificates and furnishes all desired information to applicants. Correspondence relating to admission should be addressed to the University Examiner, The Ohio State University, Columbus.

## REQUIREMENTS FOR ADMISSION

For complete entrance credit, an applicant for admission must be a graduate of a high school of the first grade and receive credit by certificate for fifteen units; or he must receive credit by examination for fifteen units.

Of these fifteen units, ten are specific requirements known as Group A; of the remaining five units not less than two and one-half units shall come from Group B and not more than two and one-half come from Group C.

GROUP A			
Total—10 units			
Algebra (through Quadratics)	1 unit	Physics	1 unit
Plane Geometry	1 unit	English	3 units
Advanced Algebra	$\frac{1}{2}$ unit	Foreign Language	2 units
Solid Geometry	$\frac{1}{2}$ unit	American History and Civics	1 unit
GROUP B			
$2\frac{1}{2}$ units or more			
Biology	1 unit	Additional Group A Language	1 or 2 units
Botany	$\frac{1}{2}$ or 1 unit	Freehand Drawing	$\frac{1}{2}$ or 1 unit
Chemistry	1 unit	History in addition to Group A	$\frac{1}{2}$ to 2 units
English, in addition to Group A	1 unit	Physiography	$\frac{1}{2}$ or 1 unit
Foreign Language		Physiology	$\frac{1}{2}$ or 1 unit
French	2 units	Trigonometry	$\frac{1}{2}$ unit
German	2 units	Zoology	$\frac{1}{2}$ or 1 unit
Greek	2 units	General Science	$\frac{1}{2}$ or 1 unit
Italian	2 units		
Latin	2 units		
Spanish	2 units		
GROUP C			
Not more than $2\frac{1}{2}$ units			
Agriculture	1, $1\frac{1}{2}$ , or 2 units	Manual Training, or Farm	
Bookkeeping	1 unit	Mechanics	$\frac{1}{2}$ or 1 unit
Business Law	$\frac{1}{2}$ unit	Mechanical Drawing	$\frac{1}{2}$ or 1 unit
Commercial Arithmetic, if preceded		Music	1, $1\frac{1}{2}$ , or 2 units
by one year high school mathematics	$\frac{1}{2}$ unit	Shorthand and Typewriting	1, $1\frac{1}{2}$ , or 2 units
Commercial Geography	$\frac{1}{2}$ or 1 unit	Typewriting	1 unit
Drawing, art, and design	$\frac{1}{2}$ or 1 unit	Any other subject accepted for high school graduation	$\frac{1}{2}$ or 1 unit

Applicants under twenty-one years of age may be admitted with one unit deficiency. But an applicant may be admitted with two units deficiency in a foreign language provided he has no other deficiency. This deficiency in foreign language must be removed during his first year in residence, and a corresponding reduction made in his regular schedule. Less than two units of any one foreign language will not be accepted for entrance credit unless it is in addition to two units of another foreign language.

An applicant over twenty-one years of age may be admitted with a total deficiency of two units.

An entrance condition in solid geometry cannot be removed by substitution.

All applicants admitted with deficiencies should communicate with the Junior Dean immediately after admission relative to the removal of such deficiencies.

An applicant for admission to the first or second year who comes from an approved college will be subject to the same entrance requirements as if he had come directly from high school. He must submit through his college registrar, an official and explicit transcript describing his entrance credits, his course of study and scholarship, with evidence of good standing. At least an average scholastic record must have been maintained in the college from which he transfers. If the applicant is deficient in high school units the deficit may be made up: (1) by examination; (2) by substitution of college credits in the same subject; or (3) by earning credits in the same subject.

Provision for admission to the third or fourth year is made in the following section.

### ADMISSION TO THE THIRD YEAR

In order to maintain adequate instruction in class and laboratory and to provide ample clinical facilities with the personnel and equipment now available, it has been found necessary to limit the number admitted to the third year to approximately twenty students. The selection of these students will be based on scholarship and general fitness.

The University reserves the right, after examination of all applications, to determine who shall be admitted to the third year.

In order that all applicants for admission may know definitely at an early date whether or not they have been accepted, applications should be filed with the University Examiner before August 15, 1937. A complete application will consist of:

(1) An application for admission to the third year, accurately and completely filled out. Blanks may be obtained from the office of the University Examiner.

(2) An official transcript of the record of the applicant. Such transcript shall include the preparatory record, the college record and a statement showing the applicant to be in good standing. Ohio State University students need not file transcripts since their records are available in the office of the Registrar of the University.

(3) Recommendations as indicated in the application blank.

The above regulations do not apply to students who have registered for Applied Optics prior to July 1, 1936 and who are eligible for third year work for the Autumn Quarter, 1937.

## REGISTRATION

### FRESHMAN WEEK

All Freshmen are required to be present at the University for a special Freshman Program which precedes the opening of the University. This program will begin on Wednesday, September 22, at 3:00 P. M. and will continue through the following Monday, September 27. This session is known as Freshman Week.

During this period Freshmen will become familiar with the Campus. They will be given needed information on the history and traditions of the University, as well as definite information on student activities and eligibility requirements. There will be lectures and discussions of vital importance to any student beginning his college career. Faculty advisers will conduct personal interviews with students to discuss their plans for a university education.

Intelligence tests, physical examinations, and placement tests are also a part of the Freshman Week Program.

The program of Freshman Week is planned to give students, new to the Campus, an opportunity to adjust themselves to new conditions before the regular routine of class-room work begins.

*Freshmen must be present on the opening date, September 22, for the first meeting, scheduled at 3:00 p. m. A penalty of \$5.00 for each day of absence will be imposed. This is the usual penalty for late registration. The exercises of Freshman Week will be of the greatest benefit to the Freshmen and attendance upon them is required. All cases of failure to appear on this day or to be present at any of the exercises of Freshman Week will be reported to the President for action.*

All Freshmen are urged to complete their registration and pay their fees before September 22, in order that they may be free to participate in the program of Freshman Week.

### REGISTRATION

Under the Quarter plan each student will present his program of studies for only one Quarter at a time. Election cards for registration are obtained from the Registrar and are ready for distribution approximately two months prior to the opening of the Quarter. The exact date will be published in the Official Daily Bulletin and definite days will be announced during which every student in residence will be required to file his program of studies for the following Quarter. Persons who are not in residence may register in person or by mail at any time after the election cards are available for the following Quarter. Fees may be paid as soon as fee cards have been received by the student from the Registrar. *Students are expected to pay their fees before the day designated in the University Calendar for classes to begin and to report promptly to their classes on the first day that classes are scheduled.* Students who have registered sufficiently early usually receive fee cards approximately three weeks prior to the opening of the Quarter. *It is to the advantage of all students to register as early as possible.*

Applicants presenting themselves after the opening of the Quarter can be admitted only for exceptional reasons and by action of the Executive Committee. In general, a student who is permitted to enter after the close of the first week of a Quarter will be given a schedule diminished by one full course below the normal requirement for that student.

## FEES AND EXPENSES

*Registration is not complete until all fees have been paid. No student will have any privileges in the classes or laboratories until all fees and deposits are paid.*

*Since all fees are due and payable as a part of the student's registration, before the day designated in the University Calendar for classes to begin, no person should come to the University for registration without money sufficient to cover all of his fees and deposits.*

*A penalty of \$5.00 for each succeeding day or fraction thereof will be assessed for failure to comply with this rule except in the case of a new student granted permission by the Dean of his College to register after the opening of the University.*

1. Matriculation fee (non-returnable)
  - Required of every student on first admission to the University .....\$15.00
2. Incidental fees
  - Incidental fees do not vary with the number of courses taken
  - First and Second Years
    - Quarter fee for a resident of Ohio..... 20.00
    - \*Quarter fee, including non-resident fee, for a non-resident of Ohio ..... 70.00
  - Third and Fourth Years
    - Quarter fee for a resident of Ohio..... 35.00
    - \*Quarter fee, including non-resident fee, for a non-resident of Ohio ..... 85.00
  - Special Students or others who take the courses of the third and fourth years, or any portion thereof
    - Quarter fee for a resident of Ohio..... 35.00
    - \*Quarter fee, including non-resident fee, for a non-resident of Ohio ..... 85.00
  - (a) General Activities fee..... 4.00
  - (b) Physical Education fee..... 2.00
    - Required each Quarter of all students taking gymnasium work. It includes locker and towel service
  - (c) Laboratory Breakage deposit—Amount varies with course.....from 1.00 to 20.00
    - Students are required to pay for all materials consumed in laboratory work. The laboratory deposit must be made at the time of registration before the student may enter the laboratory. All laboratory supplies are sold to students at the Laboratory Supply Store, Chemistry Building, and charged against the deposits (See page 16). Instructors shall not permit students to engage in laboratory work unless the student has shown a receipt from the Bursar for deposit paid
  - (d) Deposit for military uniform (for Freshmen) ..... (approximately) 25.00

NOTE: When checks given for payment of fees are not paid on presentation at bank, registration will be automatically cancelled and receipts given considered null and void.

\* See page 15 for rules governing non-resident fee.



## NON-RESIDENT FEE

Every student who is not a legal resident of the State of Ohio is required to pay a non-resident fee of \$50.00 each Quarter (or \$25.00 each term of the Summer Quarter) of his residence in the University in addition to other University fees. The burden of registering under proper residence is placed upon the student. If there is any possible question of his right to legal residence the matter should be brought to the attention of the Registrar and passed upon, previous to registration or the payment of fees. Any student who registers improperly under this rule shall be required to pay not only the non-resident fee but shall be assessed a penalty of \$10.00. Students who do not pay this fee within thirty days after they have been notified that the non-resident fee has been assessed against them, will have their registration in the University cancelled.

No person shall be considered eligible to register in the University as a resident of the State of Ohio unless he has been a *bona fide* resident in the State twelve consecutive months next preceding the date of his original enrollment, and no person shall be considered to have gained or lost a residence in this State for the purpose of registering in the University by any conduct of his own, while he is a student in the University, unless after attendance at the University for one year it can be clearly established by the student that his previous legal residence has been abandoned and a new one established in Ohio for purposes other than merely attending the University; but persons whose legal residence follows that of other persons as hereinafter provided, shall be considered to have gained or lost legal residence in this State for such purpose while students in the University according to changes of legal residence of such other persons, except that such legal residence shall not be considered to be so gained until twelve months after such other person becomes a legal resident of this State.

**MINORS:** The residence of minors shall follow that of the legal guardian, regardless of emancipation; but in case a resident of Ohio is appointed guardian of a non-resident minor, the legal residence of such minor for the purpose of this rule shall not be considered to be established in the State of Ohio until the expiration of twelve months after such appointment.

**WIVES:** The residence of wives shall follow that of husbands.

**ALIENS:** Aliens who have taken out their first citizenship papers and who have been residents of Ohio for twelve months next preceding the date of their original enrollment in the University, shall be regarded as eligible for registration as residents of Ohio.

## TEXTBOOKS

**Textbooks.** Students should not purchase textbooks until they are advised by the instructors of their respective classes.

## ROOM AND BOARD

Room and Board. (See Living Arrangements, page 17.)

## RETURN OF FEES ON WITHDRAWAL

Fees are returnable in case a student withdraws on account of sickness or for other causes entirely beyond his control, if such withdrawal is made during the first thirty days of the Quarter. Students withdrawing under request from the University are not entitled to any return of fees. Permission to withdraw, given in writing by the Dean of the College, must be presented to the Bursar within this thirty-day period. Ordinarily no more than one-half of the fees

paid will be refunded; if the case has exceptional circumstances it should be referred to the President for his judgment.

No fees will be returned in case of withdrawal of students until thirty days have elapsed from the date of withdrawal.

If fees are paid under mistake of law or fact they are returnable in full. Fees are not returnable except as provided in this rule.

**On Laboratory Deposits.** If a student is forced to withdraw from a laboratory course during a Quarter, he must first secure permission from his Dean.

No portion of a laboratory deposit of \$5.00 or less shall be returned, unless the course is officially dropped by the student and request for refund presented within thirty days after the payment of deposit.

On a laboratory deposit of \$6.00 or more the unexpended part of the deposit is returnable if called for on or before the close of the Spring Quarter of the fiscal year in which the deposit has been made.

An order for refund for the unexpended portion of the deposit may be obtained by applying at the Laboratory Supply Store, Chemistry Building. The unexpended part of the deposit will be paid at the Bursar's Office on presentation of the order for refund.

## SPECIAL FEES—PENALTIES

### PENALTY FOR ABSENCE DURING FRESHMAN WEEK

*Freshmen must be present on the opening date, September 22, for the first meeting, scheduled at 3:00 p. m. A penalty of \$5.00 for each day of absence will be imposed. This is the usual penalty for late registration. The exercises of Freshman Week will be of the greatest benefit to the Freshmen and attendance upon them is required. All cases of failure to appear on this day or to be present at any of the exercises of Freshman Week will be reported to the President for action.*

### PENALTY FOR FAILURE TO KEEP APPOINTMENT FOR PHYSICAL EXAMINATION

A penalty of \$1.00 will be assessed for failure to keep appointment for Physical Examination or for change in date of Physical Examination.

### FEE FOR CHANGES IN APPROVED ELECTION CARDS

Changes in approved election cards will be made only upon the approval of the Dean and the payment of \$1.00 for each change involved unless such payment is waived by the Dean approving the change.

### FEE FOR CHANGES IN APPROVED SCHEDULE ASSIGNMENTS

Changes in approved schedule assignments will be made only upon the approval of the Registrar and the payment of \$1.00 for each change involved unless such payment is waived by the Registrar.

## COST OF A YEAR'S WORK

One of the most perplexing questions that confronts a prospective student is what the course is going to cost him a year.

In order to furnish information, there is listed below an estimate of the average payments required by the University for the Freshman year and the estimated cost for room and board at a safe price. These two items are sometimes reduced slightly where two students occupy the same room and where boarding clubs are economically managed. Fees to the University are paid at the beginning of each Quarter.

## ESTIMATE OF EXPENSES

Matriculation Fee (non-returnable) .....	\$ 15.00
Incidental Fee.....	60.00
General Activities Fee.....	12.00
Physical Education Laboratory Fee.....	6.00
Deposit to cover military uniform..... (approximately)	25.00
Deposits to cover laboratory materials and breakage.....	30.00
Books and Instruments.....	50.00
Board—36 weeks at \$5.00 a week.....	180.00
Room rent at \$10.00 a month.....	90.00
<b>Total.....</b>	<b>\$468.00</b>

NOTE: In order to meet all the necessary expenses of registration, books, and other expenditures incident to securing a room and board, a student should come prepared to spend from \$75 to \$100 during the first ten days of a Quarter. After that period, his board and room rent will constitute the major part of his expenses.

## STUDENT PERSONAL EXPENSE FUNDS

The incoming student will save himself much time and trouble by taking a few simple precautions in regard to his personal expense money. The student should bring enough cash to cover all expenses for several days. If he does not wish to carry cash, he should use travelers checks, as they are readily cashed. If he does bring a check, it should be in the form of a bank draft or cashier's check. The student who has a check should not wait until he has spent all his money before cashing the check for it may take several days to collect it. Be sure that any checks that are for payment of fees are drawn for the exact amount of the fees.

The following facts concerning the cashing of checks should be borne in mind by parents and prospective students.

(a) The Ohio State University does not cash checks.

(b) Checks for fees will be accepted by the University, but only when the check is drawn for the exact amount of the fees.

(c) Banks do not cash checks for strangers unless the check is endorsed by a customer of the bank or some person of known responsibility. This rule applies to cashier's checks, bank drafts, and certified checks.

The student who intends to use a checking account will find that an account in Columbus will be of more value than an account at home or in some other city. An account with a Columbus bank will provide a safe place for depositing funds, will help create a local credit standing, will furnish a means of depositing and cashing checks, and will help the student to understand banking practices.

## LIVING ARRANGEMENTS

The President of the University has the authority to supervise living arrangements of students not residents of the city of Columbus and to order the immediate withdrawal of any student from any boarding or lodging house in which the surroundings are undesirable.

## ROOMS AND BOARD FOR MEN

Furnished rooms can be obtained at prices varying from \$7.00 to \$15.00 a month (single) and \$10.00 to \$20.00 (double). The cost of the table board in the clubs and restaurants near the University is from \$4.00 to \$6.00 a week.

Board can be secured at the Ohio Union, as well as at Pomerene Hall, at reasonable prices.

Board with furnished rooms can be obtained in private families within convenient distance from the University at rates varying around \$8.00 a week.

#### MEN'S DORMITORIES

The University possesses only two dormitories for men, the Tower Club and the Buckeye Club. The Clubs were organized for men who are in great need of financial assistance, and no others should apply for admission.

Applicants with unusually good records in the high school and advanced students who have made unusually good records in college are eligible for consideration.

The Clubs are run on a cooperative dormitory plan with very simple accommodations. The Club fee is \$1.00 a Quarter for each man. Board is available at approximately \$3.25 a week.

Applications should be sent to B. L. Stradley, University Examiner.

#### MEN'S HOUSING BUREAU

The absence of dormitories for men at The Ohio State University, with the exception of the Tower Club and the Buckeye Club, makes it necessary for the men students to reside in private rooming houses in the University district. In order to assist the students (especially those entering for the first time) in finding desirable rooms at the greatest saving, the University has created the Men's Housing Bureau, located in the office of the Dean of Men, first floor, Administration Building.

Classified lists of rooms available for every student and for any number of students are always available at this office. Boarding houses are likewise listed.

If the student signs a "Rooming House Agreement" he shall be expected to be responsible for the rental price of the room as specified in the agreement, unless he can present satisfactory reasons to the Men's Housing Bureau for moving out before the expiration of that period, or, unless he can secure a satisfactory substitute. If he moves out before the expiration of the Quarter without presenting a satisfactory excuse he shall forfeit one month's rent. The signing of such agreement is optional.

*The University warns students not to rent rooms which have not been placed on the approved list by the Men's Housing Bureau. Any one renting a room which is not on the approved list does so at his own risk.*

#### WOMEN STUDENTS

Every woman student, whether undergraduate or graduate, must register with the Dean of Women at her office in Pomerene Hall during the first four days of each Quarter. The exact dates of registration will be fully announced each Quarter.

#### LIVING ARRANGEMENTS FOR WOMEN

All living arrangements for women are under the supervision of the Dean of Women. Immediately after a new student is admitted to the University, the Dean of Women will receive official notification from the Examiner and thereupon, if requested, the Dean of Women will place the student in housing. Under the rules of the Faculty, Freshman women so far as possible will be placed by the Dean of Women in the University Residence Halls.

Freshmen who are admitted after the University Residence Halls are filled are then placed by the Dean of Women in the privately operated Residence Halls and in the University Houses. Sophomore, Junior, and Senior students are placed in the privately operated Residence Halls, in University

Houses, and in their Sorority Houses. Freshmen and other students who wish to work for room and board in private homes will be thus placed, and those who wish to live with relatives in Columbus will be given permission to do so.

## RULES AND REGULATIONS

For rules and regulations concerning student responsibility and procedure, see the *University Rules and Regulations for Students*, a copy of which may be obtained from the Registrar.

### THE MARKING SYSTEM AND POINT SYSTEM

The grade marks given in the several Colleges of the University are: A—Excellent; B—Good; C—Average; D—Poor; E—Failed.

K (Credit) shall be used for work credited from other institutions and by the University Examiner only.

Em (Examination) credit shall be used to indicate that the credit given is for work not done in residence.

A value in "Points" is assigned to each of these grades as follows:

For each hour of A grade, 4 credit points shall be allowed.

For each hour of B grade, 3 credit points shall be allowed.

For each hour of C grade, 2 credit points shall be allowed.

For each hour of D grade, 1 credit point shall be allowed.

For each hour of K credit, no credit points shall be allowed.

For each hour of Em credit, no credit points shall be allowed.

The grade of E receives no credit either in hours or points.

The mark of E cannot be removed by re-examination. (For removal of failures see page 20.)

### POINTS REQUIRED FOR GRADUATION

(See page 20.)

## LOW STANDING

### DISMISSAL AND PROBATION FOR LOW STANDING

At the end of each Quarter, any student who has failed to earn a point-hour ratio of at least .65 on the number of credit hours for which he was scheduled shall be dismissed from the University. Any student, not dismissed under the above rule, who has failed to earn a point-hour ratio of at least 1.30 on the number of credit hours for which he was scheduled that Quarter shall be placed on probation.

The period of probation shall extend through one Quarter of residence. If a student has been twice placed on probation, he shall not be placed on probation again but instead shall be dismissed from the University.

The Dean or the Executive Committee of a College shall have power to place a student on probation at any time for a definite period when in their judgment his scholastic standing is unsatisfactory. In every case of probation the Dean of the College shall notify both the student and his parents or guardian.

These rules do not apply to students registered in the Colleges of Dentistry, Law, and Medicine. The faculties of these colleges are empowered to enact appropriate rules regulating this matter.

### DISMISSAL OF STUDENTS ON PROBATION

At the end of any Quarter, any student who is on probation shall be dismissed from the University if he has failed to earn a point-hour ratio of at

least 1.30 on the number of credit hours for which he was scheduled. Notice of such dismissal shall be sent by the Dean both to the student and to his parents or guardian.

#### DISMISSAL FOR DEFICIENCY IN POINTS

Any student who has been registered in this University for six Quarters and has not earned a cumulative point-hour ratio of at least 1.7 on the number of credit hours for which he has been scheduled shall be dismissed from the University. Moreover, a cumulative point-hour ratio of at least 1.7 on the student's entire record shall be maintained throughout subsequent Quarters unless there is a transfer to another college.

A student entering this University from another institution, as far as the applicability of this rule is concerned, will be considered as if his entire residence had been at this University, but his point-hour ratio will be computed upon the work done at this University. No such student, however, shall be dismissed under this rule until he has completed two Quarters of residence.

These rules shall not apply to students registered in the Colleges of Dentistry, Law, and Medicine. The faculties of these colleges are empowered to enact appropriate rules regulating this matter.

#### DISMISSAL BY SPECIAL ACTION

In cases not covered by the foregoing rules, if at any time the preparation, progress, or success of a student in his assigned work is deemed unsatisfactory, the Executive Committee of the College shall have power to dismiss him from the University.

#### REMOVAL OF FAILURES

##### FAILURE IN A REQUIRED COURSE

At his first opportunity a student must repeat in class a required course in which he has failed, unless the Executive Committee of the College authorizes a substitute course.

#### GRADUATION

##### POINTS REQUIRED FOR GRADUATION

The number of credit points required for graduation shall amount to not less than 1.8 times the number of credit hours undertaken at this institution. (For Point System see page 19.)

#### COMMENCEMENT—CONVOCATION

A special Convocation or Commencement shall be scheduled at the close of each Quarter for the conferring of degrees upon candidates who have fulfilled all the requirements of their respective courses.

#### ATTENDANCE AT CONVOCATION EXERCISES

All candidates for degrees are required to be present at their graduation convocation unless excused by the President.

#### INFORMATION

For further information as to entrance requirements, etc., address the University Examiner. For information about courses, requirements for graduation, etc., address Dr. Glenn A. Fry, Mendenhall Laboratory of Physics.

# CURRICULUM

Students entering after July 1, 1936, will be required to meet the requirements of the new curriculum as given below. Those who have enrolled prior to that date should continue to follow the provisions of the old curriculum as given on page 22. It will be noted that in the new curriculum the number of Quarter hours available as electives has been reduced and the hours required for graduation have been increased. Students pursuing the old curriculum should, as far as possible, include as electives those required courses in the new curriculum which are not included in the old curriculum.

## NEW CURRICULUM

### FIRST YEAR

Autumn Quarter	Winter Quarter	Spring Quarter
Chemistry (401 or 411) 5	Chemistry (402 or 412) 5	Chemistry (403 or 413) 5
Elementary or General	Elementary or General	Elementary or General
Mathematics (421 or 432) 5	Mathematics (422 or 431) 5	Mathematics (423 or 433) 5
College Algebra	Plane Trigonometry	Analytical Geometry
Engineering Drawing (401) 4	Zoology (401) 5	Zoology (402) 5
Principles	General	General
English (410) 3	English (411) 3	English (412) 3
English Composition	English Composition	English Composition
Military Science 1	Military Science 1	Military Science 1
Physical Education (400) 1	Physical Education (402) 1	Physical Education (403) 1
Physical Education (401) 1		

### SECOND YEAR

Physics (411) 5	Physics (412) 5	Physics (413) 5
Mechanics, Wave Motion, and Sound	Heat, Light, Spectroscopy	Magnetism, Electricity, Electronics
Physiology (403) 5	Physiology (404) 5	Zoology (403) 5
Elementary	Elementary	Principles of Heredity
Psychology (401) 5	Psychology (402) 5	Psychology (624) 5
Elementary	Elementary	Vision and Hearing
Military Science 1	Military Science 1	Military Science 1
Physical Edu. (Women) 1	Physical Edu. (Women) 1	Physical Edu. (Women) 1
Elective 3	Elective 3	Elective 3

NOTE: The courses in the Freshman and Sophomore years consist essentially of basic sciences on which the professional work of the curriculum depends. Those offered in the Junior and Senior years emanate from those of the two preceding years and are essentially professional in character. Before admission to the Junior year, students must have completed the work of the Freshman and Sophomore years with a point-hour ratio of not less than 2.5.

### THIRD YEAR

Physics (501) 5	Physics (502) 5	Physics (503) 5
Geometrical Optics	Geometrical Optics	Geometrical and Physical Optics
Applied Optics (511) 4	Applied Optics (512) 4	Applied Optics (513) 4
Vision Optics	Vision Optics	Vision Optics
Bacteriology (607) 5	Bacteriology (608) 3	Chemistry (466) 3
General	Pathogenic	Organic
Anatomy (613) 5	Elective 3	Anatomy (437) 5
Comparative Anatomy of Vertebrates		The Eye

## APPLIED OPTICS

## FOURTH YEAR

Applied Optics	(531)	2	Applied Optics	(532)	2	Applied Optics	(533)	2
Mechanical Optics			Mechanical Optics			Mechanical Optics		
Applied Optics	(521)	5	Applied Optics	(522)	5	Applied Optics	(523)	5
Theory and Methods of Optometry			Theory and Methods of Optometry			Theory and Methods of Optometry		
Applied Optics	(541)	5	Applied Optics	(542)	5	Applied Optics	(543)	5
Clinical Practice of Optometry			Clinical Practice of Optometry			Clinical Practice of Optometry		
Pathology	(650)	3	Pathology	(651)	3	Elective		5
General			Eye					
Elective		2	Elective		2			

The total number of hours required for graduation is 219.

## SUGGESTED ELECTIVES

Accounting 405; Anatomy 611; Bacteriology 609; Economics 403 and 404

## OLD CURRICULUM

## THIRD YEAR

Autumn Quarter		Winter Quarter		Spring Quarter				
Physics	(501)	5	Physics	(502)	5	Physics	(503)	5
Geometrical Optics			Geometrical Optics			Geometrical and Physical Optics		
Applied Optics	(511)	4	Anatomy	(613)	5	Applied Optics	(513)	4
Vision Optics			Applied Optics	(512)	4	Vision Optics		
Elective		8	Vision Optics			Anatomy The Eye	(437)	5
						Elective		4

## FOURTH YEAR

Applied Optics	(541)	5	Applied Optics	(542)	5	Applied Optics	(543)	5
Clinical Practice of Optometry			Clinical Practice of Optometry			Clinical Practice of Optometry		
Applied Optics	(521)	5	Applied Optics	(522)	5	Applied Optics	(523)	5
Theory and Methods of Optometry			Theory and Methods of Optometry			Theory and Methods of Optometry		
Applied Optics	(531)	2	Applied Optics	(532)	2	Applied Optics	(533)	2
Mechanical Optics			Mechanical Optics			Mechanical Optics		
Pathology	(650)	3	Pathology	(651)	3	Elective		5
Elective		3	Elective		3			

\* All electives shall be subject to the approval of the Professor in charge of courses in Applied Optics.

Ten hours of elective work shall be in foreign language.

## DEGREE

Upon the satisfactory completion of one of the curricula outlined above, the student will be recommended for the degree of Bachelor of Science in Applied Optics.



## DEPARTMENTS OF INSTRUCTION

### ANATOMY

Office, 410 Hamilton Hall

PROFESSOR BAKER, ASSISTANT PROFESSOR SETTERFIELD, AND ASSISTANT

**437. The Eye.** Five credit hours. Spring Quarter. Two recitations and six laboratory hours each week. Applied Optics, third year. Prerequisite, Zoology 401-402, and Anatomy 613 or equivalent. Mr. Weaver.

The gross anatomy of the orbit and eye in the shark, sheep, and man and general human histology with the embryology and special histology of the organ of vision.

**613. Comparative Anatomy of the Vertebrates.** Five credit hours. Autumn Quarter. Two lectures or recitations and two three-hour laboratory periods each week. Prerequisite, Zoology 401-402. Zoology 509 is recommended. Mr. Setterfield.

The comparative anatomy of the Elasmobranchs and Amphibians as illustrated by the shark, frog, and mud puppy.

### APPLIED OPTICS

Office, 203 Mendenhall Laboratory

ASSISTANT PROFESSOR FRY AND ASSOCIATES

**511. Vision Optics.** Four credit hours. Autumn Quarter. Three lectures and recitations and one two-hour laboratory period each week. Applied Optics, third year. Prerequisite, Zoology 402, Physics 411-412-413, Mathematics 423 or 433; concurrent, Physics 501. Mr. Fry, Mr. Haines.

The eye as an optical instrument, myopia, hyperopia, astigmatism, accommodation. Theory and technique of both static and dynamic skiametry, ophthalmoscopy, ophthalmometry, methods of objective and subjective eye examination, perimetry and campimetry tests, critical comparison of different methods of eye testing. Description and manipulation of optical instruments for detecting and measuring ocular anomalies. Practical work in making optometrical eye examinations.

Not open to students who have credit for Applied Optics 411.

**512. Vision Optics.** Four credit hours. Winter Quarter. Three lectures and recitations and one two-hour laboratory period each week. Applied Optics, third year. Prerequisite, Applied Optics 511. Mr. Fry, Mr. Haines.

Continuation of Applied Optics 511.

Not open to students who have credit for Applied Optics 412.

**513. Vision Optics.** Four credit hours. Spring Quarter. Three lectures and recitations and one two-hour laboratory period each week. Applied Optics, third year. Prerequisite, Applied Optics 512. Mr. Fry, Mr. Haines.

Continuation of Applied Optics 512.

Not open to students who have credit for Applied Optics 413.

**521. Theory and Methods of Optometry.** Five credit hours. Autumn Quarter. Four lectures and recitations and one two-hour laboratory period each week. Applied Optics, fourth year. Prerequisite, Applied Optics 513. Mr. Fry.

Theories of vision, daylight vision, twilight vision, color vision, monocular and binocular vision, functions of the retina, coordination of visual functions, kinematics of the eye, ocular abnormalities.

Not open to students who have credit for Applied Optics 421.

**522. Theory and Methods of Optometry.** Five credit hours. Winter Quarter. Four lectures and recitations and one two-hour laboratory period each week. Applied Optics, fourth year. Prerequisite, Applied Optics 521. Mr. Fry. Continuation of Applied Optics 521.

Not open to students who have credit for Applied Optics 422.

**523. Theory and Methods of Optometry.** Five credit hours. Spring Quarter. Four lectures and recitations and one two-hour laboratory period each week. Applied Optics, fourth year. Prerequisite, Applied Optics 522. Mr. Fry. Continuation of Applied Optics 522.

Not open to students who have credit for Applied Optics 423.

**531. Mechanical Optics.** Two credit hours. Autumn Quarter. One lecture and one two-hour laboratory period each week. Applied Optics, fourth year. Prerequisite, Applied Optics 513 and Physics 503. Mr. Fry.

Composition of various kinds of glass; manufacture of glass for lenses; use of abrasive; surface grinding and polishing; lens cutting; sizing, centering, axis marking, edging, neutralizing, and decentering; mounting and adjusting frames, bridge bending, fitting bifocal lenses, face measurements and prescription writing.

Not open to students who have credit for Applied Optics 431.

**532. Mechanical Optics.** Two credit hours. Winter Quarter. One lecture and one two-hour laboratory period each week. Applied Optics, fourth year. Prerequisite, Applied Optics 531. Mr. Fry.

Continuation of Applied Optics 531.

Not open to students who have credit for Applied Optics 432.

**533. Mechanical Optics.** Two credit hours. Spring Quarter. One lecture and one two-hour laboratory period each week. Applied Optics, fourth year. Prerequisite, Applied Optics 532. Mr. Fry.

Continuation of Applied Optics 532.

Not open to students who have credit for Applied Optics 433.

**541. Clinical Practice of Optometry.** Five credit hours. Autumn Quarter. Two conference hours and three two-hour laboratory periods each week. Applied Optics, fourth year. Prerequisite, Physics 503 and Applied Optics 513. Mr. Ellis, Mr. Haines.

Lectures, discussion, and clinical laboratory practice in physical methods of eye examination and in professional techniques; complete physical examination of the eye and adaptation of lenses to defective vision; study of abnormal conditions in the eye; comparison and evaluation of different methods of optometrical examinations, orthoptics and mechanical treatment for strabismus, amblyopia, and extra-ocular imbalance, and differential determination of ocular abnormalities. The laboratory periods are given to making eye examinations in the laboratory under the direction of the instructors and the conference periods to a discussion of the more difficult cases.

Not open to students who have credit for Applied Optics 441.

**542. Clinical Practice of Optometry.** Five credit hours. Winter Quarter. Two conference hours and three two-hour laboratory periods each week. Ap-

plied Optics, fourth year. Prerequisite, Applied Optics 541. Mr. Ellis, Mr. Haines.

Continuation of Applied Optics 541.

Not open to students who have credit for Applied Optics 442.

**543. Clinical Practice of Optometry.** Five credit hours. Spring Quarter. Two conference hours and three two-hour laboratory periods each week. Applied Optics, fourth year. Prerequisite, Applied Optics 542. Mr. Ellis, Mr. Haines.

Continuation of Applied Optics 542.

Not open to students who have credit for Applied Optics 443.

## BACTERIOLOGY

Office, 210 Pharmacy and Bacteriology Building

PROFESSORS HUDSON AND STARIN, ASSISTANT PROFESSORS BIRKELAND AND STAHLY, MR. WEISER, MR. HOLTMAN, AND ASSISTANT

**607. General Bacteriology.** Five credit hours. One Quarter. Autumn, Winter, Spring. Two lectures, one recitation, and three two-hour laboratory periods each week. Mr. Stahly, Mr. Birkeland, Mr. Weiser, Mr. Holtman, and assistants.

This course is a prerequisite to all elective courses in the department and is designed to prepare for special work. The lectures consider the botanical relationships of bacteria, their morphology, classification, effect of physical and chemical environment, action on food material, etc. The laboratory work includes preparation of the ordinary culture media and making of cultures on these media, staining methods, and some typical biochemical actions.

Not open for graduate credit to students majoring in bacteriology.

**608. Pathogenic Bacteriology.** Three credit hours. Winter Quarter. Three class periods each week. Prerequisite, Bacteriology 607. Mr. Starin.

A study of some of the important bacteria producing diseases in man. Modes of transmission and methods of protection against infectious diseases. Sanitation and the theories of immunity.

## CHEMISTRY

Office, 115 Chemistry Building

General Chemistry Office, 112 Chemistry Building

PROFESSORS EVANS AND McPHERSON, ASSOCIATE PROFESSOR FERNELIUS, ASSISTANT PROFESSOR QUILL, MR. GARRETT, MR. HOWE, MR. NEWMAN, MR. VERHOEK, AND ASSISTANTS

**401. Elementary Chemistry.** Five credit hours. One Quarter. Autumn and Winter. One lecture, two recitations, and two two-hour laboratory periods each week. This course or 411 required in Applied Optics, first year. Mr. Evans, Mr. Fernelius, Mr. Quill, Mr. Garrett, Mr. Howe, Mr. Newman, Mr. Verhoek, and assistants.

A general course in the chemistry of the non-metals. To be followed by Chemistry 402.

Not open to students who have entrance credit for chemistry.

**402. Elementary Chemistry.** Five credit hours. One Quarter. Winter and Spring. One lecture, two recitations, and two two-hour laboratory periods each week. This course or 412 required in Applied Optics, first year. Pre-

requisite, Chemistry 401. Mr. Evans, Mr. Fernelius, Mr. Quill, Mr. Garrett, Mr. Howe, Mr. Newman, Mr. Verhoek, and assistants.

A continuation of Chemistry 401, including the chemistry of the metals. To be followed by Chemistry 403.

Not open to students who have entrance credit for chemistry.

**403. Qualitative Analysis.** Five credit hours. One Quarter. Autumn and Spring. One lecture, one recitation, and six laboratory hours each week. This course or 413 required in Applied Optics, first year. Prerequisite, Chemistry 402. Mr. Evans, Mr. Fernelius, Mr. Quill, Mr. Garrett, Mr. Howe. Mr. Newman, Mr. Verhoek, and assistants.

A brief course in the systematic separation and identification of the cations and anions.

Not open to students who have entrance credit for chemistry.

**411. General Chemistry.** Five credit hours. One Quarter. Autumn and Winter. One lecture, two recitations, and two two-hour laboratory periods each week. This course or 401 required in Applied Optics, first year. Prerequisite, an acceptable course in high-school chemistry. Mr. Evans, Mr. Fernelius, Mr. Quill, Mr. Garrett, Mr. Howe, Mr. Newman, Mr. Verhoek, and assistants.

A general course in the chemistry of the non-metals, more advanced than Chemistry 401. To be followed by Chemistry 412.

**412. General Chemistry.** Five credit hours. One Quarter. Autumn, Winter, Spring. One lecture, two recitations, and two two-hour laboratory periods each week. This course or 402 required in Applied Optics, first year. Prerequisite, Chemistry 411. Mr. Evans, Mr. Fernelius, Mr. Quill, Mr. Garrett, Mr. Howe, Mr. Newman, Mr. Verhoek, and assistants.

A continuation of Chemistry 411, including the chemistry of the metals. To be followed by Chemistry 413.

**413. Qualitative Analysis.** Five credit hours. One Quarter. Autumn, Winter, Spring. One lecture, one recitation, and six laboratory hours each week. This course or 403 required in Applied Optics, first year. Prerequisite, Chemistry 412. Mr. Evans, Mr. Fernelius, Mr. Quill, Mr. Garrett, Mr. Howe, Mr. Newman, Mr. Verhoek, and assistants.

A general course in qualitative analysis, dealing with the systematic separation and identification of the cations and anions. It also includes the application of the ionization theory, mass action law, and the principles of chemical equilibrium to qualitative analysis.

## ENGINEERING DRAWING

Office, 218 Brown Hall

PROFESSORS FRENCH AND MEIKLEJOHN, INSTRUCTORS AND ASSISTANTS

**401. Principles of Engineering Drawing.** Four credit hours. One Quarter. Autumn and Winter. One lecture and four two-hour laboratory periods each week. Required in all curricula in the College of Engineering, except Architecture, first year. All instructors.

The use of instruments, applied geometry, orthographic projection, sections, revolution, lettering, auxiliary projection, dimensioning, use of the slide rule.

**432. Graphic Description.** Four credit hours. Autumn Quarter. One lecture and four two-hour laboratory periods each week. Applied Optics, first year. Mr. Coddington.

Use of instruments; applied geometry; orthographic, perspective, and isometric description; sketching; working drawings; lettering.

**ENGLISH**

Office, 120 Derby Hall

ASSOCIATE PROFESSORS FULLINGTON AND HARBARGER, INSTRUCTORS  
AND ASSISTANTS

**410. English Composition.** Three credit hours. One Quarter. Autumn and Winter. Three hours of reading and practice in composition each week. No prerequisite. Director, Miss Harbarger.

Stress is laid upon organization and craftsmanship of writing. One long paper during the Quarter—informal exposition. Frequent short papers. Outside reading—selected short stories. Personal conferences.

Not open to students who have credit for English 401.

**411. English Composition.** Three credit hours. One Quarter. Winter and Spring. Three hours of reading and practice in composition each week. Prerequisite, English 410. Director, Miss Harbarger.

A continuation of English 410. Emphasis is placed upon the forms of technical writing. One long technical paper during the Quarter. Frequent short papers. Outside reading—selected biography or autobiography. Personal conferences.

Not open to students who have credit for English 401.

**412. English Composition.** Three credit hours. One Quarter. Autumn and Spring. Three hours of reading and practice in composition each week. Prerequisite, English 410 and 411. Director, Miss Harbarger.

A continuation of English 411. Emphasis is placed upon the use of the library and the research paper. One long paper, frequent short papers. Outside reading—selected essays and plays. Personal conferences.

Not open to students who have credit for English 405 or 507.

**GERMAN**

Office, 210 Derby Hall

PROFESSOR M. B. EVANS, INSTRUCTORS AND ASSISTANTS

**401. Elementary German.** Five credit hours. One Quarter. Autumn, Winter, Spring. Five recitations each week. Elective. All instructors.

The elements of German grammar; reading of easy prose; oral practice.

**402. Elementary German.** Five credit hours. One Quarter. Autumn, Winter, Spring. Five recitations each week. Elective. Prerequisite, German 401 or equivalent. All instructors.

The elements of German grammar; reading of easy prose; oral practice.

**MATHEMATICS**

Office, 307 University Hall

PROFESSORS KUHN AND RASOR, INSTRUCTORS AND ASSISTANTS

**421. College Algebra.** Five credit hours. One Quarter. Autumn, Winter, Spring. Applied Optics, first year. Prerequisite, one unit of entrance algebra and one unit of entrance geometry. All instructors.

Fundamental ideas and topics of college algebra. Designed, along with the allied courses, Mathematics 422, 429, 435, to give students in the arts and sciences a conception of the character and possibilities of modern mathematics, especially in relation to its uses in other subjects.

422. **Plane Trigonometry.** Five credit hours. One Quarter. Autumn, Winter, Spring. Applied Optics, first year. Prerequisite, one unit of entrance algebra and one unit of entrance geometry. All instructors.

Solution of right and oblique triangles, theory and use of logarithms, solution of trigonometric equations and identities, various applications to the arts and sciences.

423. **Analytic Geometry.** Five credit hours. Spring Quarter. Elective. Prerequisite, Mathematics 421 and 422, or 431 and 432. All instructors.

431. **Plane Trigonometry.** Five credit hours. One Quarter. Winter and Spring. Prerequisite, one and one-half units of entrance algebra and one unit of entrance geometry. All instructors.

432. **College Algebra.** Five credit hours. One Quarter. Autumn and Winter. Prerequisite, one and one-half units of entrance algebra and one unit of entrance geometry. All instructors.

433. **Analytic Geometry.** Five credit hours. One Quarter. Autumn and Spring. Prerequisite, Mathematics 431 and 432 or 421 and 422. All instructors.

## MILITARY SCIENCE AND TACTICS

Office, The Armory

COLONEL TOWNSEND; LIEUTENANT COLONELS DIXON, SPENCER, AND FALK; MAJORS PAGE, CAMP, THOMAS, AND HAMILTON; CAPTAINS BARRY, HINTON, WILLIAMSON, ADAMSON, COWLES, PALMER, BLAKENEY, BURCKES, BERTSCH, AND CLYBURN; FIRST LIEUTENANTS KURSTEDT, SEEMAN, AND BROOKE

In accordance with the Morrill Act, passed in 1862, under which the University was established, military instruction must be included in the curricula. The Board of Trustees therefore requires all male students, both special and regular, unless excused by the Department of Military Science and Tactics, to receive military instruction during the first two years in Field Artillery, Signal Corps, or Engineer Corps.

The Reserve Officers' Training Corps was established under the National Defense Act of June 3, 1916, and June 4, 1920, the required two years' work being included in its four-year course, the third and fourth years being elective. Instruction is given in Field Artillery, Signal Corps, and Engineer Corps.

Uniform is furnished Freshmen upon deposit of approximately \$25.00 being made with the Contractor. The University has adopted its own style of uniform, which is required to last two years. Last year the Basic Course students were paid commutation of uniforms amounting to \$9.00 each for the academic year. This allowance is prorated monthly to students who do not remain in attendance during the entire academic year, but is paid by the Bursar in whole or in part only at the close of the Spring Quarter of each academic year.

Students taking Advanced Courses in Military Science receive commutation of rations which last year amounted to twenty-five cents a day and is payable quarterly, and commutation of uniform which last year amounted to \$29.00 for the First Year Advanced men (Juniors), and to \$7.00 for the Second Year Advanced men (Seniors).

The total credit in this Department allowed toward a degree is 18 Quarter hours, exclusive of Field Artillery 421-422-423, 424-425-426, Signal Corps 441-442-443, 444-445-446, or Engineer Corps 407-408-409, 410-411-412, required of all male students in the first and second years, for which six credit hours are granted.

Enrollment in the Engineer Unit will be confined to students of the Engineering College. Engineering students who intend to take Electrical Engineering or Engineering Physics are eligible for the Signal Corps Unit. All other students required to take Military Science will be assigned to the Field Artillery Unit.

## SUMMER CAMPS

As a part of the instruction of the Reserve Officers' Training Corps, summer camps are conducted for the Advanced Course students at the end of the junior year. These camps are of six weeks' duration and the work is entirely practical. The development of leadership and discipline are primary objects of these camps. The Government furnishes transportation to and from the camps. While in camp, clothing, subsistence, medical attention, and entertainment are

provided. The students attending advanced course camps receive a salary of seventy cents a day.

#### INFANTRY

**510-511-512. Advanced Infantry.** Three credit hours each Quarter. Autumn, Winter, Spring. Elective. Prerequisite, Military Science 507-508-509. Not given after 1938-1939.

Leadership. Military law. Military history. Company administration and supply. Combat training.

#### FIELD ARTILLERY

**421-422-423. Basic Field Artillery.** One credit hour each Quarter. Autumn, Winter, Spring.

National Defense Act and R.O.T.C. Obligations of citizenship. Military history and policies. Current international situation. Military courtesy and customs of the service. Military sanitation and first aid. Military organization and organization of the Field Artillery. Leadership. Elementary gunnery. Duties of cannoneers and the firing battery. Field Artillery ammunition and materiel.

**424-425-426. Basic Field Artillery.** One credit hour each Quarter. Autumn, Winter, Spring. Prerequisite, Military Science 421-422-423.

Fire control instruments. Map and aerial photograph reading. Battery communications. Duties of the Battery Commander's Detail. Leadership. Care of animals and stable management. Equitation. Driving and draft.

**527-528-529. Advanced Field Artillery.** Three credit hours each Quarter. Autumn, Winter, Spring. Elective. Prerequisite, six Quarters of basic military science.

Reconnaissance, selection, occupation of position. Duties of Battery Officers. Use of Battery Commander's Detail. Field Artillery signal communications. Liaison with Infantry. Leadership. Elementary ballistics and dispersion. Preparation of fire. Conduct of fire. Equitation. Driving and draft.

**530-531-532. Advanced Field Artillery.** Three credit hours each Quarter. Autumn, Winter, Spring. Elective. Prerequisite, Military Science 527-528-529.

Leadership. Command and instruction of student organizations. Transport. Tactics. Military history and policy. Military law and administration. The law of military offenses. Courtmartial. Administration.

#### PATHOLOGY

PROFESSOR SPOHR, ASSISTANT PROFESSOR DAVIDSON

**650. Pathology.** Three credit hours. Autumn Quarter. Three lectures each week. Applied Optics, fourth year. Prerequisite, Zoology 401-402, Anatomy 413 or 414, 437, and 440 or 640. Dr. Spohr.

General pathology, including the etiology of diseases, disturbances of nutrition, inflammation, and tumors, with special reference to their influence upon ophthalmology.

Not open to students who have credit for Pathology 450.

**651. Pathology.** Three credit hours. Winter Quarter. Three lectures each week. Applied Optics, fourth year. Prerequisite, Pathology 650. Dr. Davidson.

Pathology of the eye.

Not open to students who have credit for Pathology 451.

## PHYSICAL EDUCATION

### MEN'S DIVISION

Office, Physical Education Building

PROFESSORS ST. JOHN, CASTLEMAN, D. OBERTEUFFER, AND SCHMIDT, ASSOCIATE PROFESSORS WOOD, ASHBROOK, AND HOWARD, ASSISTANT PROFESSORS COBB, OLSEN, DUFFEE, GODFREY, SNYDER, STALEY, AND MOONEY, MR. PEPPE, MR. STAHL, MR. RIEBEL, MR. H. WIRTHWEIN, MR. MACKEY, MR. C. WIRTHWEIN

### WOMEN'S DIVISION

Office, Pomerene Hall

PROFESSORS PALMER, ARMSTRONG, AND K. OBERTEUFFER, ASSOCIATE PROFESSOR SUMPTION, ASSISTANT PROFESSORS WINNEMORE, GILMAN, WATSON, AND STEIN, MISS SCHUTZ, MISS HAYS, MISS JACOBS, MISS CHERRINGTON, AND MISS DILLON

**400. Hygiene (Men and Women).** One credit hour. One Quarter. Autumn, Winter, Spring. One lecture each week. Required of every Freshman unless Hygiene 410 is taken during the first year of residence in the University. Sections for men, all instructors; sections for women, Miss Armstrong, Miss Winnemore.

This course deals with the various factors and conditions which affect the health and efficiency of the student.

NOTE: Hygiene 400 for women is sectioned on the basis of a placement test which is given during Freshman Week of the Autumn Quarter and at the first class period of other Quarters.

**401. Physical Education (Men).** One credit hour. Autumn Quarter. Two hours each week. Required of every Freshman. All instructors.

The work in this course is based on a thorough physical examination given at the beginning of the entering Quarter.

This course includes general body-building exercises, gymnastic and athletic games, antagonistic sports, and swimming with advanced elective activities for the physically superior groups.

**402. Physical Education (Men).** One credit hour. Winter Quarter. Two hours each week. Required of every Freshman. All instructors.

A continuation of Physical Education 401.

**403. Physical Education (Men).** One credit hour. Spring Quarter. Two hours each week. Required of every Freshman. All instructors.

A continuation of Physical Education 402.

**421. Physical Education (Women).** One credit hour. Autumn Quarter. Two hours each week. Required of every Freshman. All instructors.

The work includes hockey, soccer, volley ball, swimming, interpretative dancing, golf, horseback riding, and individual gymnastics.

**422. Physical Education (Women).** One credit hour. Winter Quarter. Two hours each week. Required of every Freshman. All instructors.

This work includes indoor baseball, basketball, golf, interpretative dancing, folk dancing, swimming, and individual work.

**423. Physical Education (Women).** One credit hour. Spring Quarter. Two hours each week. Required of every Freshman. All instructors.

This work includes horseback riding, golf, baseball, tennis, archery, swimming, and interpretative dancing.

**425. Physical Education (Women).** One credit hour. Autumn Quarter. Three hours each week. Required of all Sophomores. All instructors.

A continuation of Physical Education 421, 422, and 423.



426. **Physical Education (Women).** One credit hour. Winter Quarter. Three hours each week. Required of all Sophomores. All instructors. A continuation of Physical Education 425.
427. **Physical Education (Women).** One credit hour. Spring Quarter. Three hours each week. Required of all Sophomores. All instructors. A continuation of Physical Education 426.

#### ELECTIVE COURSES FOR MEN DISQUALIFIED FOR MILITARY SCIENCE

525. **Physical Education.** One credit hour. Autumn Quarter. Three hours each week. Open to Freshman disqualified for elementary courses in Military Science. All instructors.

This course is similar in content to Physical Education 401.

526. **Physical Education.** One credit hour. Winter Quarter. Three hours each week. Open to Freshmen disqualified for elementary courses in Military Science. All instructors.

This course is similar in content to Physical Education 402.

527. **Physical Education.** One credit hour. Spring Quarter. Three hours each week. Open to Freshmen disqualified for elementary courses in Military Science. All instructors.

This course is similar in content to Physical Education 403.

528. **Physical Education.** One credit hour. Autumn Quarter. Three hours each week. Open to Sophomores disqualified for elementary courses in Military Science. All instructors.

This course offers advanced training and instruction in various athletic sports.

529. **Physical Education.** One credit hour. Winter Quarter. Three hours each week. Open to Sophomores disqualified for elementary courses in Military Science. All instructors.

This course offers advanced training and instruction in various athletic sports.

530. **Physical Education.** One credit hour. Spring Quarter. Three hours each week. Open to Sophomores disqualified for elementary courses in Military Science. All instructors.

This course offers advanced training and instruction in various athletic sports.

## PHYSICS AND ASTRONOMY

### PHYSICS

Office, 107 Mendenhall Laboratory

PROFESSOR ALPHEUS W. SMITH, ASSOCIATE PROFESSORS ALVA W. SMITH, GREEN, AND POOL, ASSISTANT PROFESSOR KNAUSS, MR. BRUBAKER, AND ASSISTANTS

411. **General Physics: Mechanics, Wave Motion, and Sound.** Five credit hours. One Quarter. Autumn and Winter. Four lectures and recitations and one two-hour laboratory period each week. Applied Optics, second year. Prerequisite, two entrance units in mathematics. Mr. Alpheus Smith, Mr. Alva Smith, Mr. Knauss, Mr. Green.

412. **General Physics: Heat, Light, Spectroscopy.** Five credit hours. Winter Quarter. Four lectures and recitations and one two-hour laboratory period each week. Applied Optics, second year. Prerequisite, Physics 411. Mr. Alpheus Smith, Mr. Alva Smith, Mr. Knauss, Mr. Green.

413. **General Physics: Magnetism, Electricity, and Electronics.** Five credit hours. Spring Quarter. Four lectures and recitations and one two-hour labora-

tory period each week. Applied Optics, second year. Prerequisite, Physics 411. Mr. Alpheus Smith, Mr. Alva Smith, Mr. Knauss, Mr. Green.

501. Geometrical Optics. Five credit hours. Autumn Quarter. Three lectures and recitations and two two-hour laboratory periods each week. Applied Optics, third year. Prerequisite, Physics 411-412-413 and Mathematics 421-422. Mr. Pool, Mr. Brubaker.

This course treats of the fundamental principles and methods of geometrical optics, with special reference to refractive indices, prisms, thin lenses, cylindrical lenses, combinations of thin lenses and thin lens systems, etc.

502. Geometrical Optics. Five credit hours. Winter Quarter. Three lectures and recitations and two two-hour laboratory periods each week. Applied Optics, third year. Prerequisite, Physics 501. Mr. Pool, Mr. Brubaker.

A continuation of Physics 501. It treats of thick lenses, combinations of lenses and mirrors, optical instruments used in conjunction with the eye, magnifying power, chromatic and spherical aberration, diffraction, interference, etc.

503. Geometrical and Physical Optics. Five credit hours. Spring Quarter. Three lectures and recitations and two two-hour laboratory periods each week. Applied Optics, third year. Prerequisite, Physics 502 or permission of instructor. Mr. Pool, Mr. Brubaker.

Continuation of Physics 502; defects of image formation and their correction; interference and diffraction; polarization, dispersion and anomalous dispersion; optical rotation; double refraction; absorption of light, color vision; application to design and construction of optical instruments.

## PHYSIOLOGY

Office, 204 Hamilton Hall

PROFESSORS HARTMAN AND SEYMOUR, ASSOCIATE PROFESSOR HITCHCOCK, ASSISTANT PROFESSORS DURANT, HATERIUS, AND THORN, INSTRUCTORS AND ASSISTANTS

403. Elementary Physiology. Five credit hours. One Quarter. Autumn and Spring. Four lectures or recitations and three laboratory hours each week. Prerequisite, two Quarters of chemistry. Not open to Freshmen. Mr. Seymour and staff.

The fundamental principles governing the activity of living organisms, including the chemical and physical structure of animate matter; tissues; muscle-nerve physiology; blood and lymph; fundamental structure and functions of the nervous system, including reflex actions; cardio-vascular system.

Not open to students who have credit for any course in physiology.

404. Elementary Physiology. Five credit hours. One Quarter. Autumn and Winter. Four lectures or recitations and three laboratory hours each week. Prerequisite, Physiology 403 or 407. Not open to Freshmen. Mr. Seymour and staff.

An elementary survey of respiration, foods, digestion, metabolism, excretion, endocrines, brain, and special senses.

Not open to students who have credit for Physiology 408 or 409.

**PSYCHOLOGY**

Office, 325 Education Building

PROFESSORS ARPS, DOCKERAY, RENSHAW, AND WILLIAMS, INSTRUCTORS  
AND ASSISTANTS

**401. Elementary Psychology.** Five credit hours. One Quarter. Autumn, Winter, Spring. Five meetings each week. Lectures, discussions, laboratory exercises, and reports. Applied Optics, first year. All instructors.

An introductory course and fundamental to all subsequent courses in the department. This course, together with Psychology 402, undertakes to present a survey of the whole field of human psychology. This includes a study of the experimental findings in infant behavior and the subsequent development of adult modes of response, such as emotion, attention, habit, thinking and the nature and development of personality.

The facts and principles of human behavior pertinent to everyday life are stressed. The student is required to develop skill in the practical applications of experimental findings in the fields of infant behavior, motivation, attention, and emotion.

**402. Elementary Psychology.** Five credit hours. One Quarter. Autumn, Winter, Spring. Five meetings each week. Lectures, discussions, laboratory exercises, and reports. Applied Optics, second year. Prerequisite, Psychology 401. All instructors.

A continuation of Psychology 401. Further emphasis on the development of a scientific attitude toward personal psychological problems in the fields of learning, thinking, intelligence, and personality.

**601. Experimental Psychology.** Three credit hours. Autumn Quarter. One lecture and two laboratory periods each week. Elective. Prerequisite, Psychology 402. Mr. Renshaw.

The laboratory course in experimental psychology for advanced undergraduate and graduate students. The experiments are selected both for general cultural values and for preparation for technical research in experimental psychology.

**602. Experimental Psychology.** Three credit hours. Winter Quarter. One lecture and two laboratory periods each week. Elective. Mr. Renshaw.

A continuation of Psychology 601.

**624. Psychology of Vision and Hearing.** Five credit hours. Spring Quarter. Five lectures each week. Given in alternate years. Prerequisite, Psychology 602 and Physics 402 or its equivalent. Mr. Williams.

Production, measurement, and control of photic stimuli and measurements of the variations in their effectiveness as determined by physical and physiological factors. The work will consist in part of lecture demonstrations and experiments, and in part of a critical study of the reports of original authors. Special attention will be given to the facts and hypotheses of color-vision and to visual problems in industry.

## ROMANCE LANGUAGES AND LITERATURES

Office, 111 Derby Hall

PROFESSORS HENDRIX AND MONROE, INSTRUCTORS AND ASSISTANTS

### FRENCH

**401. Elementary French.** Five credit hours. One Quarter. Autumn, Winter, Spring. Five recitations each week. Elective. Sections in this course are limited to twenty-five students. All instructors.

No student is allowed to take this course simultaneously with Spanish 401-402 or Italian 401-402.

**402. Elementary French (Continued).** Five credit hours. One Quarter. Autumn, Winter, Spring. Five recitations each week. Elective. Prerequisite, French 401. Sections in this course are limited to twenty-five students. All instructors.

No student is allowed to take this course simultaneously with Spanish 401-402 or Italian 401-402.

### ZOOLOGY AND ENTOMOLOGY

Office, 101 Botany and Zoology Building

PROFESSORS OSBURN, BARROWS, AND SNYDER, ASSOCIATE PROFESSORS D. F. MILLER AND PRICE, ASSISTANT PROFESSOR J. A. MILLER, INSTRUCTORS AND ASSISTANTS

**401-402. General Zoology.** Five credit hours. Two Quarters. Both 401 and 402 are given Autumn, Winter, Spring. Five lecture-laboratory periods each week. Applied Optics, first year. Mr. Barrows, Mr. D. F. Miller, Mr. Price, Mr. J. A. Miller, instructors and assistants.

A course intended to give the student a general view of the nature of animal life and to point out its relation to man's economic and social activities. The chief topics considered are as follows: nature and structure of living substance, food and its energy transformations, the essentials of reproduction; a review of the animal groups with special stress on useful and harmful qualities; animal distribution and relation to environment; heredity and evolution with particular stress upon their relation to human affairs.

**403. General Principles of Heredity.** Five credit hours. One Quarter. Autumn, Winter, Spring. Five lectures each week. Prerequisite, Zoology 401-402 or Botany 401-402 or equivalent. Mr. Snyder, Mr. Schott, Mr. Rife.

A study of the principles of heredity, to serve as a basis for advanced work in animal and plant breeding, and as a necessary background in the analysis of problems of sociology and public welfare. Demonstrations of living animals and plants will be frequently used, and discussions of the problems and principles of genetics and eugenics will be conducted daily. Hereditary characters found in human beings will be used wherever feasible as a basis for discussion.

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THE HISTORY OF THE UNITED STATES OF AMERICA

FROM THE FOUNDATION OF THE COLONIES TO THE PRESENT TIME

BY CHARLES C. SMITH

VOLUME I

THE FOUNDATION OF THE COLONIES

CHAPTER I

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