Catalogue of the University of Wisconsin for the academic year 1885-86. October, 1885

Madison, Wisconsin: [The University]| (David Atwood), [s.d.]

CATALOGUE

OF THE

UNIVERSITY OF WISCONSIN

FOR THE

ACADEMIC YEAR 1885-86.

MADISON, WISCONSIN.

OCTOBER, 1885.

David Atwood, Printer and Stereotyper, Madison, Wis.

CONTENTS.

UNIVERSITY OF WISCONSIN.

From Chapter 25, Revised Statutes of Wisconsin.

SECTION 385. The object of the University of Wisconsin shall be to provide the means of acquiring a thorough knowledge of the various branches of learning connected with scientific, industrial and professional pursuits; and to this end it shall consist of the following colleges or departments, to wit: 1st, The College or Department of Arts; 2d, The College or Department of Letters; 3d, Such professional or other colleges or departments as now are or may from time to time be added thereto or connected therewith.

SECTION 386. The College or Department of Arts shall embrace courses of instruction in mathematical, physical and natural sciences, with their application to the industrial arts, such as agriculture, mechanics, engineering, mining and metallurgy, manufactures, architecture and commerce; in such branches included in the College of Letters as shall be necessary to proper fitness of the pupils in the scientific and practical courses for their chosen pursuits, and in military tactics; and as soon as the income of the University will allow, in such order as the wants of the public shall seem to require, the said courses in the sciences, and their application to the practical arts, shall be expanded into distinct colleges of the University, each with its own faculty and appropriate title. The College of Letters shall be co-existent with the College of Arts, and shall embrace a liberal course of instruction in language, literature, and philosophy, together with such courses, or parts of courses, in the College of Arts, as the Regents of the University shall prescribe.

SECTION 387. The University shall be open to female as well as to male students, under such regulations and restrictions as the Board of Regents may deem proper; and all able-bodied male students of the University, in whatever college, may receive instruction and discipline in military tactics, the requisite arms for which shall be furnished by the state.

BOARD OF REGENTS.

STATE SUPERINTENDENT OF PUBLIC INSTRUCTION,

Ex-Officio Regent.

Term Expires First Monday in February, 1886.

State at Large	E. W. KEYES	Madison.
1st Congressional District	J. G. McMYNN	Racine.
2d Congressional District	H. D. HITT	Oakfield.
6th Congressional District	A. C. PARKINSON	Columbus.
7th Congressional District	C. H. WILLIAMS	Baraboo.

Term Expires First Monday in February, 1887.

3d Congressional District	GEO. RAYMER	Madison.
4th Congressional District	GEO. KOEPPEN	Milwaukee.
5th Congressional District	HIRAM SMITH	Sheboygan Falls.
8th Congressional District	JOHN C. SPOONER	Hudson.

Term expires first Monday in February, 1888.

State at Large	GEO. H. PAUL	Milwaukee.
9th Congressional District	R. D. MARSHALL	Chippewa Falls.

OFFICERS OF THE BOARD.

GEO. H. PAUL, PRESIDENT.
J. G. McMYNN, VICE-PRESIDENT.
JOHN S. DEAN, SECRETARY.
C. F. LAMB, ASSISTANT SECRETARY.
STATE TREASURER, EX-OFFICIO TREASURER.

COMMITTEES.

Executive—E. W. KEYES, A. C. PARKINSON, GEO. RAYMER.
Farm—HIRAM SMITH, H. D. HITT, C. H. WILLIAMS.
Library and Text-Books—R. GRAHAM, J. G. McMYNN, GEO. KOEPPEN.
Law Department—J. C. SPOONER, R. D. MARSHALL, GEO. RAYMER.

Office of Regents—101 S. Hamilton St., opposite Park Hotel.

BOARD OF VISITORS FOR 1885–86.

State at Large	HON. BURR W. JONES, Chairman	Madison.
State at Large	HON. WM. P. LYNDE	Milwaukee.
State at Large	HON. WM. P. BARTLETT	Eau Claire.
1st Congressional District	HON. ANTHONY VAN WYCK	Kenosha.
2d Congressional District	MRS. O. C. STEENBURG	Fond du Lac.
3d Congressional District	HON. DANIEL H. MORGAN	Monroe.
4th Congressional District	HON. EMIL DURR	Milwaukee.
5th Congressional District	HON. GEO. H. BICKNER	Sheboygan Falls.
6th Congressional District	HON. P. G. STROUD	Kilbourn City.
7th Congressional District	HON. ALBERT HARDY	La Crosse.
8th Congressional District	HON. S. W. HUNT	Menomonie.
9th Congressional District	HON. JOHN K. PARISH	Medford.

FACULTIES, INSTRUCTORS AND OFFICERS.

JOHN BASCOM, D. D., LL. D., PRESIDENT, - - - - - - 620 State St.
Professor of Mental and Moral Philosophy.

Professors of the Colleges of Art and Letters:

JOHN BARBER PARKINSON, A. M., VICE-PRESIDENT, - - - 803 State St.
Professor of Civil Polity and Political Economy.

WILLIAM FRANCIS ALLEN, A. M.,* - - - - - 228 Langdon St.
Professor of Latin and History.

ALEXANDER KERR, A. M., - - - - - - - - - 140 Langdon St.
Professor of the Greek Language and Literature.

JOHN WILLIAM STEARNS, LL. D., - - - - - 512 Wisconsin Ave.
Professor of the Science and Art of Teaching.

JOHN EUGENE DAVIES, A. M., M. D., - - - - - 523 N. Carroll St.
Professor of Physics.

LUIGI LOMIA, M. S., 1st Lieut. 5th U. S. Artillery, - - 22 S. Hamilton St.
Professor of Military Science and Tactics.

WILLIAM WILLARD DANIELLS, M. S., - - - - - 515 N. Carroll St.
Professor of Chemistry.

WILLIAM H. ROSENSTENGEL, A. M., - - - - - 435 Lake St.
Professor of the German Language and Literature.

JOHN CHARLES FREEMAN, LL. D., - - - - - - 222 Langdon St.
Professor of English Literature.

EDWARD SINGLETON HOLDEN, A. M., - - - - Observatory Hill.
Professor of Astronomy. Director of the Washburn Observatory.

ROLAND DUER IRVING, PH. D., - - - - - - 227 Langdon St.
Professor of Geology and Mineralogy.

FLETCHER ANDREW PARKER, - - - - - - 18 W. Gilman St.
Professor of Music.

DAVID BOWER FRANKENBURGER, A. M., - - - 115 W. Gilman St.
Professor of Rhetoric and Oratory.

HENRY PRENTISS ARMSBY, PH. D., - - - - - 702 State St.
Professor of Agricultural Chemistry.

EDWARD THOMAS OWEN, A. B., - - - - - - - 614 State St.
Professor of the French Language and Literature.

EDWARD ASAHEL BIRGE, PH. D., - - - - - - 744 Langdon St.
Professor of Zoology.

ALLAN DARST CONOVER, C. E., - - - - - - 151 W. Gilman St.
Professor of Civil Engineering.

LUCIUS HERITAGE, A. M., - - - - - - - - - 545 State St.
Assistant Professor of Latin.

CHARLES A. VAN VELZER, PH. D., - - - - - 134 W. Gorham St.
Professor of Mathematics.

* The following professors are arranged in order of the time of collegiate graduation.

Professors of the Colleges of Art and Letters—continued.

WILLIAM HOLME WILLIAMS, A. B., - - - - - - 811 State St.
Assistant Professor of Greek.

FREDERICK BELDING POWER, PH. G., PH. D., - - - 438 Lake St.
Professor of Pharmacy and Materia Medica.

STORM BULL, MECH. E., - - - - - - - - 18 W. Gilman St.
Assistant Professor of Mechanical Engineering.

CHARLES RICHARD VAN HISE, M. S., - - - - - 630 Francis St.
Assistant Professor of Metallurgy.

WILLIAM ARNON HENRY, AGR. B., - - - - - University Farm.
Professor of Agriculture.

Professors of the Law Faculty:

HON. I. C. SLOAN, DEAN OF THE LAW FACULTY, - - - - 231 Langdon St.
Professor of Equity, Real Estate and Corporations.

J. H. CARPENTER, LL. D., - - - - - - - 315 Wisconsin Ave.
Professor of Contracts, Torts and Criminal Law.

HON. JOHN B. CASSODAY, LL. D., ASSOCIATE JUSTICE OF THE SUPREME COURT, - - - - - - - - - - 139 E. Gilman St.
Professor of Wills and Constitutional Law.

HON. BURR W. JONES, LL. B., - - - - - - 326 Langdon St.
Professor of Domestic Relations, Personal Property and Evidence.

A. L. SANBORN, LL. B., - - - - - - - 452 W. Wilson St.
Professor of Pleadings and Practice.

R. M. BASHFORD, LL. B., - - - - - - - 120 S. Fairchild St.
Professor of Federal Jurisprudence, Frauds and Voluntary Assignments.

CLARK GAPEN, M. D., - - - - - - - 404 N. Carroll St.
Professor of Medical Jurisprudence.

Instructors and Assistants:

MRS. D. E. CARSON, - - - - - - - - - Ladies' Hall.
Mathematics, Principal of Ladies' Hall.

LUCY MARIA GAY, B. L., - - - - - - - 615 University Ave.
French.

GRACE CLARK., B. L., - - - - - - - - 22 S. Webster St.
French.

CHARLES ISAAC KING, - - - - - - - - - 631 State St.
Superintendent of the Department of Mechanic Arts.

ARTHUR BLISS SEYMOUR, B. S., - - - - - - 744 Langdon St.
Botany.

JULIUS EMIL OLSON, B. L., - - - - - - 316 N. Carroll St.
Scandinavian Languages and German.

HOMER WINTHROP HILLYER, PH. D., - - - - - 831 State St.
Chemistry.

HARRY HUNTINGTON POWERS, A. B., B. L, - - - 816 University Ave.
German.

LEANDER MILLER HOSKINS, B. C. E., M. S., - - - 630 Francis St.
Civil Engineering.

FRED JACKSON TURNER, A. B., - - - - - - 772 Langdon St.
Rhetoric and Oratory.

Astronomical Observatory:

MILTON UPDEGRAFF, B. C. E., B. S., - - - - Observatory.
Assistant Astronomer.

Astronomical Observatory—continued.

ALICE MAXWELL LAMB, M. L., - - - - - - 202 N. Carroll St.
Assistant Astronomer.

GEORGE WILLIAM BROWN, - - - - - - - Observatory.
Meteorological Observer.

Agricultural Department:

FREDERICK GARLAND SHORT, - - - - - - Agricultural Hall.
Chemist of Agricultural Experiment Station.

VICKERS T. ATKINSON, V. S., State Veterinarian, - - - Milwaukee.
Lecturer on Veterinary Science.

WILLIAM HENRY MORRISON, - - - - - - - 134 E. Johnson St.
Director of Agricultural Institutes.

PROFESSOR EDWARD T. OWEN, - - - - - Secretary of the Faculty.

LIBRARY COMMITTEE.

PRESIDENT BASCOM; PROFESSOR FREEMAN, *Secretary;* PROFESSORS ROSENSTENGEL, HOLDEN AND IRVING.

THERESE S. FAVILL, - - - - - - - - - - Library Attendant.

CLASS OFFICERS, 1885-86.

SENIOR CLASS.

CLASSICAL COURSES, - - - - - Professor Parkinson.
GENERAL SCIENCE COURSE, - - - - - Professor Irving.

JUNIOR CLASS.

ANCIENT CLASSICAL COURSE, - - - Professor Frankenburger.
MODERN CLASSICAL COURSE, - - - - - Professor Allen.
GENRAL SCIENCE COURSE, - - - - - Professor Daniells.

SOPHOMORE CLASS.

ANCIENT CLASSICAL COURSE, - - - - - Professor Kerr.
MODERN CLASSICAL COURSE, - - - - Professor Rosenstengel.
GENERAL SCIENCE COURSE, - - - - - Professor Birge.

FRESHMAN CLASS.

ANCIENT CLASSICAL COURSE, - - - Professor Williams.
MODERN CLASSICAL COURSE, - - - - - - Mrs. Carson.
GENERAL SCIENCE COURSE, - - - - Professor Van Velzer.

AGRICULTURAL STUDENTS, - - - - - Professor Henry.
ENGINEERING STUDENTS, - - - Professors Conover and Bull.
PHARMACY STUDENTS, - - - - - Professor Power.
SPECIAL STUDENTS, - - - - Professors Kerr and Birge.
GREEK CLASS, - - - - - - Professor Williams.

JANITORS.

PATRICK K. WELSH, - - - - - University Hall.
JAMES M. ASHBY, - - - - - - Ladies' Hall.
TIMOTHY PURCELL, - - - - - - Library Hall.
JOHN D. PURCELL, - - - - - - North Hall.
JOHN JONES, - - - - - - Agricultural Hall.
JOHN DOESCHER, - - - - - Washburn Observatory.
JAMES H. RIDER, - - - - - - Engineer.
RICHARD T. DAVIS, - - - - - University Carpenter.

DEGREES CONFERRED.

COMMENCEMENT, 1885.

BACHELOR OF ARTS.

Carrie Ella Baker,
Charles Ilsley Brigham,
George Lincoln Bunn,
Lawrence Peterson Conover,
Henry Church Hullinger,
Anna Burr Moseley,
Charles Fremont Niles,
Frederic Augustus Pike, Jr.

BACHELOR OF LETTERS.

Charles Levi Allen,
Ethel Bushnell,
Grace Clark,
John C. Eaver,
John L. Erdall,
Emma Goddard,
James Merrill Hutchinson,
Albert H. Long,
Thomas Emmet Lyons,
Mary Parkinson,
Bertha Staples Pitman,
Benjamin Stewart Smith,
Edith Ballinger Updegraff,
Albert Williams,
Alice Lucretia Williams,
Harry Worthington.

BACHELOR OF SCIENCE.

Asa Gilbert Briggs,
Charles David Fenelon,
John Comstock Gaveney,
Charles W. Gilman,
Elmer Dickson Matts,
Elmer Hiram Parker,
Rose Eugenie Schuster,
Albert Leopold Parman,
Hugh Fred Schunck,
Mina Stone,
Byrd McKee Vaughan,
Joseph Whitford Vernon,
Elizabeth Agnes Waters.

BACHELOR OF CIVIL ENGINEERING.

George Willard Baldwin,
Patrick Henry Connolly,
Frank Wilber Holt,
Charles Lewis Ostenfeldt,
Albert Leopold Parman,
Corydon Tyler Purdy.

BACHELOR OF METALLURGICAL ENGINEERING.

Howard Burton Smith,
Nels Marcus Thygeson.

BACHELOR OF MECHANICAL ENGINEERING.

Charles Isaac Earll,
August Lindemann,
George Edward Waldo,
Charles Marshall Wales,
William Henry Wasweyler.

BACHELOR OF AGRICULTURE.

Louis Herman Pammel.

GRADUATE IN PHARMACY.

Frederick Hurlbut Gadsby,
William Julius Huck,
Oscar August Kropf,
Manford Weston McMilian,
Edwin Naffz,
Henry Fletcher Roberts,
Henry Gottlieb Ruenzel,
Frank Augustus Scheuber.

BACHELOR OF LAW.

Jesse W. Boyce,
Peleg Briggs Clark,
Christian Doerfler,
James Elsworth Durgin,
Leander Frank Frisby, Jr.,
Herman Grotophorst,
Orra Lucas Hollister,
Mrs. Belle Case La Follette,
Thomas James Macmurray,
Edmund George McGilton,
Timothy Edward Ryan,
John Scanlan,
Arthur Wilfred Shelton,
Howard L. Smith,
Frederick M. Stephenson,
Frederick Augustus Teall,
Louis Harvey Towne,
George Henry Wahl,
Michael Jefferson Wallrich.

SECOND DEGREES.

(On examination and presentation of thesis.)

MASTER OF ARTS.

A. C. Umbreit, A. B.—In Greek.

MASTER OF LETTERS.

Alice M. Lamb, B. L.—In Astronomy.

MASTER OF SCIENCE.

L. M. Hoskins, B. S.—In Mathematics.

CIVIL ENGINEER.

C. G. Carpenter, B. C. E.

METALLURGICAL ENGINEER.

O. J. Frost, B. Met. E.

MECHANICAL ENGINEER.

C. M. Conradson, B. Mech. E.

HONORARY DEGREES.

DOCTOR OF LAWS.

William F. Vilas, A. M., LL. B.

BACHELOR OF ARTS.

Professor Rasmus B. Anderson.

HONORS.

COMMENCEMENT, 1885.

OF THE FIRST GRADE.

Charles Ilsley Brigham, College of Letters.
Grace Clark, College of Letters.

OF THE SECOND GRADE.

John L. Erdall, College of Letters.
Anna Burr Moseley, College of Letters.
Albert Leopold Parman, College of Arts.
Frederic A. Pike, Jr., College of Letters.
Bertha Staples Pitman, College of Letters.
Corydon Tyler Purdy, College of Arts.
Rose Eugenie Schuster, College of Arts.
Nels M. Thygeson, College of Arts.
George Edward Waldo, College of Arts.

IN SPECIAL STUDIES.

Grace Clark, French.
Henry Church Hullinger, English Literature.
James Merrill Hutchinson, French.
Louis H. Pammell, Botany.
Albert Leopold Parman, Mathematics.
Frederic A. Pike, Jr., French.
Bertha Staples Pitman, German.
Alice Lucretia Williams, German.

GRADUATES.

Number of University Graduates, 1854–1885,	1150
Ancient Classical Course,	224
Modern Classical Course,	126
General Science Course,	298
Normal Course, 1865–67,	25
Technical Courses,	72
Law School,	394
Pharmacy,	11

UNIVERSITY STUDENTS.

RESIDENT GRADUATES.

Lucy Maria Gay, B. L.,	Madison,	615 University Ave.
John Allen Hancock, B. S.,	Madison,	207 W. Gilman St.
Horace Gibson, Ph. B.,	Madison,	932 W. Johnson St.
Anna Burr Moseley, A. B.,	Madison,	120 Langdon St.
Fritz Wilhelm August Woll, Ph. B.,	La Crosse,	543 State St. —5

SENIOR CLASS.

ANCIENT CLASSICAL COURSE.

Clarence Heckman Bennett,	Portage,	772 Langdon St.
Sarah Wells Gallett,	Portage,	Ladies' Hall.
Florence Tyng Griswold,	Columbus,	540 State St.
William Henry Hallam,	Dodgeville,	610 Langdon St.
Frederick Nathaniel Hooker,	Milwaukee,	Chi Psi House.
John Monroe Parkinson,	Madison,	803 State St.
Lynn Spencer Pease,	Montello,	505 Langdon St.
Henry Sprague Shedd,	Whitewater,	512 Wisconsin Ave.
Wilber Stuart Tupper,	Evansville,	223 W. Gilman St. —9

MODERN CLASSICAL COURSE.

Louis Royal Anderson,	Stevens Point,	535 State St.
William Elmer Bainbridge,	Mifflin,	420 Murray St.
Elsie Lois Bristol,	Middleton,	15 E. Dayton St.
Mary Frances Connor,	Token Creek,	238 W. Gilman St.
Millie C. Forsythe,	Oconomowoc,	Ladies' Hall.
George Carpenter Main,	Madison,	518 Wisconsin Ave.
Carrie Emma Morgan,	Appleton,	Ladies' Hall.
Emma Ennever Nunns,	Madison,	20 W. Mifflin St.
George Sumner Parker,	Janesville,	427 Murray St.
Estella Dorinda Prentice,	Evansville,	Ladies' Hall.
Henry Harvoleau Roser,	Madison,	241 W. Gilman St.
Ella Spaulding,	Black River Falls,	Ladies' Hall. —12

GENERAL SCIENCE COURSE.

Fremont Elmer Chandler,	Waupaca,	713 State St.
Clara May Chrisler,	Madison,	543 State St.
Samuel Anson Connell,	Menomonee Falls,	428 Lake St.
Julius Hortvet,	Baraboo,	815 Park St.
Kate McDonald,	Trempealeau,	803 State St.
Hannah Adella Nelson,	Collins,	531 State St.

Sarah Elizabeth Nelson,	Collins,	531 State St.	
Otto John Schuster,	Middleton,	420 Murray St.	
Clarence Elmer Ward,	Mazomanie,	707 State St.	
Frederic Robert Weber,	Cedarburg,	424 Lake St.	—10

AGRICULTURAL COURSE.

Charles Lewis Beach,	Whitewater,	428 Lake St.	
Edwin Horatio Park,	Dodge's Corners,	712 State St.	—2

CIVIL ENGINEERING COURSE.

William Henry Adamson,	Madison,	615 State St.	
George William Brown,	Madison,	Washburn Obs.	—2

MECHANICAL ENGINEERING COURSE.

Franklin Garfield Hobart,	Oak Creek,	604 State St.	
Robert Closon Spencer,	Milwaukee,	134 E. Johnson St.	
Frank White,	Sparta,	610 Francis St.	
Edward Otto Zwietusch,	Milwaukee,	713 State St.	—4
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JUNIOR CLASS.

ANCIENT CLASSICAL COURSE.

Alice Butterfield,	Madison,	13 E. Gorham St.	
Oscar Hallam,	Dodgeville,	610 Langdon St.	
Cornelius Hill,	De Forest,	101 S. Canal St.	
Charles Marcius Morris,	Madison,	240 Langdon St.	
Edward William Schmidt,	Madison,	Lutheran Seminary.	
Robertus Francesco Troy,	Madison,	1228 Spring St.	
Ambrose Paré Winston,	Forreston, Ill.,	424 Lake St.	—7

MODERN CLASSICAL COURSE.

*Katharine Allen,	Madison,	228 Langdon St.	
Ada May Brown,	Stevens Point,	Ladies' Hall.	
Katherine Coyne,	Madison,	716 Langdon St.	
Edward Foote Dwight,	Brooklyn,	401 W. Gilman St.	
Oscar Henry Ecke,	Stevens Point,	420 Murray St.	
Imogene Frances Hand,	Racine,	Ladies' Hall.	
Ida Estelle Johnson,	Madison,	316 Wisconsin Ave.	
Robert Kolliner,	Madison,	315 Park St.	
Flora Lucretia Lawson,	Madison,	716 University Ave.	
John Elbert McConnell,	West Salem,	414 Lake St.	
*Charles Edward Nichols,	Lodi,	428 Lake St.	
Edward Marcellus Platt,	Manitowoc,	640 State St.	
Robert Mark Richmond,	Madison,	420 W. Wilson St.	
Juliet Claire Thorp,	Madison,	427 N. Butler St.	
Laurel Elmer Youmans,	Mukwonago,	505 Langdon St.	—15

*Six years' course.

GENERAL SCIENCE COURSE.

Harry Elmer Briggs,	Madison,	21 W. Clymer St.	
Richard Keller,	Sauk City,	416 Francis St.	
John P. Munson,	Madison,	416 Francis St.	
Peter Juul Noer,	Sand Creek,	420 Murray St.	
Claude Valentine Seeber,	Waterloo,	139 S. Butler St.	
William Willis Strickland,	Ellsworth,	626 Langdon St.	
Arthur Edwin Thomas,	Dodge's Corners,	630 Francis St.	
Frederick William Winter,	Tomah,	420 Murray St.	
George Franklin Witter, Jr.,	Grand Rapids,	535 State St.	—9

CIVIL ENGINEERING COURSE.

John Jay Ellis,	Evansville,	435 State St.	—1

MECHANICAL ENGINEERING COURSE.

Frank Ellis Bamford,	Milwaukee,	519 Langdon St.	
William Richard O'Neill,	Milwaukee,	712 State St.	
William Richard Rosenstengel,	Madison,	435 Lake St.	
Arthur Jackson West,	Milwaukee,	Chi Psi House.	—4

METALLURGICAL COURSE.

Walter Camp Parmley,	Hebron, Neb.,	929 University Ave.	
James Robert Thompson,	Racine,	414 Lake St.	—2
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SOPHOMORE CLASS.

ANCIENT CLASSICAL COURSE.

George Bollinger,	Sharon,	817 W. Johnson St.	
Kirke Lionel Cowdery,	Elkhorn,	816 University Ave.	
Louise Marion McMynn,	Racine,	811 State St.	
Nat Robinson,	Neenah,	610 Langdon St.	
Bertha Vernon Stiles,	Ottumwa, Ia.,	420 Carroll St.	—5

MODERN CLASSICAL COURSE.

Jessie Martha Cole,	Sheboygan Falls,	Ladies' Hall.	
Mollie Bertrand Conklin,	Madison,	310 Brooks St.	
De Witt Smith Clark,	Eau Claire,	519 Langdon St.	
Fannie Farnsworth,	Sheboygan Falls,	Ladies' Hall.	
Emory Richard Johnson,	Waupun,	713 State St.	
Dennis Thomas Keeley,	Fox Lake,	213 Brooks St.	
Frederick William Kelly,	Milwaukee,	620 Francis St.	
Hattie Trayne Remington,	Baraboo,	647 Francis St.	
Mame Benton Sarles,	Sparta,	Ladies' Hall.	—9

GENERAL SCIENCE COURSE.

James Sylvester Bacon,	Watertown,	213 Murray St.
Fredolin Beglinger,	Oshkosh,	707 State St.
William Edward Black,	Gotham,	428 Lake St.
Joseph Colt Bloodgood,	Milwaukee,	134 E. Johnson St.
Will Wilder Cutler,	Rolling Prairie,	432 Francis St.

Frank Erastus Doty,	Burke,	21 W. Clymer St.
Emma Varian Drinker,	Kilbourn City,	Ladies' Hall.
Clinton Fulton,	Hudson,	610 Langdon St.
Ferdinand August Geiger,	Madison,	512 Lake St.
James Goldsworthy,	Mineral Point,	435 State St.
John Clement Jamieson,	Poynette,	238 E. Gilman St.
Edward Thomas Johnson,	Amherst,	932 W. Johnson St.
John Furman Lamont,	Unity,	1035 University Ave.
Helene Merk,	Sauk City,	Ladies' Hall.
Lawrence Murphy,	Bluff Station,	340 W. Mifflin St.
John Samuel Roeseler,	Lomira,	416 Francis St.
Harry Luman Russell,	Poynette,	531 State St.
Lucius Melander Squire,	Poynette,	531 State St.
Lyman Grover Wheeler,	Milwaukee,	153 W. Gorham St.
*Florence Fern Wilson,	Madison,	816 University Ave.

—20

CIVIL ENGINEERING COURSE.

Erik Theodore Eriksen,	Waukau,	932 W. Johnson St.
Walter Alexander Rogers,	Wauwatosa,	810 University Ave.
John Lane Van Ornum,	Racine,	153 W. Gorham St. —3

MECHANICAL ENGINEERING COURSE.

Charles Philip Bossert,	Milwaukee,	414 Lake St.
Lemuel Morris Hancock,	Madison,	207 W. Gilman St.
Otto Guido Robert Hohnbach Jr.,	Milwaukee,	312 W. Clymer St. —3

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FRESHMAN CLASS.

ANCIENT CLASSICAL COURSE.

Lillie Dale Baker,	Madison,	1200 University Ave.
John Henry Bowman,	Madison,	29 E. Wilson St.
Robert Curtis Brown,	Milwaukee,	525 Langdon St.
Wardon Allan Curtis,	Madison,	537 State St.
James Bremer Kerr,	Madison,	140 Langdon St.
Annie A. Nunns,	Madison,	20 W. Mifflin St.
Frederick Harvey Whitton,	Madison,	638 Langdon St. —7

MODERN CLASSICAL COURSE.

Ruth Annie Christie,	Baraboo,	Ladies' Hall.
Mary Lucy Clark,	Waterloo,	Ladies' Hall.
Margaret Fillmore,	Milwaukee,	Ladies' Hall.
Sarah Belle Flesh,	Piqua, Ohio.	Ladies' Hall.
Jessie Goddard,	Monroe,	Ladies' Hall.
Ada Eugenie Griswold,	Columbus,	540 State St.
Lucien Mason Hanks,	Madison,	216 Langdon St.
Orie Elizabeth Huntington,	Baraboo,	1305 Spring St.
George Thomas Simpson,	Winona, Minn.,	314 Langdon St.
Jacob J. Schindler,	Monroe,	21 S. Broom St.

* Six years' course.

Nellie Smith,	Janesville,	707 State St.
Winfield Robert Smith,	Milwaukee,	626 Langdon St.
Frederick William Stearns,	Madison,	512 Wisconsin Ave.
Sue Tullis,	Madison,	210 N. Hamilton St.
Ernest N. Warner,	Windsor,	140 E. Gorham St.
Eva Clara Week,	Stevens Point,	Ladies' Hall. —16

GENERAL SCIENCE COURSE.

William Isaac Anderson,	Madison,	315 N. Henry St.
John Irving Babcock,	Edgerton,	405 W. Wash'ton Ave.
Anna Belle Beckler,	Sparta,	1015 University Ave.
Jessie Morey Bell,	Clinton,	12 N. Fairchild St.
Albert Ellsworth Buckmaster,	Fayette,	416 Murray St.
John Marshall Bunn,	Madison,	104 Langdon St.
George Ambrose Byrne,	Hazel Green,	817 W. Johnson St.
William Charles Chesebro,	Bellville,	539 State St.
George Champlin Cornue,	Lake Geneva,	428 Lake St.
Sumner Macomber Curtis,	Madison,	16 W. Gorham St.
Joseph Henry Dockery,	Milwaukee,	640 State St.
Fred Ellsworth Dodge,	Chenoa, Ill.,	604 State St.
Lewis Augustus Dunham,	De Pere,	423 N. Carroll St.
Nathaniel Bailey Eldred,	Wausau,	511 Francis St.
Joseph Frank Geiger,	Madison,	512 Lake St.
Alice Goldenberger,	Madison,	801 University Ave.
Cornelius Allen Harper,	Madison,	923 E. Gorham St.
Mildred Lewis Harper,	Madison,	923 E. Gorham St.
Florian Joseph Harriman,	Appleton,	811 W. Johnson St.
Junius Wilkinson Hill,	Richland Center,	403 W. Mifflin St.
Emeline Hoffman,	Watertown,	772 Langdon St.
Solomon Perkins Huntington,	Baraboo,	1305 Spring St.
Edward Buel Hutchinson,	Madison,	16 E. Wilson St.
Charles Francis Joyce,	De Pere,	622 Francis St.
Catherine Margaret Krech,	Portage,	Ladies' Hall.
William Mason Langdon,	Baraboo,	1015 University Ave.
Elizabeth Daisy Laurie,	Sturgeon Bay,	Ladies' Hall.
Edward Wallace Lawton,	De Pere,	423 N. Carroll St.
William Sumner Libby,	New Richmond,	527 State St.
Fannie Irene McIlhon,	Mineral Point,	1015 University Ave.
Robert Emanuel Mennet,	Port Edwards,	523 Lake St.
Edgar S. Nethercut,	Lake Geneva,	428 Lake St.
Monroe Horace Palmer,	West Salem,	831 State St.
Arthur Parsons,	Dodgeville,	701 University Ave.
William Everette Persons,	Nicollet,	622 Francis St.
Lawrence Frederick J. Pingel,	Appleton,	811 W. Johnson St.
William Gray Potter,	Milwaukee,	311 N. Henry St.
Annie Maria Ruch,	Boltonville,	1015 University Ave.
Myrtie May Rundlett,	Watertown,	1228 Spring St.
Henry Charles Schaeffer,	Appleton,	811 W. Johnson St.
Nettie Luella Smith,	Sun Prairie,	Ladies' Hall.

Helen Steensland,	Madison,	Ladies' Hall.
John Stephens, Jr.,	Neenah,	626 Langdon St.
Arthur Nelson Taylor,	Edgerton,	405 W. Washingt'n Av.
Fred. Page Tibbits,	Grand Rapids,	523 Lake St.
Charles Stephen Tilden,	Elm Grove,	630 Langdon St.
Rodney Howard True,	Baraboo,	1015 University Ave.
Lou Tyner,	Madison,	433 Lake St.
Peter Henry Urness,	Mondovi,	620 State St.
Samuel David Vernon,	Madison,	522 State St.
Emma Asenath Ward,	Mazomanie,	Ladies' Hall.
Frank Lincoln Ware,	Waukesha,	604 State St.
William James West,	Dodgeville,	626 Langdon St.
Max Whitney,	Centralia,	523 Lake St.
Frank Stover Winger,	Freeport, Ill.,	620 Francis St.
Carrie Eliza Woolston,	Clinton,	12 Fairchild St.
Harvey Baker Zartman,	Freeport, Ill.,	620 Francis St. —57

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SPECIAL STUDENTS.

Kate Bach,	Milwaukee,	Ladies' Hall.
Fannie Warfield Ball,	Madison,	4 W. Johnson St.
George Leon Bancroft,	Madison,	124 W. Gilman St.
Julia Cora Bennett,	La Crosse,	Ladies' Hall
Archie Pierce Bigelow,	Hebron, Neb.,	929 University Ave.
Lewis Frank Blatz,	Milwaukee,	414 Lake St.
George Walker Bliss,	Antigo,	932 W. Johnson St.
*Frank Wright Blodgett,	Milwaukee,	529 Langdon St.
Jay Blount,	Byron, Ill.,	626 Langdon St.
Ralph Earl Blount,	Byron, Ill.,	626 Langdon St.
Eleanor Burdick,	Edgerton,	Ladies' Hall.
Hosea Edwin Case,	Lancaster,	241 W. Gilman St.
Cora Rosalie Clemens,	Janesville,	707 State St.
Emma Salena Clements,	Lodi,	Ladies' Hall.
Augusta Jeannette Comly,	Madison,	429 W. Wilson St.
John Francis Connor,	Token Creek,	238 W. Gilman St.
Frederick Elisha Dagget,	Oshkosh,	248 W. Gilman St.
Alfred P. DeLaney,	Whitewater,	512 Wisconsin Ave.
Daniel Justin Donahoe,	Columbus,	446 W. Gilman St.
James H. Feeney,	Marshall,	817 W. Johnson St.
Frederick Cecil Finkle,	Viroqua,	152 E. Gorham St.
Cora Annette Gibson,	Madison,	932 W. Johnson St.
Hiram Charles Gill,	Madison,	222 W. Gilman St.
John Dean Goss,	Hudson,	14 E. Dayton St.
Ludwig Hulsether,	Utica,	727 W. Gilman St.
James William Hutchinson,	Randolph,	432 Lake St.
Mabel Marion Ingraham,	Madison,	502 N. Henry St.
Lars Henry Johnson,	Darlington,	413 Lake St.
George W. Joyce,	Appleton,	621 Francis St.

* Engineering.

Willie Elmar Lamont,	Vienna,	432 Lake St.
Robert Marquedt Lamp,	Madison,	744 E. Johnson St.
William Taggart Lathrop,	Rockford, Ill.,	626 Langdon St.
Harry David Latimer,	Delavan,	717 State St.
Augusta Adrienne Lee,	Cambridge,	704 E. Gorham St.
Arthur Tennyson Leith,	Madison,	129 E. Gorham St.
Benjamin Levy,	Eau Claire,	515 Lake St.
Sherman T. Lewis,	Vienna,	527 State St.
Helen Eugenia Martin,	Elkhorn,	803 State St.
Elizabeth McDonald,	Lodi,	Ladies' Hall.
Isabella McIntosh,	Edgerton,	1140 E. Dayton St.
Edward Christopher Meland,	Keyeser,	101 E. Canal St.
Sherman Mereness,	Sharon,	817 W. Johnson St.
Norman Vilas Morse,	Manitowoc,	523 Lake St.
Flora Carlena Moseley,	Madison,	120 Langdon St.
Olaf Noer,	Sand Creek,	416 Francis St.
Edward Joseph Orr,	Brodhead,	416 Murray St.
Etta May Parmeter,	Stevens Point,	Ladies' Hall.
William Joseph Quale,	Mukwonago,	527 State St.
Arthur William Richter,	Manitowoc,	311 N. Henry St.
Elise Roll,	Sauk City,	Ladies' Hall.
Eugene Cooper Rowley,	Madison,	11 E. Gilman St.
Edward Hurlson Schreiner,	Lancaster,	519 Lake St.
Byron D. Shear,	Hillsboro,	715 University Ave.
Ella May Stewart,	Peoria, Ill.,	772 Langdon St.
Annie Hepworth Storer,	Madison,	104 E. Gilman St.
Lizzie Tinker,	Clinton,	Ladies' Hall.
Kittie Mayta Troy,	Madison,	1228 Spring St.
Mary Vernon,	Madison,	522 State St.
Sarah Vernon,	Madison,	522 State St.
Flora Wood Waldo,	Manitowoc,	Ladies' Hall.
Charles Edward Ware,	Waukesha,	604 State St.
Kate Julia Whiting,	Topeka, Kan.,	Ladies' Hall.
Luther Reuben Williamson,	Fox Lake,	932 W. Johns'n St.—63
John J. Bach,	Milwaukee,	707 State St.
Carl M. Beebe,	Sparta,	810 University Ave.
*Samuel Leslie Brown,	Richland Center,	403 W. Mifflin St.
John Austin Bruce,	Madison,	311 E. Mifflin St.
William Silas Buckley,	Black Hawk,	416 Francis St.
Leora Melissa Chase,	Sioux City, Ia.,	Ladies' Hall.
Henry Cummings,	Platteville,	315 Park St.
Alfred Edwin Diment,	Madison,	1224 Spring St.
Fannie Newcomb Field,	Oneida, N. Y.,	Ladies' Hall.
Frank Paul Friday,	Hartford,	248 W. Gilman St.
John Huston Gabriel,	Stewart,	21 S. Broom St.
Maud Gernon,	Madison,	116 W. Johnson St.
Howard Greene,	Milwaukee,	Chi Psi House.

* Engineering.

Samuel Frank Grubb,	Baraboo,	315 Park St.
Cora Inez Hancock,	Columbus,	Mr. Brown's.
Harold Harris,	Madison,	817 University Ave.
John Dudley Hullinger, Jr.,	Madison,	816 University Ave.
Andrew James Hogan,	Wonewoc,	424 Lake St.
Lansil Winfield Jacobs,	Madison,	438 Francis St.
Mary Eliza Knox,	Merrill,	Ladies' Hall.
Zerlina Knox,	Merrill,	Ladies' Hall.
William Ernst Kramer,	Milwaukee,	Chi Psi House.
Sophie Maie Lewis,	Madison,	209 E. Mifflin St.
*Warren Lucas,	Menominee,	416 Murray St.
Herman Fred Lüders,	Sauk City,	416 Francis St.
William Stanley McCorkle,	Twin Bluffs,	817 W. Johnson St.
Patrick Henry McGovern,	Elkhart,	632 University Ave.
Fred Phelps Meyer,	Lancaster,	640 State St.
John Lawrence Millard,	Markesan,	626 Langdon St.
Gideon Ellis Newman, Jr.,	Cooksville,	401 W. Gilman St.
Mary Johnson Newman,	Trempealeau,	Ladies' Hall.
James O'Leary,	Madison,	417 State St.
Anna Gertrude Palfrey,	Waukau,	604 State St.
Frank Bain Phelps,	Janesville,	707 State St.
Thomas A. Polleys,	Centreville,	420 Murray St.
Sherman Grant Potter,	Wautoma,	522 State St.
Alexander Hamilton Reid,	Alderley,	231 W. Gilman St.
Joseph Rice,	Hillsborough,	231 W. Gilman St.
Gilbert Ernstein Roe,	Oregon,	701 University Ave.
Albert David Rundle,	Madison,	121 S. Hamilton St.
James Darius Ryder,	Waterloo,	344 W. Main St.
Mary Rebecca Saxe,	Whitewater,	811 State St.
*Albert Theodore Schroeder,	Redfield, D. T.,	519 Lake St.
Israel Shrimski,	Hudson,	626 Langdon St.
Arthur Parks Silliman,	Hudson,	626 Langdon St.
Bertram Welton Sippy,	Richland Center,	817 W. Johnson St.
Henry George Smieding,	Racine,	213 Brooks St.
Horace Jordan Smith,	De Pere,	620 Francis St.
Mary Emma Spaulding,	Black River Falls,	Ladies' Hall.
David Ellsworth Spencer,	Madison,	215 N. Carroll St.
Annie Case Stewart,	Madison,	2 N. Butler St.
Herbert Frank Stone,	Madison,	221 Wisconsin Ave.
*Edward Daniel Swinburne,	Milwaukee,	526 Langdon St.
Mary Sylvia Tenney,	Madison,	126 Langdon St.
Ambrose Burnside Winegar,	Clinton,	519 Langdon St.
*Platt Luther Wise,	Madison,	609 State St. —56

DEPARTMENT OF PHARMACY.

SENIOR CLASS.

Louis Alexander Bauman,	Racine,	713 State St.
Joseph Trevartin Bennett,	Dodgeville,	113 E. Gorham St.

*Engineering.

Benjamin Farrar Carter,	Madison,	223 Wisconsin Ave.
Charles Sumner De Lano,	Ripon,	416 Murray St.
Frank Henry Fischedick,	Milwaukee,	101 S. Carroll St.
William Henry Hammersley, Jr.,	Lake Geneva,	328 W. Main St,
Edward Kremers,	Milwaukee,	207 W. Gilman St.
Adolph Frederick Menges,	Madison,	203 N. Pinckney St.
David Willard North,	Busseyville,	21 N. Pinckney St.
Frederick Oal Ray,	Lake Mills,	213 Murray St.
Frank Augustus Rhyme,	Lake Geneva,	328 W. Main St.
Clifton Olmsted Smith,	Beloit,	511 Francis St.
Emil Weschcke,	New Ulm, Minn.,	204 Murray St. —13

JUNIOR CLASS.

Julius Andrae,	Milwaukee,	248 W. Gilman St.
Frank Andre,	Berlin,	444 W. Gilman St.
Herman Christian Arfert,	Oshkosh,	632 University Ave.
William Hubert Arne,	Delavan,	14 E. Dayton St.
Charles Henry Babcock,	Little Prairie,	511 Francis St.
Elbert Leonard Babcock,	Milwaukee,	525 Langdon St.
Mary Evelyn Baldwin,	Weyauwega,	215 N. Carroll St.
Otto Amo Bierbach,	Milwaukee,	711 Rutledge St.
Charles Adolph Boehme, Jr.,	Alma,	831 State St.
Charles Alonzo Calkins,	Camp Douglas,	314 Langdon St.
William Emil Durr,	Milwaukee,	626 Langdon St.
Albert Ellsworth, Jr.,	Escanaba, Mich.,	413 Lake St.
Charles Andrew Erdmann,	Milwaukee,	207 W. Gilman St.
John Finnegan,	Escanaba, Mich.,	413 Lake St.
William Deming Fitch,	Madison,	731 State St.
Harry Harper Fesler Fredrick,	Augusta,	135 E. Wilson St.
Cassius Clay Griffin,	Waseca, Minn.,	626 Langdon St.
Julius Conrad Knoni,	Sauk City,	444 W. Gilman St.
Albert Edward Mieding,	Bay View,	248 W. Gilman St.
William Adolph Pfeiffer,	Neenah,	523 Lake St.
Charles Henry Rex,	Hustisford,	248 W. Gilman St.
Albert Andrew Staudenrans,	Oshkosh,	632 University Ave.
Frederick William Stecher,	Oshkosh,	632 University Ave.
Charles Adam Stilcke,	Milwaukee,	248 W. Gilman St.
Henry Weimar,	Appleton,	632 University Ave.
Grace Whiting,	Topeka, Kansas,	Ladies' Hall.
Charles Robert Williams,	De Pere,	611 Francis St. —27

DEPARTMENT OF LAW.

SENIOR CLASS.

Ellsworth Burnett Belden,	Milwaukee,	Chi Psi House.
Le Roy Leveret Bacchus,	Sturgeon Bay,	527 State St.
Harry Isaac Brown,	Salem,	230 W. Gilman St.
Edward J. Dockery,	Madison,	640 State St.
William Stanley Dwinnell,	Madison,	640 State St.

Jesse Southwick Field,	Prescott,	133 E. Johnson St.
Charles W. Gilman,	Gilmanton,	401 W. Gilman St.
Joseph Matthew Hawthorne,	Madison,	630 Langdon St.
Edward Harris Hooker,	Milwaukee,	624 Williamson St.
William Jacobs, Jr.,	Madison,	142 E. Gilman St.
Charles Fred Kaempfer,	Racine,	13 W. Clymer St.
John T. Kingston, Jr.,	Necedah,	640 State St.
Edward Lees,	Alma,	311 N. Henry.
Albert Bascom May,	Viroqua,	241 W. Gilman St.
Elmer Dickson Matts,	Paoli,	401 W. Gilman St.
Stephen Martindale, Jr.,	La Crosse,	20 E. Mifflin St.
Thomas Lauchlan McIntosh,	Reedsburg,	630 Langdon St.
Carroll Albert Nye,	River Falls,	204 Wisconsin Ave.
James Crumbaker Officer,	Madison,	114 W. Johnson St.
Levi James Perrin,	Escanaba, Mich.,	13 W. Clymer St.
Frank Leon Perrin,	Hudson,	204 Wisconsin Ave.
Charles Bennett Perry,	Madison,	20 E. Mifflin St.
John D. Rowland,	Racine,	640 State St.
Carl Runge,	Milwaukee,	101 S. Carroll St.
Olav R. Skaar,	Viroqua,	543 State St.
Henry Paxon Stoddart,	Madison,	206 State St.
Thomas Henry Synon,	Madison,	114 E. Dayton St.
William Tillotson,	Madison,	108 N. Hancock St.
Grant Thomas,	Fox Lake,	23 N. Webster St.
James Trottman,	Cedarburg,	640 State St.
George Henry Vernon,	Middleton,	522 State St.
Henry Arthur Wambold,	Burlington,	101 S. Carroll St.
James Wickham,	Hub City,	340 W. Mifflin St. —33

JUNIOR CLASS.

John Peter Anderson,	Perry,	458 W. Gilman St.
Clarence Dewin Allen,	Spr. Valley, Minn.,	432 Lake St.
William Wright Armstrong,	Irving, Kan.,	311 N. Henry St.
William Biltcliffe,	Madison,	153 W. Gorham St.
Edward Eugene Burns,	Jamestown,	241 W. Gilman St.
Marion Elsworth Bixler,	Mount Morris, Ill.,	340 W. Mifflin St.
Richard West Comly,	Madison,	429 W. Wilson St.
Lawrence Peterson Conover,	Madison,	502 W. Gilman St.
Romaine Elliot Davis,	Madison,	542 W. Clymer St.
John L. Erdall,	Madison,	107 S. Canal St.
Charles Joseph Farmer,	Spr. Valley, Minn.,	432 Lake St.
Oscar Augustus Fechter,	Manitowoc,	101 S. Carroll St.
Simeon Mills Hayes,	Madison,	222 Monona Ave.
John Harrington,	Bear Creek,	401 W. Gilman St.
Burns Hoverson,	Stoughton,	523 Lake St.
Hiram A. Kingsley,	Madison,	330 W. Main St.
Francis Edward Madigan,	Fox Lake,	458 W. Gilman St.
Harry Leonard Moseley,	Madison,	120 Langdon St.
Francis Daniel McMahon,	Elm Grove,	432 Francis St.

Frank Olin Osborn,	Madison,	30 E. Miffin St.
William Andrew Peterson,	Elkhorn,	328 W. Main St.
Leslie Llewellyn Porter,	Portage,	401 W. Gilman St.
Charles Henry Schweizer,	Prairie du Chien,	311 N. Henry St.
Jared Dewey Taylor,	Madison,	321 S. Hamilton St.
Nels Marcus Thygeson,	Martelle,	817 Univ. Ave.
Frederick Julius Walthers,	Milwaukee,	17 S. Fairchild St.
Joseph Albert Williams,	Hazel Green,	13 W. Clymer St. —27

GREEK CLASS.

Elbert Leonard Babcock,	Milwaukee,	525 Langdon St.
Cora Rosalie Clemens,	Janesville,	707 State St.
Emma Salena Clements,	Lodi,	Ladies' Hall.
William Emil Durr,	Milwaukee,	626 Langdon St.
Frederick Cecil Finkle,	Viroqua,	152 E. Gorham St.
William Taggart Lathrop,	Rockford, Ill.,	626 Langdon St.
Flora Carlena Moseley,	Madison,	120 Langdon St. —7

Students present during part of 1884–85, entering after the issue of the catalogue of that year:

William Warren Bartlett	Eau Claire.
Charles De Lano	Ripon.
Emma Louisa Hansen	Brodhead.
Mary Eliza Knox	Merrill.
Zerlina Knox	Merrill.
John Thorbjön Langerno	Eidsvold, Minn.
Adam Barr Miller	Viroqua.
James O'Leary	Randolph.
August John Olson	Madison.
John William O'Neill	Milwaukee.
Sherman Grant Potter	Wautoma.
John Samuel Roeseler	Lomira.
Peter Lawrence Scanlan	Mount Hope.
Patrick William Scanlan	Mount Hope.
George William Schuster	Fountain City.
Mary Emma Spaulding	Black River Falls.
Olof T. A. Stub	Madison.
Mary B. Treadwell	Sheboygan Falls.

SUMMARY OF STUDENTS.

IN ATTENDANCE AT THE OPENING OF THE FALL TERM, 1885.

Resident Graduates,		5
Senior Class—		
Ancient Classical Course,	9	
Modern Classical Course,	12	
General Science Course,	10	
Agricultural Course,	2	
Civil Engineering Course,	2	
Mechanical Engineering Course,	4	
	—	39
Junior Class—		
Ancient Classical Course,	7	
Modern Classical Course,	15	
General Science Course,	9	
Civil Engineering Course,	1	
Mechanical Engineering Course,	4	
Metallurgical Engineering Course,	2	
	—	38
Sophomore Class—		
Ancient Classical Course,	5	
Modern Classical Course,	9	
General Science Course,	20	
Civil Engineering Course,	3	
Mechanical Engineering Course,	3	
	—	40
Freshman Class—		
Ancient Classical Course,	7	
Modern Classical Course,	16	
General Science Course,	57	
	—	80
Special Students,		119
Pharmacy—		
Senior class,	13	
Junior class,	27	
	—	40
Law—		
Senior class,	33	
Junior class,	27	
	—	60
*Preparatory Greek class, 7.		
Total,		421
Students not in Catalogue of 1884–85,	18	

*Also enumerated as Special Students.

COLLEGES OF ARTS AND LETTERS.

The courses of study in these colleges are arranged in accordance with the law of 1878, quoted on page 5 of this catalogue.

The College of Arts includes the General Science Course, and the Special Technical Departments of Agriculture, Pharmacy, Civil Engineering, Mining Engineering and Metallurgical Engineering, and Mechanical Engineering.

The College of Letters includes the Ancient Classical Course and the Modern Classical Course.

EXAMINATION OF CANDIDATES.

The regular examination of candidates for admission will be held on Thursday and Friday, June 17 and 18, 1886. Candidates should present themselves promptly at nine o'clock of the first day. Such candidates as are unable to be present at this time can be examined on Tuesday and Wednesday, September 7 and 8; but students are urged to present themselves at the regular examination in order that, in event of failure upon any studies, they may have time to prepare themselves thoroughly upon these studies before the opening of the fall term. Otherwise they will be obliged to make up the deficiencies in the entrance examination, while crowded by the sufficiently difficult studies of the term itself.

The examinations will be held in the following order:

FIRST DAY (June 17 and September 7).

9–1.—Ancient Classical.—Greek. History of United States and England.
Modern Classical.—Latin. Ancient History and Geography.
General Science.—Arithmetic. Geography. English.

2½–5.—Ancient Classical.—Mathematics.
Modern Classical.—English. Geography.
General Science.—German. Solid Geometry.

SECOND DAY (June 18 and September 8).

9–1.—Ancient Classical.—Latin. Ancient History and Geography.
Modern Classical.—German. History of United States and England.
General Science.—History. Algebra. Plane Geometry.

2½–5.—Ancient Classical.—English. Geography.
Modern Classical.—Mathematics.
General Science.—Natural Philosophy. Physiology. Botany.

Examinations for admission will also be held on the Wednesday morning preceding the opening of the winter and spring terms.

TERMS OF ADMISSION.

All candidates for admission will be examined upon the following studies:

English — Reading, spelling, penmanship and grammar (including sentential analysis).

Mathematics — Arithmetic, algebra through quadratics, and plane geometry.

History, etc. — Civil and political geography, physical geography, history of the United States.

In addition to the above mentioned branches, candidates will be examined in the following studies:

PREPARATORY GREEK CLASS.

Latin — Grammar, large print and paradigms. Any standard grammar may be used in preparation, but the revised edition of Allen and Greenough will be required in the class.

Cæsar, four books. Cicero, two orations. Sallust, Conspiracy of Catiline. In Sallust's Conspiracy of Catiline, chapters 1 to 4 and 6 to 13 may be omitted.

Ancient History — Barnes' Brief History of Ancient Peoples, or Anderson's Ancient History, or their equivalents. Candidates will be expected to draw from memory outline maps of the principal countries of the ancient world.

Modern History — Thalheimer's History of England, or its equivalent.

FRESHMAN CLASS.

ENGLISH EXAMINATION.

All candidates for admission to the Freshman class are notified that, in addition to the usual examination in English grammar and analysis, which is required of all students on entering, and which is intended to test the pupil's knowledge of the subject rather than his familiarity with any particular text book, each applicant will be required to give a specimen of his use of the English language by writing at least two pages on a subject assigned by the professor at the hour of the examination. Each applicant in 1886 will be assigned some character or event selected from one of the following works: Shakespeare's Merchant of Venice, Longfellow's Evangeline, George Eliot's Romola.

GENERAL SCIENCE COURSE.

Natural philosophy, solid geometry, physiology, botany, German (Sheldon's Short German Course, and twenty lessons of the German Reader). The amount of Latin required for entering the Freshman class, in the classical courses, may be substituted for German.

ANCIENT CLASSICAL COURSE.

Latin — Grammar and composition. The amount of Grammar is indicated by the two largest sizes of type in Allen and Greenough's Grammar; in composition, fifty-two lessons in the revised edition of Allen's Latin Composition.

Cæsar, four books. Sallust, Conspiracy of Catiline. Cicero, six orations. Virgil, six books.

In Sallust's Conspiracy of Catiline, chapters 1 to 4 and 6 to 13 may be omitted.

The examination in Latin will be upon the following points:

1. An accurate and ready knowledge of paradigms, including the knowledge of terms and general rules of etymology.

2. The oral translation of a passage from the first book of Cæsar, with the explanation and analysis of the indirect discourse.

3. The ability to translate into English an unfamiliar passage of easy Latin without the aid of grammar or dictionary.

4. The rendering of some simple English sentences into correct Latin.

5. The examination in syntax will be in connection with Cicero's Second Oration against Catiline.

6. The examination in prosody will be in connection with the first book of Virgil's Æneid.

The candidate is required to be able to scan fluently and correctly, and give the general rules of prosody.

Latin is pronounced according to the Roman method, described on page 7 of Allen & Greenough's Grammar; *v*, however, is allowed to have its English sound.

It is recommended that the books prescribed for special examination (the first book of Cæsar, the first book of Virgil and the second oration against Catiline) be read slowly, with constant grammatical drill; the rest of the works required may be read as rapidly as is consistent with accuracy, in order to secure facility of translation and a ready and copious vocabulary.

Teachers engaged in preparing students for the University are reminded that nothing is of so vital importance as a thorough and ready knowledge of grammatical forms. Candidates often present themselves who have read the whole amount of Latin required, but who cannot inflect regular nouns and verbs. It is requested that there should be constant and continued drill upon these elements.

Greek — Three books of Xenophon's Anabasis. Two books of Homer's Iliad, and Jones' Composition.

History — Ancient history and the History of England, as for the Greek class.

MODERN CLASSICAL COURSE.

All the studies required for entering the Ancient Classical Course, except that German is substituted for Greek, and solid geometry is required.

TECHNICAL COURSES.

ENGINEERING.

The requirements for commencing any engineering course are the same as those for entering the Sophomore class of the College of Arts.

AGRICULTURE.

Long Course — The requirements for admission are the same as those of the Freshman class, General Science Course.

Short Course — See statement under Courses of Study, p. 37.

PHARMACY.

For the terms of admission to this course, see the announcement under Pharmacy in Departments of Study, p. 79.

SPECIAL STUDENTS.

Special students are those who have not yet obtained a standing in any regular course, or who, not desiring to graduate, wish to select their studies. Such students may enter at any time and take any study which they are prepared to prosecute to advantage, provided they can pass an examination in the English branches required for admission to the Freshman class, General Science Course. Any special student may, upon examination in the studies required, enter at any time into any class.

Real equivalents will be taken for any of the above requirements and for any study in any portion of the college courses. Candidates for advanced standing in any college class must, in addition to the studies above named, pass examination in those previously pursued by the class which they propose to enter, or in their equivalents. No one can be admitted to the Freshman class under the age of fifteen years, nor to an advanced standing without a proportional increase of age.

One year of Greek, Latin, French or German may be substituted for any one of these three studies: solid geometry, physiology, botany.

Young women may pursue any course or elective study in the University, and the same degree is conferred upon them as upon the young men for the satisfactory completion of any course of study.

The entrance examinations of the University are not rigid. They are intended only to assure the University that the work required of the student has been done with fair success. Conditions are allowed in two studies; that is, time is given to make them up; but this can not well be done when the remaining work is poorly done, or when the applicant knows nothing of these two studies. Those who receive catalogues should understand that the catalogue states the case correctly and finally.

HIGH SCHOOL AND NORMAL SCHOOL GRADUATES.

Any high school in the state, whose course of instruction covers the branches requisite for admission to one or more of the colleges of the University, may make application to be entered on its accredited list. On such application the University will send a professor to examine the course and methods of instruction in the school, and, on his favorable report, will enter it on the accredited high school list of the University. The graduates of high schools so entered will be received by the University into any of its courses for which they have been fitted, without further examination. This arrangement will hold good until the administration of the high school is changed, or until notice is given by the University of unsatisfactory results. The necessary expenses attending the visit of the professor will be paid by the high school. The accredited list will be published each year in this cat-

alogue. The University greatly desires a thoroughly good understanding with the high schools of the state, and hopes that this method may aid it in reaching that result.

A graduate of a State Normal School, or a student who has passed through the Freshman year of any college of good standing, may be admitted to the University as a special student without examination. Later he can apply for admission to any course and any class, and such examinations will then be assigned him as knowledge of his attainments may show to be necessary.

The certified standing of any student in the Normal Schools of this state will be accepted in the preparatory English work in place of an examination.

Those coming to the University from State Normal Schools, or from colleges, are advised to bring an authenticated record of their standing; but in all cases its value may be tested by actual examination.

Applicants for admission from other colleges must present certificates of honorable dismission. The University is open to students from other states.

HOLDERS OF STATE CERTIFICATES.

Any person holding a state certificate, limited or unlimited, in the state of Wisconsin, will be admitted to the University as a special student, without examination.

ACCREDITED HIGH SCHOOLS.

Madison High School,	W. H. Beach, Principal.
Beloit High School,	C. W. Merriman, Principal.
Monroe High School,	N. C. Twining, Principal.
Allen's Academy (Chicago, Ill.),	Ira W. Allen, Principal.
Markham's Academy (Milwaukee),	Albert Markham, Principal.
Carroll College (Waukesha),	W. L. Rankin, Principal.
Rochester Seminary,	A. J. Marshall, Principal.
La Crosse High School,	Albert Hardy, Principal.

FOR ANCIENT CLASSICAL AND GENERAL SCIENCE COURSES.

Oshkosh High School,	R. H. Halsey, Principal.

FOR MODERN CLASSICAL AND GENERAL SCIENCE COURSES.

Evansville High School,	C. C. Merriman, Principal.
Milwaukee High School,	G. W. Peckham, Principal.
Green Bay High School,	J. C. Crawford, Principal.
Beaver Dam High School,	Condé Hamlin, Principal.
Evansville Academy,	J. E. Coleman, Principal.
Appleton High School,	I. N. Stewart, Principal.
Racine High School,	A. R. Sprague, Principal.
Stevens Point High School,	F. M. Cooley, Principal.
Neenah High School,	A. J. Rote, Principal.
Berlin High School,	E. J. Wiswall, Principal.
Fort Atkinson High School,	J. Q. Emery, Principal.

Elkhorn High School,	D. D. Mayne, Principal.
Viroqua High School,	H. C. Hullinger, Principal.
Sparta High School,	F. Winter, Principal.
Tomah High School,	L. H. Clark, Principal.

FOR GENERAL SCIENCE COURSE.

Portage High School,	W. G. Clough, Principal.
Grand Rapids High School,	B. R. Goggins, Principal.
Poynette High School,	James Melville, Principal.
Baraboo High School,	C. W. Cabeen, Principal.
Wausau High School,	W. G. Witter, Principal.
Janesville High School,	C. H. Keyes, Principal.
Chippewa Falls High School,	C. W. Du Mont, Principal.

The following announcement is made by request of the School Board and Superintendent of the Madison schools:

The Madison High School fits pupils for entrance to any of the courses of the University, and branches not strictly preparatory may be omitted by any member of the school. Candidates for admission will be examined upon arithmetic, English grammar, geography, U. S. history. Special stress is laid upon the first two branches. Students are admitted to advanced classes upon examination.

Students are received and classified at any time, but it is preferred that they should present themselves at the opening of a term. Tuition is $8.00 per term, there being three terms in the year.

Students recommended for admission to the University by the principal of the school are allowed to enter without examination. For further information address Clerk of School Board, Madison, Wis.

Attention is invited to the following law of the state, giving to graduates of the University the privilege of converting their diplomas into state certificates:

SECTION 387. * * After any person has graduated at the State University, and, after such graduation, has successfully taught a public school in this state for sixteen school months, the superintendent of public instruction shall have authority to countersign the diploma of such teacher, after such examination as to moral character, learning and ability to teach, as to the said superintendent may seem proper and reasonable. Any person holding a diploma granted by the board of regents of the State University, certifying that the person holding the same is a graduate of the State University, shall, after his diploma has been countersigned by the state superintendent of public instruction as aforesaid, be deemed qualified to teach any of the public schools of this state, and such diploma shall be a certificate of such qualification until annulled by the superintendent of public instruction.

POST GRADUATE STUDIES.

Bachelors of Arts, Letters and Science may continue their studies at the University under direction of the faculty, and take the master's degree. For the terms on which this is to be obtained see the article Degrees under General Information, p. 91.

COURSES OF STUDY.

RULES FOR ELECTIONS.

I. Each student must have at least three daily exercises; an additional study may be taken when the average standing of the student is 85 or upwards.

II. No election can be changed after two weeks of the term have passed.

III. Elections must be conformed to the time-table.

IV. The sciences are taught in long and in short courses, which, so far as possible, are kept separate. In the General Science Course, at least three terms of long course work are required in chemistry, or in physics, or in astronomy; and three terms in biology, in zoology, or in botany, or in mineralogy and geology together. At least two terms of long course work must be taken during the Senior year. Sciences not taken in long courses must be studied in short courses.

By a "term's work" is meant one exercise daily for one term. Unless otherwise stated, there is one exercise daily in each study.

V. By consent of the faculty, studies in the technical courses may be substituted for studies in the general courses.

VI. Students may elect studies of other years than that to which they belong, by consent of the faculty, provided such elections be made in accordance with Rule III.

VII. Students entering the General Science Course may substitute the Latin required for entering the Modern Classical Course for the German required for entering their own course. They may also elect ancient languages in place of modern languages, provided they do so in accordance with Rule III.

VIII. Students will obtain blank election cards from their class officers, to whom the cards are to be returned. Students are advised to consult their class officers in making elections.

IX. If fewer than six persons present themselves for any elective course, the formation of the class will be left to the discretion of the faculty and the professor in charge.

X. Special students, in regard to any study which they elect, are held to the same requirements as regular students in the same study, unless special arrangement is made with the professor in charge of the department.

COLLEGE OF ARTS.

GENERAL SCIENCE COURSE.

FRESHMAN YEAR.

FIRST TERM.

Mathematics, - - - - - - Higher Algebra.
French, - Otto's Grammar and Roman d'un Jeune Homme Pauvre.
German, - - - - - - Review and Reader.

SECOND TERM.

Mathematics, - - - Algebra and Theory of Equations.
French, Joynes' French Plays and Roman d'un Jeune Homme Pauvre.
German, - - - - - - - - - Reader.

THIRD TERM.

Mathematics, - - - - - - Trigonometry.
French, Joynes' French Plays and Roman d'un Jeune Homme Pauvre.
German, - - - - - - - - - Reader.

SOPHOMORE YEAR.

FIRST TERM.

Required —
Analytical Geometry.
Rhetoric.
Elective —
Biology.
Zoology † (short course), - - - - - Twice a week.
Zoology * (long course), - - - Protozoa to Mollusca.
Botany (course 3).
Botany † (course 2).
Physiology, - - - - - - Three times a week.
Scientific German.
Advanced French and German.
Anglo-Saxon.

SECOND TERM.

Required —
Mechanics or Calculus.‡

Elective —
Biology.
Zoology (long course), - - Mollusca, Arthropoda, Tunicata.
Zoology (short course), - - - - - Twice a week.

Botany (course 2).
Botany (course 3).
Calculus or Mechanics.
Physiology, - - - - - - Three times a week.
Scientific German.
Advanced French and German.
Transitional English, - - - - Three times a week.

THIRD TERM.

Elective—
Biology.
Zoology (long course), - - - - - - Vertebrata.
Botany (course 3).
Vertebrate Anatomy,‖ - - - Pisces, Amphibia, Reptilia.
Calculus.
Scientific German.
Advanced French and German.
Early English.

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* Those electing the long course in zoology or botany must continue the study through at least two terms.

† Required of students not electing the long course. Each of these short courses is a half study. The long course in biology covers both of these short courses and also counts as a long course science. Students electing either botany or zoology in long courses must take the other science as a short course, at least, before graduation; those electing none of these sciences must take *both* of these short courses before graduation. See biology, botany, zoology, pp. 68-70.

‡ Students not taking mechanics must take calculus for two terms and analytical mechanics one term. Those electing mechanics and calculus need not take analytical mechanics.

‖ If elected, must be pursued for two terms. Must be preceded by at least one term of laboratory work in zoology. See under Zoology in Departments of Study.

JUNIOR YEAR.

FIRST TERM.

Required—
Physics.

Elective—
Chemistry* (long course), General Chemistry, Lectures and Laboratory work.
Vertebrate Anatomy, - - - - Aves, Mammalia.
Analytical Mechanics,† - - - Three hours a week.
Descriptive Geometry.
Scientific German.
Advanced French and German.
English Literature.
History.
Norse.

SECOND TERM.

Elective—
Physics (long course), - - - Electricity and Magnetism.
Chemistry (long course), General Chemistry and Qualitative Analysis.
Mineralogy,‖ Blowpipe Analysis and Crystallography, Physical Mineralogy.

Mathematics, Modern Geometry and Geometry of three dimensions.
Scientific German.
Advanced French and German.
English Literature.
History.
Norse.

THIRD TERM.

Required —
Chemistry ‡ (short course).

Elective —
Physics (long course), - - - Electrical Measurements.
Chemistry (long course), Organic Chemistry and Qualitative Analysis.
Mathematics, - - - - - - Quaternions.
Mineralogy, - - Descriptive and Determinative Mineralogy.
Scientific German.
Advanced French and German.
Constitutional Law.
English Literature.
History.
Norse.
Pedagogy.

* If elected must be followed for at least two consecutive terms.
† Must be preceded by two terms of calculus.
‡ Required only of students not electing the long course.
‖ Must be preceded by at least one term of chemistry.

SENIOR YEAR.

FIRST TERM.

Required —
Psychology.
Geology ‖ (short course), Lithology, Structural and Dynamical Geology; three times a week.

Elective —
Physics * (long course), - - - Magnetic Measurements.
Chemistry * (long course), - - - Quantitative Analysis.
Geology *† (long course), - - - Microscopic Lithology.
Mathematics, - - - - - Differential Equations.
Astronomy *‡ (long course).
Scientific German.
Advanced French and German.
Political Economy and International Law.
Philosophy of Rhetoric.

SECOND TERM.

Required —
Geology ‖ - - - Historical Geology; twice a week.

Elective —
Physics* (long course). - - - - Theory of Heat.
Chemistry* (long course). Quantitative Analysis or advanced work in Experimental Chemistry.

Paleontology.
Mathematics, - - - - - Differential Equations.
Astronomy* (long course),
Scientific German.
Advanced French and German.
Deductive Logic.§
Ethics.§
English Literature.

THIRD TERM.

Required —
Astronomy ¶ (short course).
Elective —
Physics (long course), - - Polarization of Light, Spectrum Analysis, Measurement of Wave Lengths.
Chemistry (long course), - - - Same as second term.
Mathematics, - - - - - Modern Algebra.
Economic Geology.
Astronomy (long course).
Scientific German.
Advanced French and German.
English Literature.
Æsthetics and Natural Theology.§
Inductive Logic.§
Pedagogy.

* At least one of these studies must be elected in each term.
† Must be preceded by at least one term of chemistry and two terms of mineralogy.
‡ Must be preceded by two terms of calculus and one of descriptive astronomy.
‖ Required of all students who do not elect the long course; must be preceded by at least one term of chemistry.
§ At least one of these studies must be elected in each term.
¶ Required of all students.

DEPARTMENT OF AGRICULTURE.

Students taking the long Agricultural Course will pass the same entrance examinations as are required for the General Science Course. Upon completing the course they will receive the appropriate degree.

Students in the twelve weeks' course should be at least sixteen years of age and have a common school education, though no entrance examinations will be required. If one comes poorly prepared he can not expect to gain the full benefits of the course.

LONG COURSE.

FRESHMAN YEAR.

FIRST TERM.

Mathematics, - - - - - - Higher Algebra.
German, - - - - - - Review and Reader.
Machine Shop Practice (half study).
Botany (course 2), - - - - - - - Lectures.

SECOND TERM.

Mathematics, - - - - - - - - Algebra.
German, - - - - - - - - - Reader.
Machine Shop Practice (half study).
Botany (course 2), - - - - - - - - Lectures.

THIRD TERM.

Mathematics, - - - - - - - Trigonometry.
German, - - - - - - - - - Reader.
Machine Shop Practice (half study).
Botany (course 2), - - - - - - Forming Herbarium.
Themes and declamations throughout the course.

SOPHOMORE YEAR.

FIRST TERM.

Chemistry, - - - - - - Lectures and Laboratory.
Cryptogamic Botany (course 2), - - - - - - Laboratory.
Rhetoric.

SECOND TERM.

Chemistry, - - - - - - - - Qualitative.
Phænogamic Botany (course 5), - - - - - Laboratory.
Mechanics.

THIRD TERM.

Chemistry, - - - - - - Qualitative and Organic.
Horticulture, - Economic Entomology, Cross Fertilization of Flowers.
Land Surveying.

JUNIOR YEAR.

FIRST TERM.

Chemistry, - - - - - - - - Quantitative.
Physics.
English Literature (half study).
Physiology (half study).

SECOND TERM.

Chemistry, - - - - - - - - Quantitative.
Zoology (half study), - - - - - - Laboratory.
Mineralogy, - - - - - - Lectures and Laboratory.
Horticulture (half study), - - - - Lectures and Laboratory.
English Literature (half study).
Physiology (half study).

THIRD TERM.

Chemistry, - - - - - - Agricultural Analysis.
Zoology, - - - - Anatomy of Domesticated Animals.
Constitutional Law.

SENIOR YEAR.

FIRST TERM.

Agriculture, - - - - - Stock Breeding, Draining.
Agricultural Chemistry, - - - - - - Laboratory.
Political Economy.
Psychology.
Geology, - - - - - - - General Lectures.

SECOND TERM.

Agricultural Chemistry, - - - - - - Lectures.
Agricultural Chemistry, - - - - - Laboratory.
Drawing.
Forestry, - - - - - Lectures and Recitations.

THIRD TERM.

Agriculture, - - Farm Book Keeping, Farm Management.
Agricultural Chemistry, - - - - - Laboratory.
Æsthetics.

Theses are required for graduation.

SHORT COURSE.

Heretofore the long time required and the large expense necessitated by courses running through two and four years evidently deterred many from attending who might otherwise have come, and to obviate these difficulties the new course is limited to twelve weeks during the winter months, when farmers' sons have the most time for study. In this course it is designed to give the largest amount of instruction in the theory and science of agriculture that the time and conditions will allow, and to adapt this instruction to the immediate and future needs of our farming population. The course will be made up of sixty lectures upon Agriculture, sixty upon Agricultural Chemistry, sixty upon Agricultural Botany, and twenty-four upon Veterinary Science.

Any one desiring to do so, can devote his whole time to one of these branches.

For a detailed statement of the several courses of lectures, see appropriate headings under departments of study.

The expense of the course will depend much upon the economy of the student, but may be set down at from $60 to $65 for board, tuition and books necessary for the whole course of twelve weeks.

The new course opens January 7, 1886, and closes March 31st. Those contemplating attending should send notice of their coming some time beforehand, if possible.

DEPARTMENT OF CIVIL ENGINEERING.

FRESHMAN YEAR.

Students may elect this course at the beginning of the Freshman year, and in that case will report for instruction in draughting at the middle of the first term.

The studies of this year are the same as those for the Freshman year of the General Science Course. In case the course is not elected until the Sophomore year, the requirements for admission to the course are the same as those for entering the Sophomore Class of the General Science Course.

SOPHOMORE YEAR.

FIRST TERM.

Descriptive Geometry, - - Three hours weekly. Recitation.
Elements of Machines, - - - Two hours weekly. Lectures.
Analytical Geometry, - - - - - Daily recitation.
Chemistry, - - - - Daily lecture or work in the laboratory.
Draughting, - - - - - - - Two hours daily.

SECOND TERM.

Descriptive Geometry, - - Three hours weekly. Recitation.
Stereotomy, - - - - Two hours weekly. Recitation.
Calculus, - - - - - - - Daily recitation.
Chemistry, - - - Daily lecture or work in the laboratory.
Drawing, - - - - - - - Two hours daily.

THIRD TERM.

Calculus, - - - - - - - Daily recitation.
Chemistry, - - - - Daily lecture or work in the laboratory.
Surveying, - - - - Daily recitation or work in the field.
Drawing, - - - - - - - Two hours daily.

JUNIOR YEAR.

FIRST TERM.

Analytical Mechanics, - - - Three hours weekly. Recitation.
Graphical Statics, - - - Two hours weekly. Recitation.
Physics, - - - - - - - Daily recitation.
Building Construction, - - - Two hours weekly. Lectures.
Drawing, - - - - - - Two hours daily.

SECOND TERM.

Analytical Mechanics, - - Three hours weekly. Recitation.
Resistance of Materials, - - Two hours weekly. Recitation.
Thermodynamics, - - - Three hours weekly. Lectures.
Mineralogy, - - Daily recitation or work in the laboratory.
Elements of Construction, Drawing, - - - Two hours weekly.

THIRD TERM.

Resistance of Materials, - - Three hours weekly. Recitation.
Steam Engine, - - - - Three hours weekly. Lectures.
Mineralogy, - - - Daily recitation or work in the laboratory.
Astronomy, - - - - - - - Daily recitation.
Drawing, - - - - - - - Two hours daily.

SENIOR YEAR.

FIRST TERM.

Psychology, - - - - - - Daily recitation.
Theory of Structures, - - Three hours weekly. Recitation.
Geology, - - - - - Three hours weekly. Lectures.
Bridge Construction, - - - Two hours weekly. Lectures.
Drawing, - - - - - - - Two hours daily.

SECOND TERM.

Sanitary Engineering, - - - Daily recitation or lecture.
Geology, - - - - - Two hours weekly. Lectures.
Metallurgy, - - - - - - - Daily recitation.
Drawing, - - - - - - - Two hours daily.

THIRD TERM.

Hydraulics, - - - - - Daily recitation or lecture.
Economic Geology, - - - - - - Daily lecture.
Drawing (for thesis), - - - - - Two hours daily.

DEPARTMENT OF MECHANICAL ENGINEERING.

FRESHMAN YEAR.

The course of study for this year is the same as that for the Freshman year of the General Science Course, with the exception that two hundred hours of shop work are required in the last two terms. If the course is elected at the beginning of the Sophomore year, the student will be required to make up these two hundred hours before he graduates.

SOPHOMORE YEAR.

FIRST TERM.

Descriptive Geometry, - - Three times a week. Recitation.
Elements of Machines, - - - - Twice a week. Lectures.
Analytical Geometry, - - - - - Daily recitation.
Chemistry, - - - Daily lecture or work in laboratory.
Drawing, - - - - - - - Two hours daily.

SECOND TERM.

Descriptive Geometry, - - - Three times a week. Recitation.
Elements of Machines, - - - Twice a week. Lectures.
Differential Calculus, - - - - - Daily recitation.
Chemistry, - - - - Daily lecture or work in laboratory.
Drawing, - - - - - - - Two hours daily.

THIRD TERM.

Integral Calculus, - - - - - - Daily recitation.
Elements of Machines, - - - Three times a week. Lectures.
Chemistry, - - - - Daily lecture or work in laboratory.
Drawing, - - - - - - - Two hours daily.
Shop Work, - - - - - - Fifty hours during term.

JUNIOR YEAR.

FIRST TERM.

Analytical Mechanics, - - - Three times a week. Recitation.
Elements of Machines, - - Three times a week. Lectures.
Physics, - - - - - - - - Daily recitation.
Drawing, - - - - - - - Two hours daily.
Shop Work, - - - One hundred and fifty hours during term.

SECOND TERM.

Analytical Mechanics, - - - Three times a week. Recitation.
Resistance of Materials, - - - Twice a week. Recitation.
Thermodynamics, - - - - Three times a week. Lectures.
Mineralogy, - - - Daily recitation or work in laboratory.
Drawing, - - - - - - - - Two hours daily.

THIRD TERM.

Resistance of Materials, - - - Twice a week. Recitation.
Steam Engine, - - - - Three times a week. Recitation.
Mineralogy, - - - Daily recitation or work in laboratory.
Drawing, - - - - - - - - Two hours daily.
Shop Work, - - - One hundred and ten hours during term.

SENIOR YEAR.

FIRST TERM.

Psychology, - - - - - - - Daily recitation.
Steam Engine, - - - - - Daily recitation or lecture.
Drawing, - - - - - - - - Two hours daily.
Shop Work, - - - One hundred and fifty hours during term.

SECOND TERM.

Hydraulic Motors, Pumps, etc., - - - - Daily lecture.
Metallurgy, - - - - - - - - Daily recitation.
Drawing, - - - - - - - Three hours daily.
Shop Work, - - One hundred and twenty hours during term.

THIRD TERM.

Astronomy, - - - - - - - Daily recitation.
Machinery and Mill Work, - - - - Daily lecture.
Drawing (for thesis), - - - - - Three hours daily.
Shop Work, - - - - - Eighty hours during term.

Theses are required for graduation.

DEPARTMENT OF MINING AND METALLURGY.

The object of this department is to furnish instruction in those branches of science of which a thorough knowledge is essential to the intelligent mining engineer or metallurgist.

In view of the natural separation between the callings of the mining engineer and the metallurgist, and of the differences in the kinds of training required for the two professions, it is deemed best to mark out two distinct courses for this department; the Mining Course having mathematics, theoretical and applied mechanics, physics, civil engineering, draughting, mineralogy, geology and economic geology as its principal studies, while the Metallurgical Course deals chiefly with chemistry and its applications. With the present arrangement, an able and diligent student may readily accomplish both courses.

To enter these courses, a knowledge of the studies pursued by the Freshman class of the General Science Course is required.

FRESHMAN AND SOPHOMORE YEARS.

Same as in Civil Engineering Course.

JUNIOR YEAR.

Mining Engineering. *Metallurgy.*

FIRST TERM.

Physics, - - - - - - Deschanel and Lectures.
Chemistry, - - - - - Quantitative Analysis.
Analytical Mechanics. | **Elective Study.**
Drawing, - - - - - - - - Topographical.
Field Practice.

SECOND TERM.

Mineralogy, Blowpipe Analysis, Crystallography and General Principles.
Chemistry, - - - - - - Quantitative Analysis.
Resistance of Materials.
Drawing.

THIRD TERM.

Mineralogy, - - - - - Descriptive and Determinative.
Assaying, - - - - - Lectures and Laboratory Practice.
Zoology.
Steam Engine—Rankine, | **Quantitative Analysis.**
Drawing, - - - - - - - - Furnaces, etc.

SENIOR YEAR.

Mining Engineering. *Metallurgy.*

FIRST TERM.

Geology, Lectures on Lithology, Structural and Dynamical Geology.
Microscopic Lithology.
Metallurgy, - - Refractory Materials, Fuels, Copper, Lead, etc.
Psychology.
Drawing. **Quantitative Analysis.**
Field Practice.

SECOND TERM.

Geology, - - - - - Lectures on Historical Geology.
Paleontology.
Metallurgy, - - - - - - - Iron and Steel.
Engineering. | **Quantitative Analysis.**

THIRD TERM.

Economic Geology, - - - - - - - Lectures.
Engineering. | **Quantitative Analysis.**
Railroad Engineering. | **Elective Study.**
Drawing.

DEPARTMENT OF PHARMACY.

The aim of this department is to furnish a thorough, practical education and training in the science and art of Pharmacy, and it therefore includes instruction in those branches of science most intimately related to the practice of this profession.

The course extends over a period of two years, embracing the fall and winter terms of each academic year, with lectures, recitations and practical laboratory work throughout the course. The present departments and divisions of study are as follows:

FIRST YEAR.

Practical Pharmacy and Pharmaceutical Chemistry.
Botany (course 2).
Inorganic Chemistry and Chemical Physics.
Qualitative Chemical Analysis.

SECOND YEAR.

Materia Medica (Pharmacognosy).
Pharmaceutical Botany (course 6).
Organic Chemistry.
Quantitative Chemical Analysis and Chemical Toxicology.
Pharmacopœial and Chemical Preparations.

For further details relating to the requirements and scope of this department, see statement under Pharmacy, in Departments of Study.

COLLEGE OF LETTERS.

This includes two courses, in both of which Latin is a required study. The *Ancient Classical Course* also requires Greek; the *Modern Classical Course* has German and French in place of Greek.

In the Junior and Senior years there are but two required studies for each term; for the third study an election will be made, which will be for the whole year, unless otherwise specified.

ANCIENT CLASSICAL COURSE.

FRESHMAN YEAR.

FIRST TERM.

Latin, - - - - - - Cicero de Senectute. Livy.
Greek, - - - - - - - - Lysias.
Mathematics, - - - - - - - Higher Algebra.

SECOND TERM.

Latin, - - - - - - - - - Livy.
Greek, - - - - - - Lysias. Homer's Odyssey.
Mathematics, - - - - - - - Solid Geometry.

THIRD TERM.

Latin, - - - - - - Livy. Three times a week.
Greek, - - - - - Homer's Odyssey. Twice a week.
Mathematics, - - - - - - - Trigonometry.
Botany (course 1).

Themes and declamations, and Latin and Greek composition throughout the year.

SOPHOMORE YEAR.

FIRST TERM.

Latin, - - - - - - - - - Horace.
Greek, - Philippics of Demosthenes. Goodwin's Moods and Tenses.
Mathematics (*elective*), - - - - Analytical Geometry.
Anglo-Saxon (*elective*).

SECOND TERM.

Latin, - - - - - - - - - Plautus.
Greek, - - - - - - - - - Tragedy.
Rhetoric.

THIRD TERM.

Latin, - - - - - - - - - - Tacitus.
Greek, - - - - - - - - - Lyric Poetry.
Early English, - - - - Chaucer's Canterbury Tales.

Those who have stood as high as eighty five in the languages during their Freshman year will be allowed to substitute the mathematics, the biology, the zoology, or the botany of the General Science Course for one of their regular studies. In the first term any branch for which the student is fitted may be elected in place of mathematics.

JUNIOR YEAR.

FIRST TERM.

Required Studies —

American History, - - - - - Twice a week.
English Literature, - - - - Three times a week.
Physics, - - - - - Deschanel and Lectures.

SECOND TERM.

American History, - - - - - Twice a week.
English Literature, - - - - Three times a week.
Zoology.

THIRD TERM.

Constitutional Law.
Chemistry, - - - - - - - - Lectures.

Elective Studies —

1. **Latin,** as a half study. Roman Satire.
2. **Greek,** as a half study. Demosthenes de Corona. Dramatic Poetry.
3. **French.** *First term,* Otto's Method, Roman d'un Jeune Homme Pauvre; *Second term,* Joynes' French Plays; *Third term,* La Petite Fadette. (If elected, must be taken for the year.)
4. **German.** *First term,* Whitney's Brief German Grammar and Rosenstengel's German Reader: *Second term,* Iphigenie auf Tauris; *Third term,* Lessing's Laokoon.
5. **Norse.** *First term,* Peterson's Grammar. Anderson's Julegave; *Second term,* Björnson; *Third term,* Björnson, Lectures on Scandinavian Literature.
6. **Anglo-Saxon.**
7. **History.** Course 1 (twice a week). Ancient Institutions. *Third term,* Ancient Mythology and Art. Course 2 (three times a week). Dynastic History.
8. **Political Science.** *First term,* Elementary Law. *Second term,* English Constitutional Law.
9. **English Literature.** *Second term,* course 5: Sir Thomas More to Tennyson; *Third term,* course 6: American Poets.
10. **Physics.**

**As the elective courses in physics and English literature do not begin until the second term, those who intend to elect either of these branches will choose some other elective the first term.

11. Chemistry. Those who elect this branch will take some other elective study the third term in place of the required chemistry of that term. They may also, if they choose, change to **Mineralogy** the second or third term, or both; and those who make this change will be allowed to elect the long course in geology during the Senior year.

12. Mathematics. *First term,* Analytical Mechanics; *Second term,* Modern Geometry and Geometry of three dimensions; *Third term,* Quaternions.

13. Botany (course 4).

14. Biology.

15. Pedagogy.

SENIOR YEAR.

FIRST TERM.

Required Studies —

Psychology.

Political Economy and Constitutional Law.

SECOND TERM.

Ethics.

Logic, - - - - - - - Deductive.

THIRD TERM.

Astronomy (short course).

During this term two studies are elective.

Elective Studies —

1. Latin. 2. Greek. 3. French. 4. German. 5. English Literature. 6. Anglo-Saxon.

The same as in the Junior year, the two classes reciting together.

7. Icelandic. *First term,* Vigfusson & Powell's Grammar and Reader; *Second term,* the same; *Third term,* Elder Edda, Lectures on Scandinavian Literature.

8. History. *First term,* Medieval Institutions; *Second term,* The English Constitution; *Third term,* History of Civilization.

9. Physics.

10. Chemistry.

11. Geology. This must be preceded by at least three terms of Chemistry and Mineralogy.

12. Mathematics. *First and Second terms,* Differential Equations; *Third term,* Modern Algebra.

13. Astronomy (long course) may be elected for the year by students who have taken two terms of calculus and one term of descriptive astronomy.

14. Botany (course 4).

15. Pedagogy.

There are also the following special electives for the several terms:

First term — **Microscopic Lithology.** This must be preceded by mineralogy. **Philosophy of Rhetoric.**

First and Second terms — **Geology** (short course).

Second term — **Paleontology.** This must be preceded by one term of zoology. **International Law** (half study). **Political Economy** — practical applications (half study).

Second and Third terms — **Mineralogy.** This must be preceded by one term of chemistry.

Third term — **Æsthetics and Natural Theology, Higher Philosophy, Inductive Logic.**

MODERN CLASSICAL COURSE.

FRESHMAN YEAR.

FIRST TERM.

Latin, - - - - - Cicero de Senectute. Livy.
German, - - - - - - - Review and Reader.
Mathematics, - - - - - - - Algebra.

SECOND TERM.

Latin, - - - - - - - - - Livy.
German, - - - - - - - - Reader.
Mathematics, - - - - - - - Algebra.

THIRD TERM.

German, - - - - - Reader of German Literature.
Mathematics, - - - - - - - Trigonometry.
Botany (course 1).

Themes and declamations, and Latin and German composition throughout the year.

SOPHOMORE YEAR.

FIRST TERM.

Latin, - - - - - - Horace. Twice a week.
German, - Reader of German Literature. Three times a week.
French, - - Otto's Method. Roman d'un Jeune Homme Pauvre.
Mathematics (*elective*), - - - - Analytical Geometry.
Anglo-Saxon (*elective*).
Greek (*elective*).

SECOND TERM.

Latin (*elective*), - - - - Horace. Three times a week.
Transitional English (*elective*), - - - Three times a week.
German, - - - Reader of German Literature. Twice a week.
French, - - - - - - - Joynes' French Plays.
Rhetoric.
Greek (*elective*).

THIRD TERM.

Latin, - - - - - - Tacitus. Three times a week.
German, - - - Reader of German Literature. Twice a week.
French, - - - - - - - - La Petite Fadette.
Early English, - - - - Chaucer's Canterbury Tales.

Those who have stood as high as eighty five in the languages during the Freshman year will be allowed to substitute the mathematics, the biology, the zoology, or the botany of the General Science Course for one of their regular studies. In the first term any branch for which the student is fitted may be elected in place of mathematics. In the second term transition English may be elected in place of Latin.

JUNIOR YEAR.

FIRST TERM.

Required Studies—

American History, - - - - - Twice a week.
English Literature, - - - - Three times a week.
Physics.

SECOND TERM.

English Literature, - - - - Three times a week.
American History, - - - - - Twice a week.
Zoology.

THIRD TERM.

Constitutional Law.
Chemistry, - - - - - - Lectures.

Elective Studies—

1. **Latin,** as a half study. Roman Satire.
2. **French,** as a half study. Otto's French Conv. Grammar, Cinq Mars. (If elected, must be taken for the year.)
3. **German,** as a half study. *First term,* Hermann and Dorothea; *Second term,* Marie Stuart; *Third term,* Iphigenie auf Tauris.
4. **Norse.** *First term,* Peterson's Grammar, Anderson's Julegave; *Second term,* Björnson; *Third term,* Björnson, Lectures on Scandinavian Literature.
5. **Anglo-Saxon.**
6. **Greek.**
7. **History.** Course 1 (twice a week), Ancient Institutions; *Third term,* Ancient Mythology and Art. Course 2 (three times a week), Dynastic History.
8. **Political Science.** *First term,* Elementary Law. *Second term,* English Constitutional Law.
9. **English Literature.** *Second term,* course 5: Sir Thomas More to Tennyson; *Third term,* course 6: American Poets.
10. **Physics.**

*** As the elective courses in physics and English literature do not begin until the second term, those who intend to elect either of these branches will choose some other elective for the first term.

11. Chemistry. Those who elect this branch will take some other elective study the third term in place of the required chemistry of that term.

12. Mineralogy. Students who elect chemistry may, if they choose, change to mineralogy the second or third term, or both; and those who make this change will be allowed to elect the long course in geology during the Senior year.

13. Mathematics. *First term,* Analytical Mechanics; *Second term,* Modern Geometry and Geometry of three dimensions; *Third term,* Quaternions.

14. Botany (course 4).

15. Biology.

16. Pedagogy.

SENIOR YEAR.

FIRST TERM.

Required Studies —

Psychology.

Political Economy and Constitutional Law.

SECOND TERM.

Ethics.

Logic, - - - - - - - Deductive.

THIRD TERM.

Astronomy (short course).

During this term two studies are elective.

Elective Studies —

1. Latin. 2. English Literature. 3. Anglo-Saxon. The same as in the Junior year, the two classes reciting together.

4. French, as a half study. *First term,* Howard's Aid to French Composition, Ursule Mirouet; *Second term,* Travailleurs de la Mer; *Third term,* the same. (If elected, must be taken for the year.)

5. German, as a half study. *First term,* Faust; *Second term,* Heyse's Novellen; *Third term,* Lectures on German Literature.

6. Icelandic. *First term,* Vigfusson & Powell's Grammar and Reader; *Second term,* the same; *Third term,* Elder Edda, Lectures on Scandinavian Literature.

7. Greek.

8. History. *First term,* Medieval Institutions; *Second term,* The English Constitution; *Third term,* History of Civilization.

9. Physics.

10. Chemistry.

11. Geology. This must be preceded by at least one term of chemistry.

12. Mathematics. *First and Second terms,* Differential Equations; *Third term,* Modern Algebra.

13. Astronomy (long course) may be elected for the year by students who have taken two terms of calculus and one term of descriptive astronomy.

14. Botany (course 4).
15. Biology.
16. Pedagogy.

There are also the following special electives for the several terms:

First term — **Microscopic Lithology.** This must be preceded by mineralogy. **Philosophy of Rhetoric.**
First and Second terms — **Geology** (short course).
Second term — **Paleontology.** This must be preceded by one term of zoology. **International Law** (half study). **Political Economy** — practical applications (half study).
Second and Third terms — **Mineralogy.**
Third term — **Æsthetics and Natural Theology, Higher Philosophy, Inductive Logic.**

SIX YEARS' COURSE.

Those who wish to devote to music or any similar pursuit the time for an entire study, will be allowed to take two studies at a time. For such students the Modern Classical Course has been extended so as to cover six years, as follows:

FRESHMAN YEAR.

First term — Latin. German.
Second term — Latin. German.
Third term — German. Botany.

FIRST SOPHOMORE YEAR.

First term — Latin and German. Algebra.
Second term — Latin and German. Algebra.
Third term — Latin and German. Trigonometry.

SECOND SOPHOMORE YEAR.

First term — French. Elective Study.
Second term — French. Rhetoric.
Third term — French. Early English.

FIRST JUNIOR YEAR.

First term — Physics. Elective Study.
Second term — Chemistry. Elective Study.
Third term — Zoology. Elective Study.

SECOND JUNIOR YEAR.

First term — English Literature and American History. Elective Study.
Second term — American History and English Literature. Elective Study.
Third term — Constitutional Law. Elective Study.

SENIOR YEAR.

First term — Psychology. Political Economy.
Second term — Ethics. Logic.
Third term — Astronomy. Elective Study.

The studies of the Ancient Classical and General Science Courses may be extended in the same way, by consultation with the class officers.

PREPARATORY GREEK CLASS.

FIRST TERM.

Greek, - Goodwin's Grammar and Jones' Composition (twice a day).
Latin, - - - Cicero's Select Orations. Allen's Composition.

SECOND TERM.

Greek, - - - Xenophon's Anabasis and Jones' Composition.
Latin, - - - Virgil's Æneid. Latin Prosody. Composition.

THIRD TERM.

Greek, - - Xenophon's Anabasis and Homer's Iliad. Composition.
Latin, - - - - - - Virgil's Æneid. Composition.

TIME TABLE—FALL TERM, 1885.

	8-9.	9-10.	10-11.	11-12.	12-1.	P. M.
SENIOR CLASS.....	Anglo-Saxon. French, Tu., Th.	Chemistry. Microscropic Lithology, Tu., Th. Political Economy.	Pedagogy. Icelandic. History. Rhetoric. German, M., W., F.	Psychology.	Geology, M., W., F. † German, † French, } For beginners. Latin, M., W., F. Greek, Tu., Th.	Physics. Astronomy. Chemistry.
JUNIOR CLASS.....	French, M., W., F. Anglo-Saxon.	Am. History, Tu., Th. English Literature, M., W., F. Analytical Mechanics.	Pedagogy. Physics.	German, Tu., Th. History. Norse.	Greek, Tu., Th. Latin, M., W., F. † German, † French, } For beginners. Descriptive Geometry. Differential Equations.	Chemistry. Vertebrate Anatomy.
SOPHOMORE CLASS.....	Anglo-Saxon. Physiology, M., W., F.	‡ French. † Latin. * Rhetoric.	* Anal. Geom.	† Greek. * German. ‡ German, M., W., F.	Botany, M., W., F. ‡ Latin, Tu., Th.	Biology. Zoology. Zoology, (Short Course), Tu., Th.
FRESHMAN CLASS.....		* Mathematics. † Greek. ‡ German.	* German. ‡ Mathematics. † Latin.	‡ Latin. * French.	† Mathematics.	

* General Science Course. † Ancient Classical Course. ‡ Modern Classical Course.

TIME TABLE—WINTER TERM, 1886.

	8-9.	9-10.	10-11.	11-12.	12-1.	P. M.
SENIOR CLASS	French, M., W., F.	Paleontology, M., W., F.		Ethics.	English Literature. †German. †French. Latin, Tu., Th. Greek, M., W., F.	Physics. Chemistry. Differential Equations. Astronomy.
		Logic.	Pedagogy. Geology, Tu., Th. German, Tu., Th. Icelandic. History. Transition English.			
JUNIOR CLASS	French, Tu., Th.	English Literature, M., W., F. American History, Tu., Th.	Pedagogy. Zoology, (Short Course.)	German, M., W., F. Norse. History.	Latin, Tu., Th. Greek, M., W., F. †French. †German. English Literature. Mod. Geometry. M., W., F.	Chemistry.
		Mineralogy.		Physics.		
SOPHOMORE CLASS...	Physiology. M., W., F.	†Latin. ‡French.	*Calculus. †Greek. ‡Rhetoric. *German.	*Mechanics. †Rhetoric. ‡English, M., W., F. ‡German, Tu., Th.	‡Latin, M., W., F. Botany, M., W., F.	Biology. Zoology. Zoology, (Short Course), Tu., Th.
FRESHMAN CLASS....		*Mathematics. †Greek. ‡German.	*French. †Latin. ‡Mathematics.	*German.	‡Latin. †Mathematics.	

*General Science Course. †Ancient Classical Course. ‡Modern Classical Course.

TIME TABLE — SPRING TERM, 1886.

	8-9.	9-10.	10-11.	11-12.	12-1.	P. M.
SENIOR CLASS	Logic.	Pedagogy. Geology. French, M., W., F. German, Tu., Th. History. Icelandic.	Physics. Æsthetics.	English Literature, Latin, Tu., Th. Greek, M., W., F. † German. † French.	Astronomy.	Chemistry. Astronomy.
JUNIOR CLASS	Physics.	Pedagogy. Constitutional Law.	Mineralogy. French, Tu., Th. German, M., W., F. History. Norse.	† French. † German. Latin, Tu., Th. Greek, M., W., F. English Literature.	Quaternions. Chemistry, (Short Course.)	Chemistry.
SOPHOMORE CLASS...	‡ French. † Latin.	* Calculus. † ‡ English. † Greek.	* German. † Latin. ‡ German, Tu., Th.	‡ Latin, M., W., F.		Biology. Zoology. Vertebrate Anatomy.
FRESHMAN CLASS....	† Mathematics. ‡ German.	* German. † ‡ Botany.	‡ Mathematics. * French.	* Mathematics. † Latin, M., W., F. † Greek, Tu., Th.		

* General Science Course. † Ancient Classical Course. ‡ Modern Classical Course.

DEPARTMENTS OF STUDY.

PHILOSOPHY — PRESIDENT BASCOM —

Five recitations of a term each are devoted to philosophy, to wit: one to deductive and one to inductive logic; and three to psychology, ethics, æsthetics and natural theology. The time is abundant and the course correspondingly complete.

In psychology the President uses the new edition of his own work. The aim of the recitation is to give the present conclusions on living questions in philosophy, and to prepare the mind for the slow formation of an opinion concerning open points, and for the clear apprehension of settled facts. While the text-book guides and steadies the discussion, and gives a frame-work of thought for the memory, much matter is incidentally introduced for the fuller presentation of opposing views, and the further enforcement of those offered. In the course of the recitations subjects in philosophy are assigned to be discussed historically in essays before the class. The library is well provided with works of philosophy, and the students are urged to read systematically in connection with the work in the recitation room. Leading historical facts in philosophy are brought before the class by lectures, and at least a partial knowledge of influential systems is secured. Free discussion and inquiry are had in the class room. The effort is not so much to control belief as to secure its best conditions. The recitation is ordered in reference to the present state of philosophy, and existing facts are made to run back into the history of philosophy. The opposite method requires more time, and has, for the beginner, less interest. On the whole, we regard the proper starting point of inquiry to be the facts before us. Ethics follows pyschology, and natural theology and æsthetics follow ethics. While the hard work is done, and the leading principles are established, in psychology, substantially the same method is pursued in each of these branches. In ethics and natural theology the ruling idea is freedom of discussion, with a full presentation of opposing views. We believe this to be the best and safest way for the formation of firm yet flexible opinions. Æsthetics is taught with extended illustrations, and the purpose is to bring delicacy to the perceptions and culture to the feelings.

An elective is offered for the third term of Senior year in Kant's Philosophy; or in Lotze's Outlines of Metaphysics; or in Comparative Psychology; or in Problems in Philosophy.

LOGIC — PROFESSOR PARKINSON —

The course in logic extends through the second and third terms of the Senior year. The first of these terms is given chiefly to deductive, and the last to inductive logic. Deductive logic is a required study in the College of Letters, and an elective in the College of Arts. Inductive logic is an elective in both colleges.

TEXT-BOOKS.— Jevons' Deductive Logic; Fowler's Inductive Logic.

THE SCIENCE AND ART OF TEACHING — PROFESSOR STEARNS —

During the year 1885–86 the following courses will be offered in this department.

I. *Fall Term:* Educational Praxis, including school economy, organization, management and methods of teaching; lectures and recitations. Text-books: Fitch's Lectures on Teaching; Bain's Education as a Science; Burke's Law of Public Schools.

II. *Winter Term:* The Theory of Teaching; a study of the psychological basis of methods, with a view to developing a rational criticism of educational processes. Courses of study: Educational values; lectures and recitations. Text-books: Sully's Outlines of Psychology; Bain's Education as a Science.

III. *Spring Term:* The history of educational theories and practices in Europe and America; lectures and recitations. Text-books: Browning's History of Educational Theories; Quick's Essays on Educational Reformers.

The design of the first course is to introduce the student to the practical problems of the school room, and to develop helpful methods of thinking about them. The second course aims to develop a basis for rational criticism upon educational work, and to promote comparative study of schemes of organization, superintendence, etc. The third course aims to acquaint him with the chief currents of thought on education, and the most important experiments which have been tried. The three courses thus outlined, which can be completed in a single year, constitute a proper preparation for the work of teaching. Further courses will be organized as occasion demands, for the detailed study of American educational history, the systems and practices of different states, and current educational problems.

HISTORY — PROFESSOR ALLEN —

All persons entering the University are examined in United States history. Candidates for the Freshman class of the College of Letters are examined also in ancient history and geography, and the history of England.

American history is required for the classical students in the first two terms of the Junior year, as a half study, alternating with English literature. There are three elective courses in history, two for the Junior class and one for the Senior class. The two Junior courses rank each as a half study, the two together making one full study.

COURSE I. Twice a week — History of ancient institutions, designed for classical students only. *First term* — History of Greek and Roman institutions. *Second term* — The Roman constitution. *Third term* — Ancient mythology and art. Seeman's Classical Mythology.

COURSE II. Three times a week — Dynastic and territorial history, carried through the year. Labberton's Historical Atlas. Allen's History Topics.

COURSE III. For Seniors, or those who have had Course II, or its equivalent. *First term* — Medieval Institutions. *Second term* — The English constitution. Stubb's Select Charters. *Third term* — History of civilization. Guizot and lectures.

The method of instruction varies with the subject and the class. In most cases a text-book is used as a basis of instruction. Wherever it is possible,

special topics are assigned to the members of the class, to be looked up in books of reference, and presented orally. In some departments the work is principally by lectures, the substance of which is required to be written out in blank books. Courses of historical reading are laid out for the members of the class, and of the Seniors written essays are required. Historical charts or maps are constantly used, and in Course II, map drawing forms a regular part of the work.

CIVIL POLITY AND POLITICAL ECONOMY — PROFESSOR PARKINSON —

The studies pertaining to Civil Polity are entered upon at the beginning of the Junior year and continued to the close of the Senior year. Political Economy is taken up at the beginning of the Senior year, and lectures and discussions upon its leading principles and practical applications are continued to the close of that year.

ELEMENTARY LAW. — This subject is a full study through the first term of the Junior year. It is aimed here to secure a broad general view of the field of law as a systematic whole, and to acquire some familiarity with its leading principles — especially with the elements of American law, of which, no one who claims its protection or is liable to its penalties, can afford to be entirely ignorant.

CONSTITUTIONAL LAW. — During the second term of the Junior year lectures will be given upon the English constitution and upon the developments of constitutional law and government in the United States prior to the adoption of the present constitution. This is a full study, and is designed to trace in outline the growth of the English constitution from the time of Magna Charta to the present, setting forth its leading principles and distinguishing characteristics, and especially its unwritten growth since the Revolution of 1688. Some attention also will be given, by way of comparison, to the constitutions of the leading continental states. The work of this term is calculated to prepare the way for a more intelligent study of the present constitutional law of the United States, which subject is taken up at the beginning of the third term of the Junior year, and continued, by recitation or lecture daily, to its close. An exercise in constitutional law is also given, once a week, during the first term of the Senior year. This time is devoted to a review of some of the more important parts of the constitution, but especially to a study of the amendments — their nature, scope and influence as a Bill of Rights. Special attention is given throughout this subject to important cases involving vital principles of constitutional law, and to the decisions upon them by the highest judicial tribunals. It is designed, in this study and throughout this department, to give instruction that shall be, to all, practical in the highest sense of the term, and which shall be of immediate service to that large class of graduates and others who pass at once from the academic to the law department of the University.

INTERNATIONAL LAW. — This subject is taught by lectures. After 1886, the instruction will consist of a course of lectures extending, twice a week, through the second term of the Senior year. The aim is to present the outlines of the science in as complete a manner as possible in the time allotted, and to note any modifications or advances made from time to time in the recognized law of nations.

ROMAN LAW.—This subjct will be offered, after 1886, as a half study during the last term of the Senior year. The aim will be to study it in outline, tracing in some measure its connection with and influence upon the English common law. Chief attention will be given to the modern Roman or civil law as underlying the jurisprudence of so many of the leading states of the world.

POLITICAL ECONOMY.—This subject is taken up at the beginning of the Senior year. During the first term there are four recitations a week upon the general principles of the science as set forth in the ordinary manuals. A text-book is here used, but is supplemented with occasional lectures. It is designed to treat the science of political economy, not as an isolated one, but as intimately connected with that of government, and as closely bearing upon the welfare and interdependence of states as well as of individuals.

During the second and third terms of the Senior year, this subject is continued as a half study. The instruction is by lectures and discussions upon the more important topics and upon the practical application of economic principles. Among the topics investigated, are: wages, profits, rent, the wage-fund theory, trades unions, strikes, co-operation, the unearned increment of land, money, interest, usury laws, bimetalism, credit, commercial crises, balance of trade, banking functions, national banks, methods of taxation and systems of finance.

TEXT-BOOKS.—Robinson's Elementary Law; Cooley's Constitutional Law; Walker's Political Economy.

SPECIAL COURSE IN POLITICAL SCIENCE—PROFESSORS PARKINSON and ALLEN—

The following course of political and historical studies, occupying an entire year, is presented for those who wish to prepare themselves especially for law or journalism:

First term—Elementary law. Political economy. History of modern institutions.

Second term—English constitutional law. History of the English constitution. International law. Applications of political economy.

Third term—American constitutional law. Roman law. Applications of political economy. History of civilization.

It is intended to add a second year's course to complete a scheme of studies in political science.

GREEK—PROFESSORS KERR and WILLIAMS—

The study of Greek extends through the whole of the Ancient Classical Course, being elective during the Junior and Senior years. Students in other courses may elect any authors which they are prepared to read with advantage, either in the elementary Greek class or in the college classes.

BEGINNERS IN GREEK.—The course in elementary Greek is established for the benefit of three classes of students: (1) Those who desire to complete in a single year their preparation for the Freshman class, Ancient Classical Course. Such students can get, in the time specified, the required Greek grammar and composition, and can easily read three books of the

Anabasis and two books of the Iliad; (2) Students of the Modern Classical Course who wish to take elementary Greek as an elective study. For these the course provides five or more recitations a week, according to their preference; (3) Special students who elect Greek as a full study for a year or more.

FRESHMAN CLASS.— The course for the first college year includes a study of the Homeric Poems with reference to a critical knowledge of the Epic dialect and the interpretation of the Greek mythology; and the orations of Lysias are studied to give, by an extended course in one author, facility in translating pure Attic prose. The class has frequent exercises in Greek composition throughout the year.

SOPHOMORE CLASS.— The Sophomore year is given to the study of Greek oratory, tragedy and lyric poetry. The Philippics of Demosthenes, or their equivalent, are read and analyzed, and are illustrated by instruction in Athenian politics and Grecian antiquities. The work in dramatic and lyric poetry consists in the reading and analysis of the Medea of Euripides and selections from the Greek Anthology, or their equivalents.

The study of the difficult principles of Greek syntax is continued during the year, but only as subordinate and incidental to the study of the authors themselves.

JUNIOR AND SENIOR CLASSES.— The last two years are given to Greek philosophy, dramatic and lyric poetry and oratory. The object of the course is to give the student a comprehensive knowledge of Greek literature, and show him the power of the language as a medium of thought.

The foregoing courses provide for five daily recitations, three of which are conducted by Professor Kerr, and two by Professor Williams.

TEXT-BOOKS.— Goodwin's Greek Grammar; Goodwin's Greek Moods and Tenses; Jones' Greek Prose Composition; Boise's Exercises in Greek Syntax; Jebb's Greek Literature, and standard American editions of the Greek classics.

LATIN — PROFESSORS ALLEN and HERITAGE —

The required course in Latin consists, for the Ancient Classical Course, of six terms, in one of which (the third term of the Freshman year) Latin occupies the place of a half study, alternating with Greek. In the Modern Classical Course, Latin is omitted in the third term of the Freshman year, and is a half study during the Sophomore year, alternating with German; in the second term of the Sophomore year it is elective with Anglo-Saxon. During the Junior and Senior years, Latin is elective as a half study.

During the Freshman year the chief object is to enlarge and confirm the knowledge of the language by constant grammatical drill, and by weekly exercises in writing Latin. In the following years it is the intention, without neglecting grammatical training, to pay special attention to the subject-matter of the books read, and their place in the history of literature.

As a course in Roman literature, the work of the Freshman and Sophomore years — taken in connection with the books read before entering — is designed to embrace all the leading classes of composition, and most of the authors of first rank.

The work of the Freshman year is: first, one of Cicero's lesser works — for the present year, his Cato Major (*De Senectute*); for the rest of the

year, Livy. There are weekly exercises in composition. The authors read in the Sophomore year of the Ancient Classical Course are: first term, Horace; second term, Plautus (the present year, the Mostellaria and Trinummus); third term, Tacitus (the present year his smaller works). In the Modern Classical Course (as a half study), Horace is read two terms, and Tacitus the third term. At the close of each year there is a written examination, designed to test the student's practical acquaintance with the language.

The elective course in Latin covers two years; but only one year's course is pursued at a time, as the Seniors and Juniors recite together. The present year's course consists of the Roman Satire, including fragments from Ennius and Lucilius, and the satires of Horace, Persius and Juvenal.

TEXT-BOOKS.— Allen and Greenough's Latin Grammar; Allen's Latin Composition; F. D. Allen's Remnants of Early Latin; Bender's History of Roman Literature. For the several authors no special editions are required.

FRENCH — PROFESSOR OWEN, assisted by MISS CLARK and MISS GAY — *Elementary.*

First Year.— Students of the Modern Classical Course are required to pursue the study of French during Sophomore year, reciting once daily. The same number of recitations is required of Freshmen in the General Science Course. Students of the Ancient Classical Course may elect the same amount during Junior or Senior year. Other students may join any of these three classes, with this proviso, that the last class, receiving instruction based upon the Latin language, may be entered only by those possessing a fair knowledge of that tongue.

Since many students wish to obtain merely a reading knowledge of French, the elementary instruction is directed to reading only. As soon as possible, the time of recitation is wholly devoted to authors selected for their grammatical difficulties. At the same time vocabulary is acquired by the reading, out of the class, for examination, of a large amount of easy French. Students are expected at the end of the year to read with sufficient ease and accuracy to make a practical use of French in the prosecution of their other studies.

The text-books are Otto's French Conversation Grammar, Joynes' French Plays (read in the class room), Le Roman d'un Jeune Homme Pauvre of Octave Feuillet (mainly read out of the class room), and La Petite Fadette of George Sand (entirely read outside).

Advanced.

Second Year.— During this year, the student's attention is directed to writing French. Also a course of short lectures on the history of French is given in the French language; and so far as practicable, French is from this point made the medium of instruction. The class room text-book is Otto's French Conversation Grammar. Out of the class the Cinq Mars of Alfred de Vigny is read for examination. An extra hour weekly is given by Miss Gay to reading and speaking with students who desire the exercise.

Third Year.— The student's effort is now applied to speaking. To this he is introduced by oral translations from Howard's Aids to French Composition. A course of lectures is held in French on the early literature of the

language, and out of the class are read the Ursule Mirouet of Balzac and Les Travailleurs de la Mer of Victor Hugo.

All books read out of the class are furnished with ample notes on idiomatic and syntactical difficulties. An extra hour weekly at the professor's house is given to reading and speaking with students who desire the exercise.

In all cases French must be elected by years and not by terms.

GERMAN — PROFESSOR ROSENSTENGEL, assisted by MR. POWERS and MR. OLSON —

For admission to the Freshman classes, candidates must be prepared to pass a thorough examination on German grammar and twenty lessons of German reader.

MODERN CLASSICAL COURSE.— German is a required full study during the Freshman, a required half study during the Sophomore, and an elective half study during the Junior and Senior years. Freshman year: 1. Review of the grammar. 2. Reading, and above all practice in conversing in German. 3. Composition. Sophomore year: The work of the first year is continued. Junior and Senior years: 1. Reading of classical works. In the last year lectures are delivered in German on the principal periods of German literature, and on the most important classical works.

GENERAL SCIENCE COURSE.— German is a required full study during the Freshman year, and an elective half study during the Sophomore, Junior and Senior years. In this course no attempt is made to teach German conversation or German literature exhaustively. The aim is rather to impart an accurate knowledge of grammatical principles, fluency of expression in translation and readiness in understanding German authors, that the student may be prepared to pursue his researches in the realm of German scientific literature at will. Freshman year: 1. Thorough drill in German grammar. 2. Exercises in reading and translating. In the Sophomore, Junior and Senior years a course in Scientific German is used. If preferred, in the Junior and Senior years, elections may be made of classical reading.

ANCIENT CLASSICAL COURSE.— German is an elective full study during the Junior or Senior year. The aim is to impart a reading knowledge of the language in a very short time. For this reason no attempt is made either at conversation or to teach the grammar exhaustively, but the course embraces a few standard works in prose and poetry.

German-Americans, i. e., those who are not obliged to study the rudiments of their mother tongue, may, in place of the regular courses, elect the following: First year: 1. Grammar. The student must learn to think in his own language, to study it critically, and to use it with perfect accuracy. 2. Reading of the best lyric poems, and the ballads of Goethe, Schiller and Uhland. The aim is to learn to read with intelligence and understanding. 3. Introduction into an accurate etymological analysis. Second year: 1. Classical works. These are read outside of the class room, and are used in the class by narration, conversation and essays, in order to familiarize the student with the intellectual life of his ancestors. 2. Exercises in free discussion, and in the composition of German essays. 3. The most important points of poetics, to facilitate the acquiring of a complete

knowledge and consequent enjoyment of the works read. Third year: 1. Modern literature. 2. Treatises by the student. Fourth year: Lectures on the history, theory and philosophy of the German language, and on German literature. The aim is that the student may be not only thoroughly instructed, but also incited to further investigation. Those who complete this course satisfactorily will be recommended as teachers of German.

The work in this department is supplemented by that of the German literary society, the Bildungsverein.

TEXT-BOOKS.—Whitney's Brief German Grammar; Rosenstengel's Lessons in German Grammar, German Reader and Reader of German Literature; Hodges' course in Scientific German; German classics by Buchheim, Hart or the Hempel's editions.

SCANDINAVIAN LANGUAGES—MR. OLSON—

The Scandinavian languages (Norse, Swedish, Danish and Icelandic) are offered as optional studies in the Freshman and Sophomore years, and as elective in the Junior and Senior years.

It is expected that sufficient knowledge of Modern Norse can be acquired from one year's instruction to enable the student to read with comparative ease the best modern authors. This year's work serves also as a good foundation for the study of Old Norse or Icelandic.

One year's instruction is offered in Icelandic, from which, besides obtaining a fair reading knowledge of the language, the student will become acquainted with early Scandinavian history, and will also be enabled to form an independent opinion as to the historical worth and literary merit of the Old Norse sagas.

The Scandinavian department of the University library affords excellent advantages to students pursuing these studies.

TEXT-BOOKS.—In Modern Norse: Peterson's Norwegian-Danish Grammar and Reader. Selections in prose and poetry are read. In Icelandic: Icelandic Prose Reader with Notes, Grammar and Glossary by Dr. Gudbrand Vigfusson and F. York Powell.

ENGLISH LANGUAGE AND LITERATURE—PROFESSOR FREEMAN—

The studies in the department of English are arranged as follows:

SOPHOMORE YEAR.

Fall term—1. English Language and Literature, - Anglo-Saxon Period.
Winter term—2. English Language and Literature, - Transition Period.
Spring term—3. English Language and Literature, - XIVth Century.

JUNIOR YEAR.

Fall term—4. General Course in English Literature, - Three times a week.
Winter term—4. General Course in English Literature, Three times a week.
Winter term—5. Study of English Masterpieces, Sir Thos. More to Tennyson.
Spring term—6. Study of English Masterpieces, American Poets.

SENIOR YEAR.

Winter term—7. Study of English Masterpieces, The Shakespeare Course.
Spring term—8. Study of English Masterpieces, American Prose Writers.

All the courses are elective except courses 3 and 4, which are required of students in the classical courses.

Courses 1, 2, 3 and 4 are given every year; the others in alternate years — 5 and 6 in 1885–86, 7 and 8 in 1886–87. The last four may be taken by either Seniors or Juniors. Course 4 extends as a half study through the Fall and Winter terms.

Course 5 includes Sir Thomas More's Utopia, Roger Ascham's Schoolmaster, Sir Philip Sidney's Defense of Poetry, Spenser's Fairy Queen, Bacon's Essays, Milton's Areopagitica, Pope's Rape of the Lock, Burke's French Revolution, Tennyson's Princess.

Course 6 consists of the direct study of the poems of Bryant, Longfellow, Whittier, Holmes and Lowell.

Course 7 consists of the direct study of Midsummer Night's Dream, Richard III, Merchant of Venice, Henry IV (Parts I and II), As you Like It, Twelfth Night, Hamlet, Othello, Macbeth, The Tempest.

Course 8 consists of the direct study of the prose writings of Hawthorne, Irving, Longfellow, Lowell, Thoreau and Emerson.

RHETORIC AND ORATORY — PROFESSOR FRANKENBURGER, assisted by MR. TURNER —

In the Senior year the philosophy of rhetoric, three times a week, and elocution twice a week, together constitute an elective study in all the courses. The text-book in rhetoric is Hill's Science of Rhetoric. In elocution the class will use Macbeth and Othello, with lectures.

In the fall term of the Sophomore year of the General Science Course, rhetoric is a required study for the term. The text-books are Hill's Principles of Rhetoric, and Abbott's How to Write Clearly.

The Sophomores of the classical courses study rhetoric during the winter term, using the same text-books as those used by the scientific division.

Each member of the Freshman and Sophomore classes is required to have six essays and six declamations during the year. Private rehearsals precede public declamation, and each student has personal criticism passed upon his essay, after it has been read to the class.

Each member of the Junior and Senior classes has five essays and one oration. Class debates frequently take the place of essays.

In addition to the above class exercises there are three rhetorical exercises in each term, at which time all the students in the university are present. At this exercise are given those orations of the Juniors and Seniors, and those essays and declamations of the Freshmen and Sophomores which possess special merit.

Students write a portion of the time upon assigned themes.

Instruction is given in elocution once a week to the Freshman class. In the Senior, Junior and Sophomore years, elocution is optional. To those who desire it, instruction is given once a week.

This department is supplemented by work in the literary societies. These are five in number, two supported by the young women and three by the young men.

MATHEMATICS —PROFESSOR VAN VELZER, assisted by MRS. CARSON —

All students entering the University must pass a thorough examination in arithmetic, in higher algebra through quadratic equations, and in plane geometry; those entering the Modern Classical or General Science Course, must, in addition to the above, pass in solid geometry. In the Ancient and Modern Classical Courses, the required mathematics ends with trigonometry, in the General Science Course with analytical geometry, and in the Engineering Courses with calculus, but all students have the privilege of electing the higher branches.

To students who elect mathematics in the Junior and Senior years, and also to post-graduates and special students, instruction will be given in the more advanced portions of the studies of the course, and also, whenever desired, in any of the following subjects: higher plane curves, geometry of three dimensions, differential equations, spherical harmonics, elliptic functions, theory of functions, theory of numbers, quantics and quaternions.

The effort is made to secure a thorough acquaintance with the principles of mathematics and facility in their application. A general examination is held at the close of each term, and in addition frequent preliminary examinations are held, which extend to previous as well as current work. Reviews are also frequent, which are intended to increase the student's familiarity with the subject and to give him a general view of those topics which have already been treated in detail.

TEXT-BOOKS.— Loomis' Algebra, Smith's Conic Sections, Wentworth's Geometry, Wheeler's Trigonometry, Byerly's Differential Calculus, Byerly's Integral Calculus, Boole's Differential Equations, Hardy's Quaternions.

ASTRONOMY — PROFESSOR HOLDEN —

The Washburn Observatory is open to visitors on the first and third Wednesdays of each month, from 7:30 to 9:30 P. M., if the nights are clear. All students of the University are invited to come at these times.

The required astronomy (short course) is taught by daily recitations during the spring term of the Senior year (12 to 1 P. M.). This course should be elected during the spring term of the Junior year by students who desire to take the longer course. The text-book is Newcomb and Holden's Astronomy — American Science Series, "Briefer Course."

The long course in astronomy may be elected by any student who has previously studied the calculus, and who has passed a satisfactory examination in the required astronomy. If elected it must be followed for the three terms of the Senior year (2 to 4 P. M.). The course consists of two parts — theoretical and practical. The first is taught from text-books, of which Chauvenet's Spherical and Practical Astronomy, and Watson's Theoretical Astronomy, are the most important.

Students must first become familiar with the theory of instruments and with the main principles of theoretical astronomy, and of astronomical computations. As soon as they are sufficiently advanced, a regular plan of work with some one or more of the excellent instruments of the Students' Observatory will be laid out for them, which they are expected to follow with diligence. Each student is required to make and reduce the ordinary meteorological observations.

The Students' Observatory is in a separate building, and it is very completely equipped with a 6-inch refractor, by Alvan Clark and Sons, a 3-inch combined zenith telescope and transit, by Fauth and Co., a Spencer and Browning sextant, and mean time and sidereal chronometers. Any independent work of sufficient importance done by students will be printed in the *Publications of the Washburn Observatory*, authorized by law.

Post-graduate students will be received in the observatory on the footing of assistants, and will take part in the regular series of observations with the large equatorial or with the meridian circle, at the same time that they continue their theoretical studies. The instruments of the Students' Observatory afford every facility for independent work.

PHYSICS — PROFESSOR DAVIES —

The required course consists of one daily recitation or lecture during the Fall term. The text-book used is Atkinson's translation of Ganot's Physics, in one volume. The elective course consists of work in the physical laboratory during the Winter and Spring terms, continued when possible through the Senior year. The text-books used are Sylvanus Thompson on Electricity and Magnetism, Gray's Absolute Measurements in Electricity, and Kohlrausch's Physical Measurements. Advanced students read Rayleigh on Sound; Mascart and Joubert on Electricity and Magnetism; Glazebrook's Physical Optics; Thompson and Tait's Natural Philosophy, and Clausin's or Bayne's Thermodynamics.

CHEMISTRY — PROFESSOR DANIELLS, assisted by DR. HILLYER —

LONG COURSE. — This course consists of a daily exercise throughout the year, and may be continued two years, at the option of the student. The course is intended to be so thorough as to give an accurate training in the science, which will be of value for its own sake, while at the same time the design is to make it so practical that it shall be of special service to those intending to become physicians, engineers, metallurgists or practical chemists.

Descriptive Chemistry. — Instruction in inorganic chemistry is given by lectures, with free use of the text-book, and by laboratory practice during the Fall term. During the Spring term, a course of lectures is given on chemical philosophy, and the chemistry of the carbon compounds.

Qualitative Analysis is begun on the completion of the lectures on inorganic chemistry. The course includes the analysis of fifty solid substances, containing not more than one base and one acid each, and of forty complex substances, most of which are ores, minerals or substances used in the arts. In the analysis of complex compounds, the separation, as well as the detection of the different bases and acids present, is required. Laboratory work is accompanied by frequent lectures and reviews. Exercises in stoichiometry and chemical problems are required throughout the year.

Quantitative Analysis. — Students are taken into the quantitative laboratory as soon as they have completed the course in qualitative analysis. Substances of known composition are first analyzed, that the accuracy of each student's work may be tested by comparing his results with the known percentages. When skill and accuracy in manipulation sufficient to secure

correct results have been acquired, substances more difficult of analysis are given, as minerals, ores, crude metals, fertilizers, commercial and technical products. Each student makes duplicate analyses of every substance, which, with those made by other students, verify the accuracy of his work. Volumetric analysis is also taught, and volumetric methods are used in the laboratory, when they are more expeditious or more accurate.

Students intending to become physicians will, upon completing the course in qualitative analysis, be given special facilities for urine analysis, the detection of poisons, and the analysis of foods, drugs, etc.

To those desiring to become teachers of science, and who have completed the course in qualitative analysis, an advanced course in experimental chemistry will be given.

The text-books in this course are: Richter's Inorganic Chemistry; Remsen's Organic Chemistry; Fresenius' Qualitative Chemical Analysis, and Fresenius' Quantitative Chemical Analysis.

Both the qualitative and quantitative laboratories are large, conveniently arranged, well ventilated and well lighted, supplied with gas, running water, and all necessary apparatus and fixtures. Each student is provided with a convenient table, shelves, drawers and cupboard, and is supplied with a complete outfit of apparatus and chemical reagents.

SHORT COURSE.—This course consists of twelve weeks' instruction, principally by lectures, in inorganic and organic chemistry. It is intended only to give an outline of the science, with some knowledge of the general principles governing chemical changes. The text-book used is Clarke's Elements of Chemistry.

GEOLOGY AND MINERALOGY — PROFESSOR IRVING, assisted by PROFESSOR VAN HISE —

The courses in these studies are arranged as follows:

Study.	*Weekly hours.*	*Term.*	*Year.*
Blowpipe Analysis	10	Winter, first half	Junior.
Crystallography	5	Winter, second half	Junior.
Mineralogy — (General Principles)	5	Winter, second half	Junior.
Mineralogy — (Descriptive and Determinative)	10	Spring	Junior.
Geology (General Lectures).	3 2	Fall Winter	Senior.
Lithology (Microscopic)	4	Fall	Senior.
Paleontology	3	Winter	Senior.
Economic Geology	5	Spring	Senior.

Of these studies the long course in mineralogy and geology includes the blowpipe analysis, crystallography, mineralogy (both terms), geology (general lectures, both terms), and either one or both of lithology or paleontology. The short course in geology includes the general lectures of the Fall and Winter terms.

BLOWPIPE ANALYSIS is taught in the laboratory, the student working two consecutive hours daily, first on known and then on unknown substances. At least one term of chemistry is a prerequisite to this study. The text-book at present in use is Brush's Blowpipe Analysis.

CRYSTALLOGRAPHY is taught by daily recitations, with study of large wall charts, and glass and wooden models. The text-book is Dana's Text-Book of Mineralogy.

MINERALOGY follows directly on the crystallography. The general principles are taught by recitations and lectures. Descriptive and determinative mineralogy are taught in the laboratory, two hours' daily attendance being required. At least one term of chemistry and the blowpipe analysis and crystallography, as above, are prerequisites. Text-books as above.

GEOLOGY.— The general course of lectures on Mondays, Wednesdays and Fridays of the Fall term, and Tuesdays and Thursdays of the Winter term, covers lithology and structural, dynamical and historical geology, in the order named. The students are required to write out notes on the lectures, and present them from time to time for inspection. Recitations are held upon the lectures. Prerequisites to this course are at least one term each of chemistry and zoology. Students who have not had mineralogy are given some extra instruction on that subject. As a text-book, the student is allowed to provide himself with Geikie's Text-Book of Geology, Le Conte's Elements of Geology, or Dana's Manual of Geology, preferably the first named.

MICROSCOPIC LITHOLOGY.— The class in this subject is limited by the number of microscopes, of which there will be ten available for the Fall term of 1886. Each student has a microscope assigned to his exclusive use, and is free to devote all the time to it he can throughout the term, the instructor being present in the laboratory for at least one hour every day. The minimum time given to the study by each student is four hours weekly. There are several collections of thin sections accessible to the student, including in all some 2,700 sections. Besides this, after some practice, the student makes and describes a number of thin sections himself. The courses in physics, chemistry, crystallography and mineralogy are prerequisites. Attention is called to the unusual opportunities offered for obtaining advanced training in this new and important branch of geology.

PALEONTOLOGY.— This is an expansion, for such students as elect it, of the course in historical geology in the Winter term. The instruction is by recitation and handling of fossils in the laboratory. One term, at least, of zoology is a prerequisite. Text-book, Nicholson's Ancient Life History of the Earth.

ECONOMIC GEOLOGY is taught in a series of about forty lectures during the Spring term of the Senior year. The course includes a discussion of the nature and origin of ore deposits in general; the composition, properties, modes of occurrence, geological and geographical distribution of the ores of each of the metals; the same with regard to each of the non-metallic useful substances; mineral springs, artesian wells and water supply; the origin and geological relations of soils.

BIOLOGY — PROFESSORS BIRGE and SEYMOUR —

The course in Biology extends over one year, occupying eleven hours per week. It is designed to give an elementary knowledge of both botany and zoology, with laboratory work in both sciences, and to serve as an introduction to advanced work in either direction. The study may be taken by

those students who wish a more general course than is given in the long courses in either zoology and botany, and may properly precede advanced work in systematic botany or zoology, histology, animal or vegetable, anatomy of vertebrates or invertebrates. All students who wish to make biological science the main work of their course will begin by taking this study.

The lectures are arranged as follows:

First Term.—Botany. Course 2, - - - Three times a week.
Zoology. Course 3, - - - - Twice a week.
Second Term.—Botany. Course 2, - - Three times a week.
Zoology. Course 3, - - - - Twice a week.
Third Term.—Zoology. General Principles, - - Twice a week.

In this term the student will form an herbarium.

This course includes the required short courses in botany and zoology, and also makes a long course science.

TEXT-BOOKS.—Huxley and Martin's Biology, Bessey's Botany, Gray's Manual.

ZOOLOGY—PROFESSOR BIRGE—

The courses in this department are arranged as follows:

Course 1. General Zoology (long course), 10 hours weekly, 3 terms.
Course 2. General Zoology (short course), 5 hours weekly, 1 term.
Course 3. General Zoology (short course), for students of the General Science course. 2 hours weekly, 2 terms.
Course 4. Vertebrate Anatomy, - 10–15 hours weekly, 2 terms.
Course 5. Histology, - - - 10–15 hours weekly, 3 terms.
Course 6. Physiology, - - - - 3 hours weekly, 2 terms.
Course 7. Embryology, - - - 10–15 hours weekly, 1 term.

Courses 1, 2, 3 and 6, may be elected by any student. Courses 4, 5, 7, are laboratory courses only, and can be taken only by special arrangement with the teacher. The work is distributed through the year according to the following plan:

First Term.—Course 1. Protozoa to Mollusca.
Course 3. Comparative Physiology.
Course 4. Aves and Mammalia.
Course 5. Preparation of Specimens.
Course 6. Recitations.
Second Term.—Course 1. Mollusca, Arthropoda, Tunicata.
Course 2. Daily recitation.
Course 3. Classification.
Course 5. Chiefly Study of Preparations.
Course 6. Recitations.
Third Term.—Course 1. Vertebrata.
Course 4. Pisces, Amphibia, Reptilia.
Course 5. Advanced Work in Preparation, or Course 7.

Courses 2 or 3 are required of all students who do not take course 1, and students in course 1 attend the lectures of course 3. Course 4 is intended for students who wish a more extended knowledge of the vertebrates than is given by one term's work. It must be preceded by two terms of course 1,

and may be continued with histological or other work through two additional terms,

Course 5 is designed for students intending to take a medical course of study. It includes the preparation and study of specimens, illustrating the normal microscopic anatomy of the rabbit or cat. The student will learn the various methods of hardening and staining, including the preparation of staining fluids, imbedding teasing, etc. The laboratory is provided with microtomes by Beck, Bulloch and the Cambridge Scientific Instrument Company, and with microscopes by Leitz and Beck. Course 7 may be taken by students of this course, and the general embryology of the chick studied. The laboratory has a small incubator.

Course 1 consists of the comparative anatomy of the main types of animals, as the chief laboratory work, accompanied with lectures on classification and development. The laboratory is well equipped with instruments and material. Course 4 may be commenced by students in course 1, at the opening of the Spring term, or by students of the course in biology in the fall. It may be taken for two or three terms, and may be accompanied with histological work. A small reference library has been added to the equipment of the laboratory.

Course 6 is illustrated by a skeleton, and by Auzoux models of ear, eye, heart, larynx and brain.

TEXT-BOOKS.— Packard's Zoology, Orton's Comparative Zoology, Huxley's Anatomy of Vertebrates, Brooks' Hand-Book of Invertebrate Zoology, Klein's Elements of Histology, Martin's The Human Body, Foster and Balfour's Embryology, Parker's Zootomy (Vertebrates).

BOTANY — MR. SEYMOUR —

1. Elementary short course, - - 5 hours weekly, 1 term.
2. Advanced short course, - - - 3 hours weekly, 3 terms.
3. Long course, - - - - 10 hours weekly, 3 terms.
4. Botanical Analysis, - - - 5 hours weekly, 1 or 2 terms.
5. Agricultural Botany, - - - 5 or 15 hours weekly, 1 term.
6. Pharmaceutical Botany, - - - 3 hours weekly, 2 terms.

The work is distributed through the year as follows:

Fall term —

Course 2. Lectures on Physiological Botany.

Course 3. Course 2, with seven hours' laboratory work per week, on Histology and Cryptogams.

Course 4. Fall Flowers and Ferns.

Course 6. Officinal Plants.

Winter term —

Course 2. Lectures on Systematic Botany.

Course 3. Course 2, with seven hours' laboratory work per week, on Phænogams.

Course 4. Ferns and Grasses.

Course 5. Daily lectures and laboratory work on Agricultural Botany.

Course 6. Microscopic study of Drugs.

Spring term —

Course 1. Daily recitations or lectures; formation of herbarium.

Course 2. Formation of herbarium.

Course 1 is for beginners. Courses 2–6 follow course 1 or its equivalent in preparatory work.

Advanced students may select particular groups of plants for study in the fall and winter, or make collections of weeds, medicinal plants, etc., in the spring and summer.

TEXT-BOOKS.— Course 1: Gray's Lessons and Manual. Courses 2–3: Gray's Lessons and Manual, Bessey's Botany. Course 4: Gray's Manual.

CIVIL ENGINEERING — PROFESSOR CONOVER —

The instruction in this department is intended to furnish such training as will fit the student, after a moderate amount of experience, to successfully fill responsible positions in his profession.

Applied Mathematics forms the principal element of the technical class-room instruction.

Daily exercises in the draughting room are required throughout the entire course, and serve to give practice in applying the principles taught in the class-room.

Students electing the course during the Freshman year are given training in free hand and topographical drawing during that year, which proves of decided advantage in gain of time for more important work later.

The required course begins at the commencement of the Sophomore year with a selected progressive series of problems, illustrating the principles of projection drawing. Problems of stereotomy, during the second term, still further illustrate the application of those principles. Topographical drawing and platting are begun and carried through the third term in connection with surveying. These are also continued during the first half of the following term.

During the Junior year, practice in the application of the graphical statics occupies the Fall and Winter terms, and problems in construction the Spring term. Surveying is taught principally in the field. The department has a very full and excellent collection of surveying instruments from the very best makers. Instruction is begun in the third term of Sophomore year, and carried on during the Fall and Spring terms during the remainder of the course. Considerable actual practical work is obtained for and done by the students each year. A very complete sewerage map of Madison was completed by the students in 1884, a topographical survey and plat of the Wisconsin State Fish Hatchery grounds near Madison was made by them during the spring of 1885, and a topographical survey and plat to form the basis for landscaping a considerable tract near the city is now in progress.

Analytical mechanics is taught from text-books, and its applications illustrated by numerous examples and problems.

The theory of the resistance of materials is taught by text-book and selected examples. In connection with this class work numerous tests are made by the students of the various materials used in construction. The department has for this purpose a fifty thousand pound testing machine, by Tinius, Olson & Co., with tools for tensile compressive and transverse tests, and a cement tester, with all appliances, made by Riehlé Bros.

Appliances for other experimental work are now being added, and it is

expected that before the close of the present year a considerable beginning will have been made toward the equipment of an excellent engineering laboratory, and it is intended to supplement the class-room work in technical studies, wherever possible, with work of experiment and investigation.

In the theory of structures the student is not only taught how to make the calculations necessary in design, but is required to make them for every class of structure studied, and to complete working drawings of at least one structure in wood and one in iron.

A very considerable collection of drawings of a large variety of engineering structures was destroyed in the Science Hall fire, but through the liberality of the engineering profession this has been replaced and largely augmented, and it is believed that the collection is now excelled by few in the country.

Hydraulics and sanitary engineering are taught both by text-book and lecture. In the former actual practice in stream gauging is given the student. In the latter the study of actual works in sewerage and drainage and in heating and ventilation, and the working out of detailed schemes for projected work, and discussions upon them in the class-room, form essential features in the instruction.

Excursions are made during the Senior year for the purpose of inspecting engineering works and seeing actual examples of the classes of structures being studied in the class room.

The department has a technical library, largely sustained by its students, containing the current engineering and architectural literature, which is open to the students several hours of each week-day.

MECHANICAL ENGINEERING — PROFESSOR BULL —

DESCRIPTIVE GEOMETRY is taught during the Fall and Winter terms of the Sophomore year by recitations, three hours weekly, and by work in the draughting room. The exercises in the draughting room comprise two hours daily, spent in the precise construction of special problems under the direction of the instructor. The text-book used is Church's Descriptive Geometry.

DRAUGHTING.— Instruction in draughting begins with the Fall term of the Sophomore year, and is continued in daily exercises of two and three hours each throughout the course. The students first learn the use of draughting instruments and the simpler draughting operations, by means of the construction of the problems in descriptive geometry; these include projections and intersections of lines, surfaces and solids, tangents and tangent planes to curves and surfaces, problems in shades, shadows, perspective and isometric projections, which the students are required to solve, and carefully and exactly execute. During these first two terms the students are also taught the use of the brush in shading and tinting in India ink and water colors. The instruction in draughting is so far common to both the Civil and the Mechanical Engineering Departments; from now on the instruction is different. The students in Mechanical Engineering first make a number of tracings of detailed drawings of machines; then they begin with the design of some of the simpler elements of machines, and gradually work their way up to the more complicated ones. All these drawings

are required to be executed in such a way as to be fit for use as working drawings in a machine shop. For the sake of gaining some practice in tinting, the students are required to tint them. In the Winter term of the Junior year, the students solve a number of problems in graphical statics, with special reference to the elements of machines; for instance, the complete graphical determination of the dimensions of the crank and the crank-shaft of a steam engine, etc. A pump and some kind of lifting machinery are designed during the following term and during part of the Fall term of the Senior year. The student then begins the design of an automatic cut-off steam-engine, which work occupies him till the beginning of the Spring term, when he is to prepare the drawing for his graduating thesis.

The lectures on elements of machines during the first four terms of the course furnish the necessary rules and formulas for calculating and constructing the different elements. The course is very complete, and theory and practice are both alike considered.

Steam-Engine: In the Winter term of the Junior year a course of lectures, three hours weekly, is given on the theory of heat (thermodynamics), with special reference to steam. This course is followed in the Spring term by lectures on the steam-engine, three hours weekly. In these the theory of the steam-engine and of the boiler is principally considered; however, practical, yet scientifically-correct formulas for calculating the principal dimensions of an engine are given. These lectures are common to both departments of engineering.

The students in mechanical engineering continue the study of the steam-engine during the Fall term of the Senior year, now looking at the problem more from the practical side. The text-books used are Mark's On the Proportions of the Steam-Engine, and Zeuner's Valve-Gearing.

Hydraulic Motors and Pumps: A course of daily lectures on hydraulic motors, pumps, etc., is given in the following Winter term. Here again both theory and practice are considered, and are made to contribute equally to the establishment of the necessary formulas for calculating the proportions of these machines.

Machinery and Mill Work: Finally, in the Spring term of the Senior year, a shorter course of lectures on machinery and mill-work is given. The special subject treated in these lectures will vary from year to year, depending somewhat on the line of pursuit the students intend to follow after graduation.

Shop Work: The students in mechanical engineering are required to work eight hundred and sixty-five hours in the machine-shop during the course; Of these, two hundred hours fall in the Freshman year, the remainder in three following years. The detailed statement of the exact number of hours required in each term will be found under "Courses of Study, Mechanical Engineering."

Theses are required for graduation. The subject must be approved by the head of the department, but may be the complete discussion of existing machines or processes, or of designs original with the student.

PRACTICAL MECHANICS — MR. KING —

With the ample accommodations furnished by the new shops, it will be possible to make the instruction in all the branches of this department

thoroughly systematic. All instruction will, therefore, be given in classes, and examinations will be held at the end of each term.

All students in the Mechanical Engineering Department are required to spend eight hundred and sixty five hours in the shop. As soon as the shop shall be in running order, some practice in wood-work will also be demanded of the students in the Civil Engineering Course.

The instruction for the students in the Mechanical Engineering Department begins in the Freshman year and continues till the end of the Senior year. The detailed course of study is as follows:

FRESHMAN YEAR.

Second term — Hand work in wood, - - - - 90 hours.
Third term — Machine work in wood, - - - - 42 hours.
Third term — Pattern work in wood, - - - - 30 hours.
Third term — Moulding, - - - - - - 38 hours.

SOPHOMORE YEAR.

Third term — Vice work in cast iron, - - - - 30 hours.
Third term — Vice work in wrought iron, - - - - 25 hours.

JUNIOR YEAR.

First term — Forging in iron and steel, - - - - 44 hours.
First term — Lathe work, turning, boring and screw making, - 90 hours.
First term — Tap, die and brass work, - - - - 16 hours.
Third term — Tap, die and brass work, - - - - 32 hours.
Third term — Machine construction, - - - - 78 hours.

SENIOR YEAR.

First term — Machine construction, - - - - 150 hours.
Second term — Model designing, - - - - - 120 hours.
Third term — Model designing, - - - - - 80 hours.

A part of the last term of the Junior year and the first term of the Senior year will be devoted to the construction of some small machine. During the process of its manufacture due regard will be paid to the two elements entering into the cost of production, viz., cost of labor and cost of material.

It is also the intention of the instructor to have the students in the Mechanical Engineering Department construct working models of machinery, for the purpose of facilitating the instruction in said department. Every student will therefore be required to design and construct such a model before graduating.

Special students in the machine-shop will be required to give the same attention to the work as those in the regular classes and will be governed by the same rules.

METALLURGY AND ASSAYING — PROFESSOR VAN HISE —

METALLURGY is taught during the Fall and Winter terms of the Senior year, to students of the several technical courses. Greenwood's and Bauermann's Manuals are used as the ground work of the course, which is illustrated by charts, lantern slides, collections of ores, technical products, etc.

The subjects taken up in order are: general principles, fuels, furnaces, metallurgy of iron, steel, copper, lead, silver, gold, antimony, arsenic, tin, platinum, etc. Excursions are made to smelting establishments with the instructor, and memoirs descriptive of actual operations are required. Furnace construction is taught in the draughting room.

ASSAYING is taught during the Spring term of the Junior year to students of the courses in metallurgy and mining engineering, and to such others as may so elect. The course includes about ten lectures on the theory and practice of assaying, the remainder of the work being in the laboratory. There the student is given ores of silver and gold, which he assays in duplicate by both crucible and scorification methods, the whole number of assays made being about one hundred. The assay of gold and silver bullion then follows, after which the lead assay completes the course. The new laboratory will be large and completely equipped with new furnaces and apparatus of the most approved forms. It is hoped that this laboratory will be ready for occupation by the Spring term of 1886.

TEXT-BOOKS.— Greenwood's Manual of Metallurgy, Bauermann's Metallurgy of Iron, Rickett's Notes on Assaying.

AGRICULTURE — PROFESSOR HENRY —

THE LONG COURSE in Agriculture is taught during the Fall and Spring terms of the Senior year.

The Fall term will be devoted to stock breeding and draining. Under the first head will be considered the history of our various breeds of stock, principles of stock breeding and the feeding of stock. While pursuing this subject it is designed, not only to make use of the various breeds of stock on the Experimental Farm for illustration, but it is also expected that the class will visit several of the herds and flocks of improved animals in the state, and thus acquire familiarity in handling and judging stock. As a text-book, in part, for this course, Miles' Stock Breeding will be used. In draining, the student will receive the theoretical part by a study of Waring's Draining for Profit and Health, and by lectures. A system of thorough tile draining has been planned for a part of the Experimental Farm, which will require several years for completion; while this is in progress, ample opportunity will be afforded the student to assist in the practical operations of surveying, planning and laying drains.

During the Spring term several topics will receive attention, among which may be named, farm book-keeping, general farm management, rotation of crops, farm manures and farm crops.

The experimental farm, lying in close proximity to the college buildings, will be used for the purposes of illustration, so far as is practicable. It is expected that agricultural students, during the last year of their course, will become familiar with the experiments in progress, and, when possible, will assist in conducting them.

THE SHORT COURSE is intended to meet the present needs of Wisconsin farmers and will be made as practical as possible.

Among the topics that will be treated of may be named the following:

The Soils: Management of the various soils to retain and increase fertility.

Tile Drainage: Laying out a set of drains; methods of opening ditches; effects of drainage; description of tools used in tile drainage.

Crops: History and description of the various grain and forage plants cultivated in Wisconsin; methods of cultivation; rotation of crops.

Live-stock: History and description of the improved breeds; theory of stock breeding; studies of pedigrees from the several herd-books; care and management of stock.

Dairy Husbandry: Description of the modern methods of making butter and cheese.

Farm Buildings, farm accounts and road making are among the minor topics that will receive attention.

Owing to the course being given during the winter months only limited use can be made of the experimental farm; yet so far as possible illustrations will be given from this source; the student will be expected to become familiar with the experiments in progress at this season, which are mainly in stock-feeding and dairying. A study will be made of the work done at the other experiment stations of the country, so that the students may be well posted in the present condition of agricultural science in America.

AGRICULTURAL CHEMISTRY — PROFESSOR ARMSBY —

The instruction in agricultural chemistry will be given by daily lectures during the second term, amply illustrated by experiments, specimens, charts, diagrams, etc. The following are some of the more important subjects which will receive attention:

Chemical elements contained in air, soil, crops, animals and manures. *Stock-feeding:* How fodders are digested; laws of growth and fattening; feeding standards; feeding for meat, milk, growth, etc. *Fodders:* Composition, digestibility and comparative value. *Milk:* Composition, milk-testing; principles of dairying. *The air:* Composition; relations to growth of crops. *The soil:* Formation, classification and physical properties; water and air of the soil; the soil as a source of food for crops. *Manures:* Necessity for manuring; classification of manures: stable manure, its composition and value as affected by the food eaten — manurial value of fodders. *Commercial fertilizers:* Nitrate of soda, dried blood, bone manures, superphosphates, guanos, potash salts, lime, salt, plaster, etc.; general properties of commercial fertilizers; how and when to use them. *Tillage:* Objects and effects. *Underdraining.*

In treating of these and kindred subjects, the endeavor will be to make plain the principles upon which the success or failure of farm operations depend. In many cases the same subject will be treated of in the lectures upon agriculture from the side of practice, the application of the general principles to the problems of farming being illustrated and enforced.

In addition to the lectures, an advanced course, consisting of laboratory instruction supplemented by reading under the direction of the professor, is provided. For admission to this course students must have attained a fair degree of proficiency in general chemistry and in qualitative and quantitative analysis.

This course is specially designed for such students as may desire to fit themselves for positions as chemists or assistants in agricultural experiment

stations or similar institutions, and every possible facility will be afforded to such students to become acquainted with the methods and aims of agricultural chemical analysis, and of agricultural experimentation. The Wisconsin Agricultural Experiment Station is located at the University, and students will have an opportunity to become familiar with its methods of work by observation, and, when possible, by personal participation in it.

AGRICULTURAL BOTANY — MR. SEYMOUR —

To render the instruction in practical botany as comprehensive as possible, courses of both lectures and laboratory work have been arranged as follows:

A course of daily lectures will be given in which it is intended to consider all those botanical subjects which are of most importance to the farmer, including the structure of plants and the manner in which they feed, grow and reproduce their kind, with special reference to cultivated crops, climatic influences, origin and history of cultivated plants and means of improving them; importance and management of forests, weeds and plant diseases, and methods of dealing with them. The lectures will be supplemented so far as possible throughout by practical illustrations.

Laboratory work will consist chiefly in the examination and study of weeds and grasses; and if faithful work is performed, students should be able, at the end of the course, to easily identify the more common plants of these groups. It is hoped, also, that a class may be formed for microscopic laboratory work upon plant diseases.

VETERINARY SCIENCE — DR. ATKINSON —

Believing that much harm is frequently done by unwarranted interference of incompetent persons with our domestic animals when diseased, and that there is not a sufficient number of qualified veterinary surgeons in the state to care for them properly, it will be the aim of this course to impart such knowledge as will enable the student to co-operate intelligently with the regular practitioner, or, in the absence of such aid, to meet such emergencies as frequently arise and may be met by the use of ordinary remedies. The instruction will embrace an outline of all the branches taught at the regular veterinary colleges, and will be illustrated by skeletons, charts, models, etc.

It is believed that those who take this course will have our live-stock interest at heart, and it is hoped thereby to establish such intercourse between the students and the state veterinarian by frequent correspondence and systematic reports of the sanitary condition of the animals in their respective districts as shall ultimately establish a veterinary sanitary police system which will effectually protect our herds.

WISCONSIN AGRICULTURAL EXPERIMENT STATION — PROFESSORS HENRY, ARMSBY and SEYMOUR —

In accordance with the terms of chapter 300 of the Laws of 1883, the Board of Regents, at their June meeting, 1883, organized the Wisconsin Agricultural Experiment Station, and placed its general management in the hands of the Farm Committee of the Board.

The purpose of the station may be stated to be, in general, the promotion of agricultural science by investigation and experiment. It proposes to in-

vestigate as fully as lies in its power such questions as are of special interest to the farmers of this state, and at the same time so to investigate them that the results may have a general as well as a local value, and may be real contributions to agricultural science. It will also endeavor to be of use as a means of disseminating information on agricultural topics; and correspondence or personal interviews on such topics are desired.

Specimens of weeds and introduced plants of questionable value, of cultivated and other plants attacked by fungi (rusts, smuts, mildews, etc.), and of noxious and beneficial insects, are likewise solicited. In return, the names of unknown plants and insects, together with information as to the best means of dealing with them, will be gladly given, so far as possible, and questions will always be cheerfully answered.

Samples of farm and garden seeds, when taken according to the station's instructions, will also be examined as to purity and vitality; and in general, all chemical and botanical work which is of general interest will be undertaken free of charge, so far as the facilities of the station will permit.

The work of the station will be conducted by the professors of the agricultural department of the University, viz.:

W. A. HENRY, Professor of Agriculture.

H. P. ARMSBY, Professor of Agricultural Chemistry.

A. B. SEYMOUR, Instructor in Botany.

The office of the station is at No. 16, Agricultural Hall. Its chemical and botanical laboratories and herbarium are in the same building, while the University farm, which joins the University grounds on the west, furnishes the necessary facilities for the conduct of field and feeding experiments.

Communications and inquiries should be addresed to

AGRICULTURAL EXPERIMENT STATION,
Madison, Wisconsin.

AGRICULTURAL INSTITUTES — MR. MORRISON —

In compliance with chapter 9 of the laws of 1885, the Board of Regents, at their annual meeting in June, 1885, adopted the following: "That farmers' institutes shall be held under the auspices and direction of the Board of Regents, as arranged by the Farm Committee of said Board, which committee is hereby authorized to appoint, for such term and at such salary as said committee may deem proper, a superintendent of agricultural institutes, whose duty it shall be to conduct the exercises of all such meetings or conventions, and in conjunction with the Farm Committee to arrange a programme to teach by theory and practice such branches of agriculture as may be deemed proper in such localities throughout the state as manifest sufficient interest, such as proffering free use of hall, bearing the local expenses, organizing and bringing out local talent to present practical papers upon agricultural subjects of special local interest, and taking part in the discussions." The purpose of the farmers' institute is to assist the farmers in every county of the state. It will impress them of the necessity of more wide-spread dissemination of useful, practical knowledge in the different branches of agriculture.

By assembling the intelligent, progressive farmers of each county for a two or three days' conference to compare results and discuss the most approved methods of agriculture in its various departments, it will enlarge

his understanding, improve and increase the products of the farm, and thereby greatly augment the wealth of the state.

The office of the Superintendent is at the Capitol, room 2, south wing.

DEPARTMENT OF PHARMACY — PROFESSOR POWER —

The object of this department is to furnish to the Pharmacists of the Northwest and other sections of the country an opportunity for acquiring a thorough practical education in those departments of science most intimately connected with, or relating to, the practice of this profession.

The course extends over a period of two years, embracing the Fall and Winter terms of each academic year. The instruction comprises a series of lectures upon practical pharmacy and pharmaceutical chemistry; general chemistry, inorganic and organic; chemical physics, materia medica (pharmacognosy), and structural, systematic and physiological botany — all of which are amply illustrated by cabinet specimens, experiments, apparatus and diagrams, with frequent reviews throughout the course.

On account of the importance and value of thorough practical as well as theoretical knowledge in the several departments of study, the attainment of a certain degree of proficiency and skill in practical chemical analysis and in pharmaceutical and chemical manipulations is required of all those upon whom the degree of the University is conferred. All students are therefore required to apply themselves daily, throughout the course, to practical work in the chemical and pharmaceutical laboratories. This embraces a systematic and progressive course in qualitative and quantitative chemical analysis, including volumetric estimations, together with shorter courses in the analysis of urine and in chemical toxicology, or the identification and separation of the more important poisons, as also the preparation of at least one of each of the several classes of galenical or chemical preparations of the United States Pharmacopœia. In addition thereto, optional courses are offered in the botanical laboratory in the study and identification of officinal plants, and in practical microscopy.

The laboratories likewise afford to the advanced students facilities for the prosecution of independent research and investigation under the guidance of the professor in charge; but which will be subject to such conditions or restrictions as he may specify.

In connection with the above prescribed course, it is designed to incorporate from time to time such other courses or departments of study as shall seem practicable or desirable.

TERMS OF ADMISSION.

All applicants for admission must be at least sixteen years of age.

Applicants who bring a diploma of graduation from any standard high school, or a certificate of good standing and scholarship in a corresponding higher educational institution, will be admitted without examination.

All other applicants who do not present written evidence of a satisfactory preliminary education, will be subjected to such an examination in arithmetic, grammar, English composition, geography (political and physical), and history of the United States, as will afford a guaranty that the applicant is capable of pursuing with advantage and profit to himself the studies

of this department. The examination of such applicants will be held on the first two days immediately following the opening of the fall term.

Students from other recognized colleges or schools of pharmacy will be admitted to the Senior course of this department only when by a special examination they are found to be proficient in the studies of our Junior year, including the required amount of laboratory work.

REQUIREMENTS FOR THE DEGREE OF GRADUATE IN PHARMACY (PH. G.).

Every person upon whom the diploma of this department of the University shall be conferred, must conform to the following requirements:

He must have attained the age of twenty one years, and have attended two full courses of instruction (two years) in this department of the University; or one course (one year) in this, and one in another recognized college or school of pharmacy, in which the same studies are required. The last year, however, must be passed in this University. His deportment, character and work must have been satisfactory. He shall also furnish evidence of having had a practical experience of four years in a dispensing pharmacy, under the guidance of a competent and reputable preceptor (the time actually spent in attendance upon the lectures and in the instruction of the laboratories, fourteen months, being considered a part of such time of service), and shall submit an original essay or thesis upon some subject of practical pharmacy, chemistry, materia medica, botany or other branch of science intimately connected therewith.

The candidate must furthermore have passed a satisfactory examination, by the faculty, in the several branches of science taught, including laboratory work, and an examination in practical pharmacy by a committee composed of three members of the State Pharmeutical Association.

On the satisfactory fulfillment of the above requirements, the candidate will be entitled to the degree of Graduate in Pharmacy, and shall receive the diploma of the University.

THE STATE PHARMACEUTICAL ASSOCIATION PRIZE.

A prize, consisting of a handsome gold medal, will be annually awarded by the State Pharmaceutical Association to that member of the graduating class who has attained the highest standing or scholarship in all the studies of this department.

The prize was awarded in 1885 to Henry G. Ruenzel, of Milwaukee, Wis.

TEXT-BOOKS AND BOOKS OF REFERENCE.

PHARMACY. Parrish's Practical Pharmacy; United States Pharmacopœia (sixth revision).

CHEMISTRY. Richter's Inorganic Chemistry; Fresenius' Qualitative Analysis; Hoffmann and Power's Examination of Medicinal Chemicals; Remsen's Organic Chemistry.

MATERIA MEDICA. Maisch's Organic Materia Medica; Flückiger and Hanbury's Pharmacographia; National Dispensatory by Stillé and Maisch.

BOTANY. Gray's Lessons and Manual of Botany; Bessey's Botany.

FEES AND EXPENSES.

A matriculation fee of $5 is required to be paid for the first course in this department; the ticket issued therefor should be obtained by Septem-

ber 15th, and none will be issued after October 1st. This ticket is to be renewed for every subsequent course (without additional expense), in order that a correct registry of attendance may be kept.

The lectures are free to all matriculated students who are residents of the state of Wisconsin; for non-resident students a lecture fee of $25 is required for each course, which must be paid by October 1st. The fee for incidental expenses is $8 for each course, which must be paid by all students. In the instruction in the chemical laboratory each student is required to pay for the chemicals which he consumes, and for the use or breakage of apparatus. The expense will be in proportion to the care and economy exercised in his work. A payment of $15 in advance is therefore required, of which, as of all subsequent deposits, an accurate account is kept; and the amount of the deposit not used is returned to the student at the completion of the course.

In the pharmaceutical laboratory a fixed fee of $5 is required, to cover the cost of material consumed and the use of apparatus; the latter, however, when broken or injured, must be replaced. Materials which may be required for original investigations or for work upon graduating essays must be furnished by the student at his own expense.

A diploma fee of $3 is required upon graduation.

Further details relating to this department are contained in the annual announcement, published in May, which may be obtained by addressing

PROF. F. B. POWER,
Madison, Wisconsin.

MILITARY SCIENCE AND TACTICS—LIEUT. LUIGI LOMIA, 5th U. S. Art'y.

All able bodied male students are required during the first two years of the course, to attend such military drills and exercises as are prescribed by the faculty. They are organized as the University Battalion, consisting of three companies (formerly two) and staff, for instruction in infantry tactics, and, when on duty, are required to wear a uniform. The prescribed uniform consists of a dark blue blouse, of pattern worn by officers in the regular army, with state buttons. Pants of the same cloth, plain. Cap, dark blue (chasseur or forage cap) with gold leaf and letters U. W. on black velvet. It is less expensive than civilian dress, and can be worn with propriety at all times. The cost of this uniform is about $20. The course in this department, which is both theoretical and practical, is planned as follows: The theoretical part is elective, except as regards cadets appointed to office, who are required to take the first year's theoretical course, at least. This instruction runs through a period of two years. In the first year, infantry and artillery tactics, regulations and customs of service are studied; the second year's course consists of military and international law, field fortifications, science of gunnery and military history by lecture. Under the laws of the general government and of the state of Wisconsin, practical instruction in military science and tactics is obligatory. The discipline is thorough, a certain number of unexplained reports for breaches of military discipline in any one term dismissing the cadet from the University. The practical instruction for the present Fall and Winter terms will embrace the school of the soldier, the school of the company, guard duty, bayonet

exercise and artillery drill — the last for the second year's students only. In the Spring term the instruction will be in the skirmish and battalion drills; dress parades, reviews, inspections and other military ceremonies will also be taught. As far as practicable target practice will likewise be carried on during the Spring term. The battalion is officered by those young men who have shown themselves to be most prompt and faithful in the discharge of their duties, and who are conspicuous for soldierly bearing. As far as practicable the commissioned officers will be chosen from the Senior and Junior classes or from special students of more than two years' standing, who may voluntarily retain membership in the battalion. But this rule will be deviated from as often as in the judgment of the Professor of Military Science and Tactics the interests of the battalion will be best served. The general government furnishes for the use of this department one hundred and fifty breech-loading Cadet Springfield rifles, cal. 45, with accoutrements complete; two three-inch rifled cannon, with cartridges, limber and implements; also one thousand rounds of ball, one thousand rounds of blank rifle cartridges, one hundred blank cartridges and three hundred friction-primers for three-inch guns, annually, to be used in drills and target practice.

Roster of the University Battalion, taken from the rolls at the close of the Spring term, 1885:

STAFF.

1st Lieut. and Adjutant, L. R. Anderson.
Quartermaster, H. Greene.
Sergt.-Major, R. M. Richmond.
Quartermaster Sergt., O. Hallam.

COMPANY "A."	COMPANY "B."
Captain, J. A. Bruce.	Captain, W. S. Tupper.
1st Lieut., F. N. Hooker.	1st Lieut., E. B. Belden.
2d Lieut., H. Greene.	2d Lieut. (acting), F. E. Bamford.
1st Sergt., R. F. Troy.	1st Sergt., H. E. Briggs.
2d Sergt., A. J. West.	2d Sergt., R. Kolliner.
3d Sergt., H. H. Roser.	3d Sergt., F. B. Phelps.
4th Sergt., W. E. Kramer.	4th Sergt., I. Shrimski.
1st Corporal, L. H. Jackson.	1st Corporal, D. S. Clark.
2d Corporal, L. Murphy.	2d Corporal, A. B. Winegar.
3d Corporal, F. W. Kelly.	3d Corporal, W. E. Durr.
4th Corporal, N. Robinson.	4th Corporal, J. D. Hullinger.
5th Corporal, C. M. Beebe.	5th Corporal, J. C. Bloodgood.

MUSIC — PROFESSOR PARKER —

There are two general classes in music, each of which meets once a week during the entire year. The first of these begins at the opening of each year, with a course in the elements of the theory of music, combined with practical exercises in the art of reading vocal music. All students who desire to join this class are admitted without restriction.

The second class is devoted to the practice of glees, choruses, part-songs, etc. The selections of music are varied in kind and style, for the purpose of acquainting the students with the works of both classical and modern authors. All who enter this class are expected to read plain music readily.

Smaller organizations for special occasions or general practice are encouraged, and receive such attention as can be given without detriment to other work.

Private lessons in vocal culture, piano playing and harmony, are given to students pursuing any of the regular courses of study, on application and presentation of a card from the Secretary of the Board of Regents, to indicate that the fees mentioned under the head of expenses have been paid. Special students taking two studies may receive private lessons on the same conditions by consent of the faculty.

The instruction, both in singing and piano playing, is designed to be thorough and progressive, combining a careful technical training with proper guidance to intelligent interpretation.

There are occasional public exercises in addition to class exercises.

COLLEGE OF LAW.

GENERAL STATEMENT.

The great advantage of professional schools for the rapid and thorough elementary training of professional men has been long since completely demonstrated, and no profession has more entirely accepted and heartily acknowledged the benefits of such schools than the legal profession.

The learning of this profession embraces almost all the relations of life, and the result of the experience of many ages is scattered through the numerous treatises, reports, statutes and digests. To obtain the mastery of the topics embraced within the limits of the body of the law in such a degree of perfection as marks the learned lawyer, requires many years of diligent study and practical experience.

The beginner needs to gain a comprehensive general view and analysis of the whole system; then to learn, without the careful reading which would occupy a life-time, what the books contain, and where to search for more particular and detailed information; and to acquire the habits and methods of legal study and thought. This degree of attainment can be reached in the professional school in at least half the time in which the student can otherwise acquire it, and with the additional advantage that there is no incumbrance of obsolete ideas or mistaken impressions, which are so difficult for any but a lawyer to distinguish from living doctrine, among the great mass of legal writings.

To afford the young men of Wisconsin and the Northwest ready facilities for such acquirements, this department has been established.

THE METHOD OF INSTRUCTION.

This is by lectures, and by examination upon the subjects of the lectures, and upon topics previously designated, and by moot court practice. Cases are given the students, upon which they are required to prepare pleadings, make briefs and oral arguments. Special attention is given to the preparation of motion papers, orders, judgments and pleadings.

ADVANTAGES.

Graduation from this department confers the title of Bachelor of Law, and a certificate of graduation entitles the student to admission to practice in all courts of the state.

The peculiar advantages which the city of Madison, the capital of the state, affords to the student of law, deserve mention. All sessions of the supreme court are held here, and also two terms of the United States circuit and district courts annually. The circuit court for the county of Dane holds three terms annually, so that there is almost constantly some court in session.

The judges who preside in the courts held in Madison are as follows:

In the United States Court — Hon. John M. Harlan, the associate justice of the supreme court of the United States, assigned to the seventh circuit; Hon. Walter Q. Gresham, circuit judge; Hon. Romanzo Bunn, district judge.

In the Supreme Court of the State — Hon. Orsamus Cole, chief justice; Hon. William P. Lyon, Hon. Harlow S. Orton, Hon. David Taylor, Hon. John B. Cassoday, associate justices.

In the Dane County Circuit — Hon. Alva Stewart, circuit judge.

These courts hold their sessions near the hall of the law school, and students can easily avail themselves of the advantages which these courts afford in the trial of cases at *nisi prius*, and the argument of the cases *in banc*, where all the diversity of legal topics will be discussed from day to day, and cases argued, many of which are of great interest, both on account of the questions at issue and the public and private interests involved.

Through the munificence of the legislature of the state, an elegant and commodious apartment has been set aside in the capital building for the law school, which will render the use of the libraries and the attendance upon the various courts more convenient than ever before.

LIBRARIES.

There is a fine law library belonging to the school, to which additions are constantly being made. Extra copies of the more necessary text-books are provided, which the students are allowed to take out and use free of charge.

The law library of the state is also located in the capitol building, and is at all times accessible to students for study and reference. This is the largest and most complete library of this kind in the Northwest.

COURSE OF INSTRUCTION

Junior Year.

PROFESSOR CARPENTER.

First term — Contracts, including Agency.— *Parsons and Story on Agency.*

Second term — Contracts, including Partnership.— *Parsons.*

Third term — Contracts, including Bailments.— *Parsons and Story on Bailments.*

PROFESSOR SANBORN.

First term — Jurisdiction, Original Process, Common Law Pleadings.— *Stephen.*

Second term — Equity Pleadings.— *Langdell.*
Code Pleadings.— *Pomeroy.*

Third term — Code Pleadings.— *Pomeroy.*
Practice, Practice after Judgment, and in Special Proceedings.

PROFESSOR SLOAN.

Real Estate. *I and II Vols. of Washburn to Uses.*

Corporations, Public and Private.— *Angell and Ames, and Morawetz.*

PROFESSOR JONES.

First term — Domestic Relations.— *Schouler.*
Personal Property.

PROFESSOR BASHFORD.

Second term — Fraudulent Conveyances. — *Bump.*
Statute of Frauds.— *Browne.*
Third term — Voluntary Assignments.— *Burrill.*

SENIOR YEAR.

PROFESSOR CARPENTER.

First term — Notes and Bills.— *Edwards.*
Second term — Torts.— *Cooley.*
Third term — Criminal Law.— *Bishop.*

PROFESSOR BASHFORD.

First term — Organization, Jurisdiction and Procedure of Federal Courts.— *Desty, Curtis, and Bump.*

PROFESSOR JONES.

Second term — Evidence.— *Greenleaf.*
Third term — Evidence.— *Greenleaf.*

PROFESSOR SLOAN.

Real Estate, commencing at Uses.— *Washburn.*
Equity Jurisprudence.— *Willard.*
Eminent Domain.— *Mills.*
Law of Notice.— *Wade.*

PROFESSOR CASSODAY.

First term — Wills.
Second term — Constitutional Law.
Third term — Constitutional law.

Lectures will also be delivered during the course as follows:

PROFESSOR GAPEN — Medical Jurisprudence.
PROFESSOR P. L. SPOONER — Tax Titles, Homestead Exemptions.

MOOT COURT.

Moot court is held, by some member of the faculty, twice in each week, during the second and third terms of the school year, for the hearing and determining of causes.

Two cases a year are usually assigned to each student; and he is required to draw and serve all pleadings and papers, and conduct the suit throughout in the same manner as in actual practice, as far as possible.

ADMISSION AND GRADUATION.

Students will be received at any time, but all are urged to enter at the beginning of the college year.

Students may enter the Senior class and graduate in one year by a year's

previous study, and by passing an examination on the subjects pursued in the Junior year. No student will be admitted to the Senior class who fails to pass an examination in more than two of the studies of the Junior year.* A student failing in one or two of the Junior branches may enter the Senior class, his graduation being conditioned upon his passing a satisfactory examination during the year upon such branches as he is deficient in at time of entering.

Credentials of a good moral character and a fair English education are required.

In order to graduate, each student will be required to pass a satisfactory written or oral examination upon all the subjects pursued during both years of the course, such examinations being made either at the end of each term or on the completion of a particular topic; also to prosecute or to defend to judgment such Moot Court cases as shall be assigned by the faculty; and to prepare and present to the faculty at least four weeks before the close of the collegiate year a thesis upon some legal topic which shall be not less than ten nor more than twenty pages in length.

EXPENSES.

Matriculation fee, $75 for the full course, or $50 for the first year, and $25 for the second year. For students entering the advanced class, $60. Non-residents of the state are required to pay, in addition, a tuition fee of $6 per term. All fees are payable in advance to the Secretary of the Board of Regents, whose certificate of payment will entitle the student to enter his class. Not less than $75 will be charged for a two years' course, nor less than $60 for a one year's course; no deductions will be made for absences.

A large number of the students of the University board in clubs of from fifteen to twenty-five persons each. Good board can be obtained in this manner at from $2 to $2.25 per week. Rooms completely furnished and cared for, suitable for two students, can be obtained in private houses at from $1.50 to $2.50 per week.

A very excellent quality of table board can be had in private families at from $3 to $3.50 per week.

Washing costs from fifty to seventy-five cents per dozen.

Graduates are required to pay $3 for diplomas.

BOOKS.

It is advisable for the student to buy those text-books which he will have most need of during his course, but it is not absolutely necessary. He can usually obtain from the libraries the books required, and many students finish the entire course without purchasing any. Students who desire can usually obtain clerkships in the offices of attorneys, where they can obtain necessary books for study besides getting much knowledge of actual practice.

SOCIETIES.

The E. G. Ryan Literary Society is composed entirely of law students, and is in a very flourishing condition.

*Some of the regulations regarding admissions will not be applied this year where changes have been made in the course of Junior studies since last year.

Meetings are held weekly in the hall of the law school.

Aside from the Moot Court established by the faculty, the students have organized a Class Moot Court, with constitution and by-laws, and elect at stated intervals a full set of judicial officers for the trial of any cases that may be arranged by consent of parties.

The faculty give every aid to this organization, and allow cases to be appealed from that court to the Faculty Moot Court.

Further information may be obtained by addressing

I. C. SLOAN,
Dean of Faculty, Madison, Wis.

GENERAL INFORMATION.

LIBRARIES.

The University Library contains over fourteen thousand volumes, and is open to students every day from 9 A. M. to 5:30 P. M. The best American and foreign periodicals are taken.

Students also have an opportunity, free of expense, to consult the State Historical and State libraries, the former numbering over one hundred thousand volumes (including pamphlets), the latter comprising a law library of fifteen thousand volumes. These library privileges are unsurpassed in the West, and equaled in very few institutions in the country.

The students, by special arrangements, are enabled to take out books from the free library of the city of Madison. This is a well selected collection of about nine thousand volumes.

APPARATUS, CABINETS, LABORATORIES, ASTRONOMICAL OBSERVATORIES.

The University is furnished with well selected physical and chemical apparatus.

The following departments are provided with laboratories: In North Hall — chemistry, physics, geology and assaying; in Agricultural Hall — biology, botany, zoology, agricultural chemistry and pharmacy. The laboratories are well furnished with apparatus and materials for work.

The machine shop is amply provided with tools and machines, and gives good opportunities for work in practical mechanics.

New accommodations and very ample and well-ordered ones are in process of erection for Mechanics, for Chemistry and Assaying, and for Physics, Engineering, Geology and Zoology. In all these departments these three buildings will soon afford us opportunities equal to the very best, and much superior to those possessed by us before the destruction of Science Hall. We shall restore as rapidly as possible the losses of that fire in apparatus and cabinets. We expect very shortly to have all the accessories of superior instruction.

The University has a thoroughly equipped Astronomical Observatory, built by the liberality of the late Governor C. C. Washburn. Attention is called to the opportunities for study and original work offered by the Students' Observatory, which is now furnished with instruments well adapted to these purposes.

LECTURES.

Lectures constantly accompany text-books in the instruction of the University, and supplement them in a great variety of ways. The connection is so general and so changeable as to render any programme of lectures, aside from recitations, undesirable. The President gives a course of lectures to the Freshmen on health, methods of study and manners.

LADIES' HALL.

Ladies' Hall contains a society hall, teachers' rooms, study and lodging rooms for about sixty students, and ample accommodations for boarding. Students' rooms are carpeted and furnished, but occupants are expected to provide the toilet sets needed in their rooms; also towels, napkins, sheets, pillow-cases, blankets and counterpanes, all of which should be marked with the name of the owner. Young women occupying this building are under the immediate charge of the principal, are required to board with the matron, and are expected cheerfully to conform to the rules requisite for a quiet and orderly household. No responsibility is assumed for pupils rooming in the city, beyond that involved in good scholarship and general deportment. The rooms are in suites to accommodate two or four students. Gas has been introduced into this building, and an abundant supply of water has been provided.

POLICY.

The policy of the institution is determined by the regents, who, as a body, represent the people, and no particular sect or party. It is the aim of the University to meet the highest educational wants of every student in the state. In the elective studies there is provision for the demands of higher scholarship. It is advisable that students should pursue a prescribed course, if possible, but they may elect any studies, subject to the direction of the faculty.

PEDAGOGY.

The regents have established a department of the Science and Art of Teaching. It is the purpose of this professorship to better prepare University students for practical educational work; to aid in developing rational criticism of educational plans and methods; to promote such a relation between the High Schools of the state and the University as shall advance the interests of both; to induce a study of educational systems, experiments and current questions. The University desires to establish such relations with superintendents and school officers as shall promote good understanding and helpfulness, and keep a vital connection throughout the educational work of the state.

GOVERNMENT.

Students are held responsible only for good order and the diligent use of their time. Those who fail to conform with this simple requirement will be dismissed. The University is no place for those who do not propose to give their whole time to the work prescribed for them by the faculty. The loss of a single recitation injures not only the student, but also those connected with him. Students who room in the city will be held responsible for good behavior everywhere, but will be under the direct supervision of the University only when on its grounds, and in their University work. Leave of absence will not be granted except in cases of absolute necessity.

EXAMINATIONS.

There are no special public examinations of the classes. All persons desirous of knowing the character of the work done at the University are

invited to be present at the regular exercises and examinations of the classes. The members of the board of visitors will visit the University from time to time during the year, to inspect the work done in recitations, lectures, laboratory work and examinations.

HONORS IN SPECIAL STUDIES.

Special honors are given, upon recommendation of the professors in the several departments, to the members of the graduating class who have done special work under the direction of the professor of any department, and have prepared an acceptable thesis; but the amount of work required for a special honor must be at least the equivalent of a full study for one term, and in the case of those branches in which there are longer and shorter elective courses, the student must have taken the longer course.

Candidates for special honors must have a general average standing of eighty five, and one of ninety three in the department in which the application is made.

Students taking special honors read their theses in public on the Monday preceding commencement day. Such of these students, not exceeding three in number, as shall have honor orations assigned them for the exercises of commencement day, may substitute their theses for the orations.

Application for special honors must be made to the faculty through the professor in whose department honors are sought, before the middle of the winter term. The application must be accompanied with a statement of the subject of the proposed thesis. Theses must be submitted at least two weeks before the Monday preceding commencement to a committee consisting of the professor in whose department honors are sought, and the committee on higher degrees in the course to which the student belongs. The General Science Committee on higher degrees will act for the Technical courses. But in case the thesis cannot be completed by the time above named, such a synopsis should be presented to this committee as shall satisfy it that the thesis will entitle the student to special honors.

DEGREES.

ACADEMIC.

The degree of *Bachelor of Science* is conferred upon such persons as satisfactorily complete the General Science Course.

The degree of *Bachelor of Arts* is conferred upon such persons as satisfactorily complete the Ancient Classical Course.

The degree of *Bachelor of Letters* is conferred upon such persons as satisfactorily complete the Modern Classical Course.

The degrees of *Master of Science, Master of Arts* and *Master of Letters* are conferred on Bachelors of Science, Bachelors of Arts and Bachelors of Letters, respectively, on the following conditions:

An amount of study is required equal to that performed in one year's attendance at the University. This work may be done at the University or elsewhere; but if done elsewhere, the degree is not given until three years after the baccalaureate degree has been conferred. Of this study a part

equal to that required at the University for two recitations (four to six hours) per day for one year must be devoted to one department of study or to allied studies. The degree will be conferred in that department in which this work is done: as, M. A. in Latin, M. S. in Chemistry, etc.

An examination on the work done is required, and an acceptable thesis on an assigned topic must be presented. The course of study for each candidate for the master's degree, whether in attendance at the University or elsewhere, and the subject of his thesis will be assigned by the standing committee on the degree applied for. Candidates may obtain further information by application to the proper committee. These committees are as follows:

For degree of M. A., Professor Allen and Professor Kerr.

For degree of M. L., Professor Parkinson and Professor Freeman.

For degree of M. S., Professor Irving and Professor Daniells.

The degree of *Master of Letters (English)* will be given to Bachelors of Science who pursue a course of literary studies.

The faculty will not recommend any graduate for these degrees except on compliance with the above conditions.

SPECIAL AND PROFESSIONAL.

The degrees of *Bachelor of Agriculture, Bachelor of Civil Engineering, Bachelor of Metallurgical Engineering, Bachelor of Mining Engineering, Bachelor of Mechanical Engineering* and *Graduate in Pharmacy*, are conferred respectively upon such persons as satisfactorily complete the course of study in agriculture, or in civil, metallurgical, mining or mechanical engineering, or in pharmacy.

The degrees of *Civil Engineer, Metallurgical Engineer, Mining Engineer* and *Mechanical Engineer*, are conferred respectively upon such bachelors of civil, metallurgical, mining or mechanical engineering as, after one year of additional study and practice, present a suitable project, and pass the requisite examinations. Residence at the University during the year is not required.

The degree of *Bachelor of Laws* is conferred on those who satisfactorily complete the course of study prescribed in the law school.

LITERARY AND SCIENTIFIC SOCIETIES.

The literary societies — Athenæan, Hesperian, Adelphian, Castalian and Laurean — are sustained with interest, and aid in the intellectual training of the students. There are also a Mathematical Club, a Natural History Club, a German Bildungsverein, and a Scandinavian Society, Nora Samlag. These offer opportunity for study and discussion of topics connected with the subjects which they represent.

PHYSICAL TRAINING.

Military drill is required of the young men of the Freshman and Sophomore classes, and of special students during the first two years' attendance. A well furnished gymnasium and two bowling alleys are open to the students at fixed hours. The University is situated on the shores of Lake Mendota, and the students can find amusement and exercise in boating.

SCHOLARSHIPS.

The University is indebted to the liberality of Hon. John A. Johnson, of Madison, for ten scholarships of $35 annual value each, established under the following conditions:

The sum received by one student in one year shall not exceed $50, nor the sum received during his college course exceed $200. Until the year 1900 the fund will be limited to students speaking one of the Scandinavian languages (Norse, Swedish, Danish or Icelandic). No student can receive aid from this fund unless he has attended a common school one year, or has attended the University one year. The recipient of aid will be expected to return the money received by him to the fund, if he shall at any time be able to do so. The income of the fund will be dispensed by a committee of the faculty. This committee consists of President Bascom, Professors Parkinson and Bull.

THE LEWIS PRIZE.

The Lewis prize fund, the fruits of a donation made by Ex-Governor James T. Lewis, yields annually $18. The sum is bestowed on the student furnishing the best commencement piece. It was given for the year 1875, to Fannie West, of Milwaukee; for 1876, to A. S. Ritchie, of Racine; for 1877, to Charles Dudley, of Madison; for 1878, to Fred King Conover, of Madison; for 1879, to Belle Case, of Baraboo; for 1880, to Henry Decker Goodwin, of Milwaukee; for 1881, to Howard L. Smith, of Madison; for 1882, to David F. Simpson, of Waupun; for 1883, to Alice J. Sanborn, of Freeport, Ill.; for 1884, to Fred J. Turner, of Portage; for 1885, to Elizabeth A. Waters, of Fond du Lac.

ROOMS.

Rooms, furnished and unfurnished, can be obtained in the city at reasonable rates.

CHARGES AND FEES.

Tuition for residents of the state of Wisconsin,	FREE.
Tuition for non-resident students, per term,	$6 00
General Expenses — First term,	4 00
General Expenses — Second term,	4 00
General Expenses — Third term,	2 00
Room rent in Ladies' Hall, per term,	6 00
Fuel and light at actual cost,	
Board in Ladies' Hall, per week,	3 50
Washing, Ladies' Hall, per dozen,	60
Instrumental Music, 20 lessons,	10 00
Use of instrument for practice, 10 weeks,	2 00–5 00
Vocal Music, 20 lessons,	10 00
Matriculation fee, in the Law School, first year,	50 00
Matriculation fee, in the Law School, second year,	25 00
Matriculation fee, in the Law School, second year only,	60 00
Lecture fee, department of Pharmacy, for non-residents only,	25 00
Diploma fee at graduation,	3 00

NOTE.—The items of expense are subject to revision at the commencement of each collegiate year.

Students will be charged for not less than one term, and no deduction will be made for voluntary absence. Payment of all University charges for tuition, room rent, heating, etc., is required strictly in advance, and is payable to the Secretary of the Board of Regents.

Students working in the laboratories are required to make deposits of from $5 to $30, to cover the cost of instruments and materials used by them. An accurate account of the same is kept, and the amount of the deposit not used is returned to the student at the close of his term of study in the laboratory.

The cost of board in clubs is from $2 to $2.50 per week; in private families from $2 to $4 per week; washing, from sixty to seventy five cents per dozen.

Many of the students support themselves in whole or in part. The places offering available work are eagerly sought for, and cannot be obtained at once. Those dependent on themselves should secure some means before coming here, and be ready to wait and to learn how to help themselves.

CALENDAR.

ACADEMIC YEAR, 1885–86.

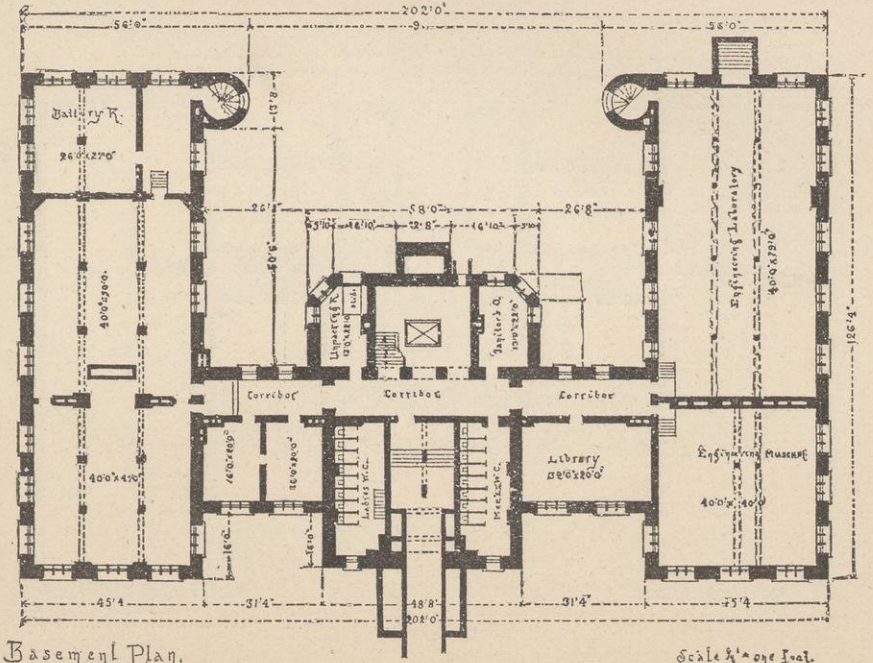
EXAMINATION of candidates for admission, September 8 and 9.
FALL TERM begins Wednesday, September 9.
Thanksgiving, Thursday, November 26.
Fall term closes Wednesday, December 23 — 15 weeks.

WINTER TERM begins Wednesday, January 6.
Washington's birthday, Monday, February 22.
Winter term closes Wednesday, March 31 — 12 weeks.

SPRING TERM begins Wednesday, April 7.
Decoration Day, Sunday, May 30, legal holiday, Monday, May 31.
Examination of candidates for admission, June 17 and 18.
Baccalaureate sermon, Sunday, June 20.
COMMENCEMENT, Wednesday, June 23, 9 A. M.

ACADEMIC YEAR, 1886–87.

EXAMINATION of candidates for admission, September 7 and 8.
FALL TERM begins September 8, closes December 22.
WINTER TERM begins January 5, closes March 30.
SPRING TERM begins April 6, closes June 22.

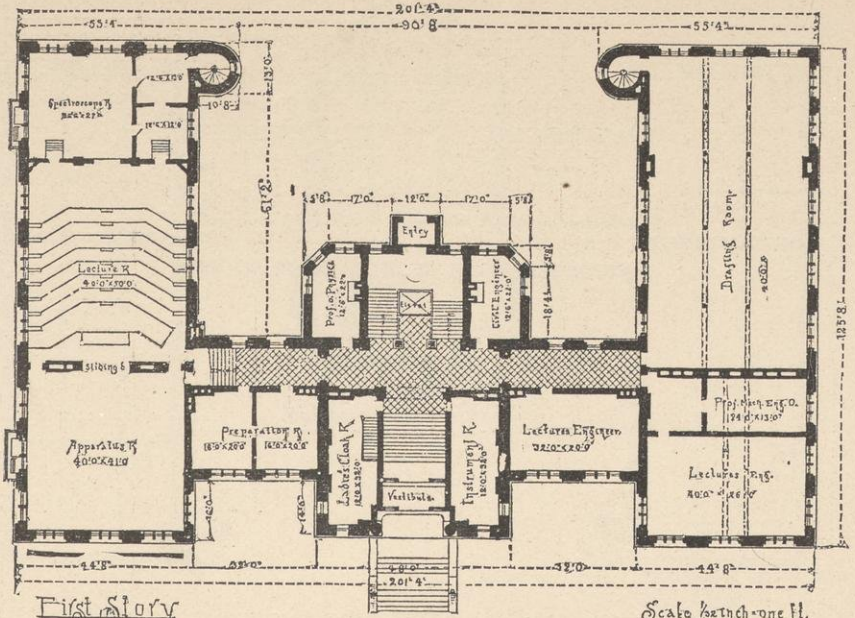


Basement Plan.

Scale ¼" one foot.

H.C. Koch & Co., Archts.

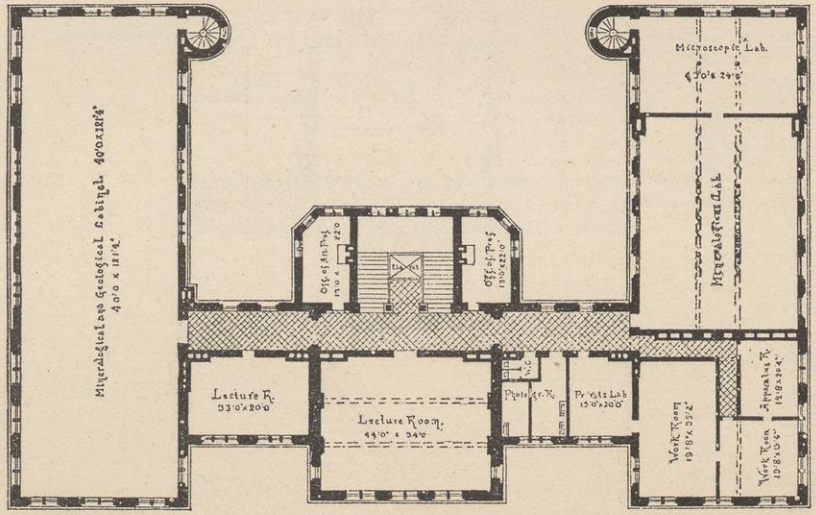
V



First Story

Scale 1/8 inch = one ft.

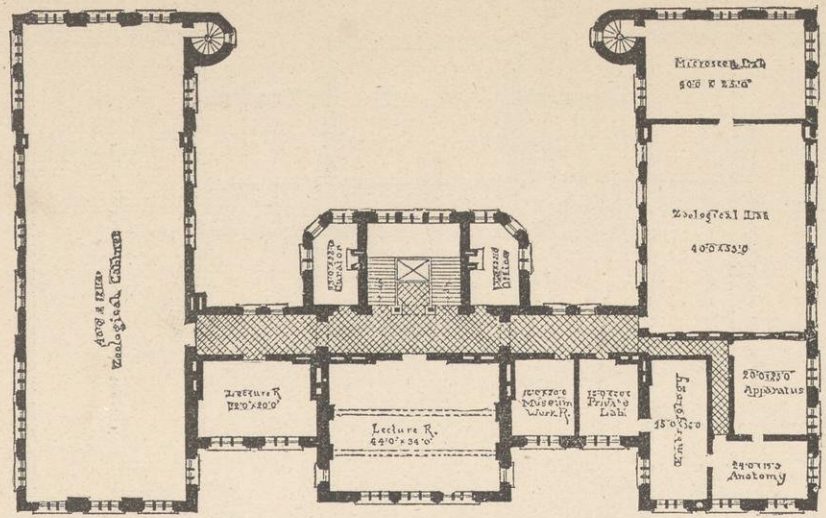
H.C. Koch & Co., Printers



Second Story

Scale 1/8" = 1ft

J.C. Keeler & Co. architects



Third Story

Scale 8 ft

H. O. Koch & Co., Archts.

THE NEW BUILDINGS.

SCIENCE HALL.

The new building which stands on the site of the former Science Hall will be known by the same name. It will contain the departments of Physics, Engineering, Geology and Zoology. The plan of the building is that of a central body with two wings, somewhat similar to that of the burned Science Hall. The dimensions are two hundred and three feet front with a length of wing of one hundred and twenty six feet, and a height of three stories above a basement. The material is to be stone. The basement is faced with granite from Berlin, Wis.; the stone for the superstructure has not yet been selected. The building will be as thoroughly fire-proof as possible. The floors will be protected by hollow brick, etc.; the stairs will be of iron and slate; no elevator or other openings will be lined with combustible material; the rooms will be lined with brick or hollow tile, instead of lath and plaster, and the building will be divided by several fire walls.

In its elevation the building differs greatly from the former Science Hall. The central part of the building, about forty five feet square, which contains the entrance hall below, is carried above the rest of the Hall into a tower. This has in its fourth story an art gallery and above this a high attic story. On each side of this central portion, the front falls back fifteen feet for a distance of thirty one feet, or as far as to the wings. These comparatively narrow parts of the center building contain the smaller recitation rooms, laboratories, etc. The wings are carried forward to the line of the main entrance. The whole is covered with a roof of steep pitch. There is little attempt at outside ornamentation; and for its architectural effect the building depends on the treatment of the roof and the bold projections of the wings and center. Care has been taken that the construction shall be as solid and permanent as possible.

The interior arrangement will be seen from the plans. The main stairs are placed in a projection from the center of the building into the court-yard, and, with the entrance hall and a straight corridor from wing to wing, comprise nearly all the space given up to halls. There is a circular staircase at the rear of each wing and outside the building, which gives inpendent access to all of the floors.

The department of Physics has a large lecture room on the first floor. The seats rise toward the rear of the room, thus giving a good view of the lecture table from all parts. The table is supported on piers from the base-

ment, thus rendering it perfectly firm for experiments. The apparatus and preparation rooms adjoin the lecture room; and rooms for physical experimentation are provided in the basement as well as on the first floor.

In the Engineering rooms the basement is occupied by a large engineering laboratory where experiments in testing strength of materials, etc., will be carried on, and by an engineering museum. On the first floor the chief room is the draughting room, which will accommodate eighty students. Besides these, there are in all the departments, offices, lecture rooms and small work rooms.

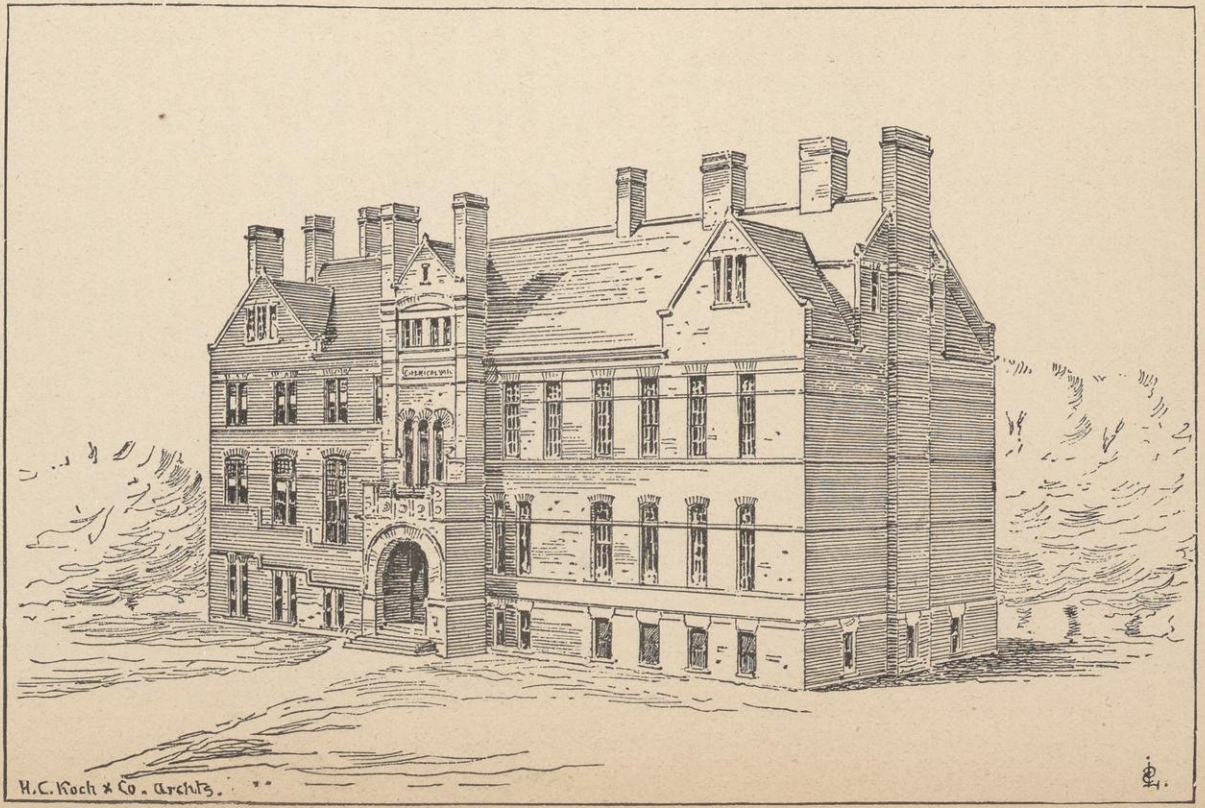
The department of Geology and Mineralogy occupies the entire second floor. The lecture room is forty four by thirty four feet and occupies the center of the building midway between cabinet and laboratory. The cabinet room includes the entire south wing, making a room one hundred and twenty one feet by forty, and affording ample space for a large collection. The laboratories are in the north wing. The principal rooms are the large mineralogical laboratory, which will easily accommodate forty to fifty students, and the laboratory for microscopic lithology.

The third floor is given to Zoology and allied studies. The arrangement of the rooms is precisely like that on the floor below. The cabinet occupies the south wing, the recitation rooms are in the center and the laboratories in the north wing. The zoological laboratory is adapted for about fifty students and can be made to accommodate more. The laboratory for histology adjoins it on the west, occupying the end of the wing; and rooms for advanced work in anatomy and embryology fill the rest of the space.

The center of the building rises into a fourth story which includes one large room devoted to an art gallery. Above this are attic rooms which will be used for spectrum analysis.

The building will be heated by steam, and the ventilation will be as thorough as possible; a large supply of pure warm air will be furnished at all times.

All the buildings are to be heated from a single boiler-house, which is placed in the rear of Science Hall. It is fifty four by fifty two feet, and is large enough to contain boilers for warming the other university buildings, should that method of heating be employed. The boiler-house is connected by tunnels with the other new buildings. In these will be placed the steam and water pipes, which will thus be always accessible.



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THE CHEMICAL LABORATORY.

The Chemical Laboratory is situated about one hundred feet north of Science Hall, with a frontage on Park street of one hundred and forty eight feet and a depth of forty eight feet. It is two stories in height above a twelve foot basement. The form is rectangular, with a projection forward of ten feet on the front side, in which is the arched entrance to the main story. The material is white pressed brick; the basement is of buff sandstone.

The lecture room occupies the south end of the first floor, and is forty-two feet from front to rear, forty five feet wide and nineteen feet high. It is lighted from the sides only, and the seats are so arranged that each student faces the lecture table. Each row of seats is fourteen inches above the row immediately in front of it, thus giving an unobstructed view of the lecture table from every seat in the room.

Adjoining the lecture room is the preparation room, in which is kept all lecture apparatus and material for lecture illustration, and in which class experiments are prepared.

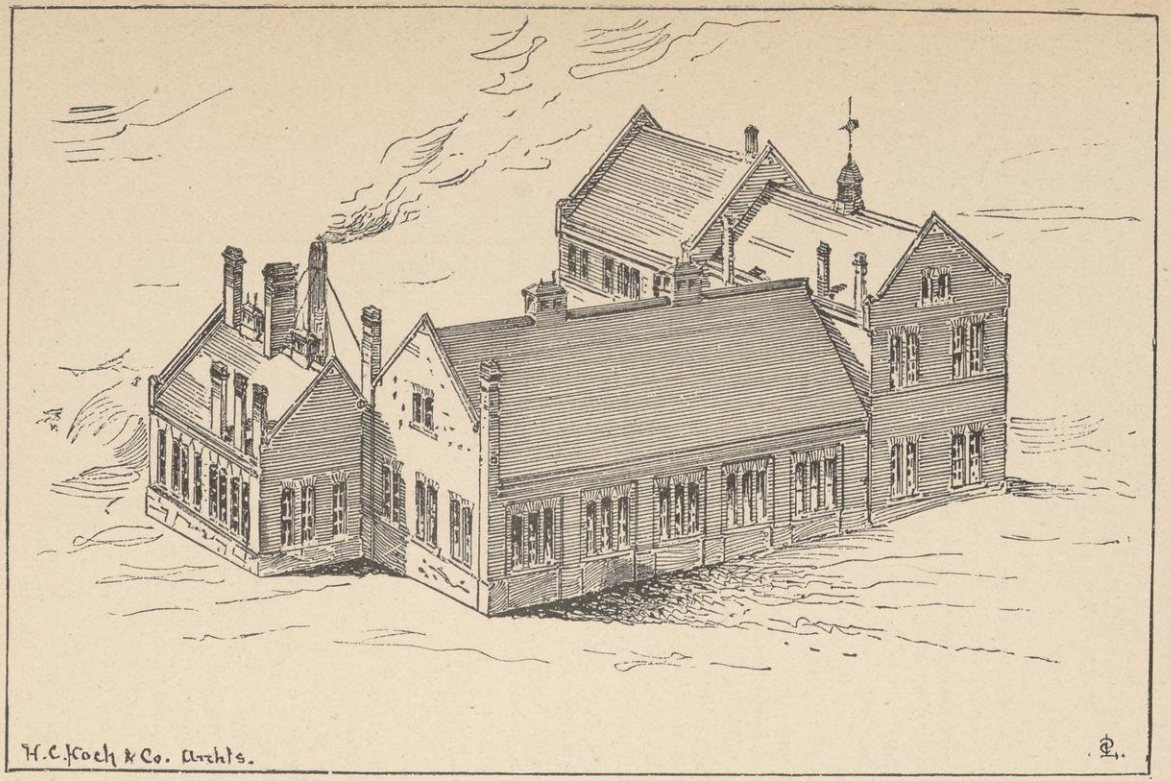
The quantitative laboratory occupies the north end of the building, and is forty-eight feet long by forty-five in width, with accommodations for forty-eight students. It is amply lighted from the sides, the windows being so arranged that light falls directly along each work-table, thus preventing the occurrence of shadows and cross-lights. The ventilating shafts are in the middle of the room, and are believed to be capable of furnishing at all times a supply of pure, warm air sufficient to keep the laboratory thoroughly ventilated. The room contains five "hoods" or "foul gas chambers," in which are carried on all operations giving rise to acid or other injurious vapors. Each table is supplied with gas and exhaust pipes for quick filtration. The Balance room adjoins this laboratory, and is well supplied with the finest chemical balances. The other rooms of the main floor are the office and private laboratory of the professor, and a cloak room.

In the second story the qualitative laboratory occupies the entire north half of the building, and will accommodate ninety six students. Its general arrangements, as well as the manner of lighting, heating and ventilating, are similar to those of the quantitative laboratory. Upon this floor also is a laboratory for advanced students in qualitative work, one for gas-analysis, and one for organic analysis, all of which are supplied with excellent facilities for carrying on each particular kind of work. In addition there are upon this floor the assistant's room, an apparatus-room, and a gentlemen's coat-room. The south part of the basement contains the laboratories, the furnace-room, and weighing-room of the Metallurgical Department, all of which are supplied with the most approved appliances for metallurgical work. Besides three store-rooms, there are in the north end of the basement a room for urine analysis, one for toxicology, one for water-analysis, one in which sulphuretted

hydrogen is prepared and from which it is carried in lead pipes to the main laboratories above, and also a room to which no especial work has as yet been assigned.

Distilled water is made in the attic from steam from the boiler-house, and is carried in block-tin pipes to the laboratories below. The entire building is heated by steam supplied from the boiler-house. Fresh air is introduced through a tunnel beneath the basement, with inlets from three sides of the building. Especial care has been taken to make the ventilation adequate and complete.

The rooms of the first and second stories, except the lecture-room, have a height of fifteen feet; those of the basement are twelve feet high. The interior walls are of white brick, unplastered.



H.C. Koch & Co. Archts.

THE MACHINE SHOP.

The new Machine Shop is situated in the rear of the new Chemical Laboratory. The building is ⊏ shaped, the two wings being turned towards the latter building. The main body of the shop runs from north to south, the two wings being at right angles to this and projecting some distance beyond the central part on each side. The larger part of the shop has but one story, only the south wing and the southern end of the central part having two stories. The dimensions of the building are as follows: The central part one hundred and twelve feet by forty three feet; the north wing fifty feet by twenty eight feet, and the south wing fifty three by forty two feet. The distance between the two wings is sixty six feet, so that the extreme length of the building is one hundred and seventy two feet. It is built of cream-colored machine-made brick, cut Madison sandstone being used below the water-table. The inside is also finished in cream-colored brick, no plastering being used except on the ceilings. The floors will all be laid directly on a thick bed of concrete, which again rests on another layer of sand; in this way, the floor will be very solid and at the same time dry, and therefore well adapted for fastening machinery. The shop will be very well lighted, as large windows have been provided for at all necessary places. There have also been made ample provisions for heating and ventilation, and besides all rooms are high under the ceiling.

The building will contain (1) carpenter-shop, (2) superintendent's room, (3) room for light machinery, (4) machine-shop proper, (5) forge, (6) foundry, (7) wood-working room, (8) pattern-room, besides two small tool-rooms, an oil-room, water-closets, with wash-room, and a large number of lockers for the students.

The carpenter-shop occupies the whole of the first floor of the south wing; the inside dimensions are thirty nine feet four inches by forty four feet three inches. From this a hall leads into the room for light machinery, whose dimensions are thirty feet two inches by twenty nine feet five inches. Between this room and the carpenter-shop, however, is found the superintendent's room on one side of the hall, and on the other the lockers for the students. The superintendent's room is provided with a fire-proof vault. The main entrance to the building is in the room for light machinery on the southern wall. A door leads from this room into the machine-shop proper, which occupies the remainder of the central part; its inside dimensions are seventy eight feet five inches by forty one feet two inches. In the southwestern corner of this room a small tool-room has been arranged; opposite to this, in the southeastern corner, is found the engine, which furnishes the power to the different parts of the building; it is a fifty horse-power automatic cut-off Cummer engine. A belt transmits the power directly to the main shaft suspended in the center of the room. Next the engine there is a door which leads to the wash-room and water-closets, situ-

ated in the corner between the south wing and the central part of the building. The equipment of the machine-shop proper will consist of: one Brown & Sharp 16x18 inch engine-lathe; one Flasher 18x8 inch engine-lathe; one Bridgeport 16x8 inch engine-lathe; one Ames 13x6 inch engine-lathe; one Prentice Bros. 14x7 inch engine-lathe; one Prentice Bros. 12x6 inch engine-lathe; one Prentice Bros. drill, self-feed, back gears; one Pratt & Whitney lever-drill; one Sellers planer, 6x25 inches; one shaper; one Brown & Sharp milling-machine; one Brown & Sharp milling-machine, reconstructed.

As fast as practicable the following tools will be designed and constructed in the U. W. shops: one grinding-lathe; one large wood-lathe; six small wood-lathes; one portable drill; one jig saw.

A door in the northeastern corner of the machine-shop leads into the forge, a room of twenty four by twenty six feet; it is provided with one brick forge and six portable forges. The foundry occupies the eastern end of this wing, and has the same dimensions as the forge. The equipment consists in an eighteen-inch cupola, a brass furnace and a core-oven, which have all been built in a small projection on the inner side of the wing. The blast for the forge and the foundry will be furnished by two Sturtevant blowers.

On the second floor of the south wing is a wood-working room of forty feet by forty four feet seven inches; and over the room for light machinery is found a pattern-room, the dimensions being forty one feet ten inches by thirty feet. At the end of the stairs is a small tool-room.

Separate entrances are provided for the foundry, carpenter-shop and machine-shop, all leading out into the court-yard.

The steam for the engine is conveyed in pipes through the tunnel from the boiler-house, as is also the steam for heating.