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**GENERAL INFORMATION**

For information in reference to the University grounds, buildings, equipment, library facilities, requirements in American Civilization, definition of resident and non-resident, regulation of studies, degrees and certificates, transcripts of records, student health and welfare, living arrangements in the dormitories, off-campus housing, meals, University Counseling Service, scholarships and student aid, athletics and recreation, student government, honors and awards, religious denominational clubs, fraternities, societies and special clubs, the University band, student publications, University Post Office and Supply Store, write to the Editor of Publications for the General Information issue of the Catalog.

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Index on inside back cover.

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**Volume 9**

**April 5, 1957**

**No. 31**

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A University of Maryland Publication is published four times in January, February, March and April; three times in May; once in June and July; twice in August, September, October and November; and three times in December.

Re-entered at the Post Office in College Park, Maryland, as second class mail matter under the Act of Congress of August 24, 1912.



**BOARD OF REGENTS  
AND**

**MARYLAND STATE BOARD OF AGRICULTURE**

	<i>Term Expires</i>
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Members of the Board are appointed by the Governor of the State for terms of nine years each, beginning the first Monday in June.

The President of the University of Maryland is, by law, Executive Officer of the Board.

The State law provides that the Board of Regents of the University of Maryland shall constitute the Maryland State Board of Agriculture.

A regular meeting of the Board is held the last Friday in each month, except during the months of July and August.

## OFFICERS OF THE ADMINISTRATION

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B.A., University of Texas, 1932; M.A., 1932; B.Litt., Oxford University, 1936; D.Phil., 1936.
- ALBIN O. KUHN**, Assistant to the President of the University.  
B.S., University of Maryland, 1938; M.S., 1939; Ph.D., 1948.
- ALVIN E. CORMENY**, Assistant to the President, in charge of Endowment and Development.  
B.A., Illinois College, 1933; LL.B., Cornell University, 1936.
- HARRY C. BYRD**, President Emeritus, University of Maryland.  
B.S., University of Maryland, 1908; LL.D., Washington College, 1936; LL.D., Dickinson College, 1938; D.Sc., Western Maryland College, 1938.
- HAROLD F. COTTERMAN**, Dean of the Faculty of the University.  
B.S., Ohio State University, 1916; M.A. Columbia University, 1917; Ph.D., American University, 1930.
- RONALD BAMFORD**, Dean of the Graduate School.  
B.S., University of Connecticut, 1924; M.S., University of Vermont, 1926; Ph.D., Columbia University, 1931.
- GORDON M. CAIRNS**, Dean of Agriculture.  
B.S., Cornell University, 1936; M.S., 1938; Ph.D., 1940.
- PAUL E. NYSTROM**, Director, Agricultural Extension Service.  
B.S., University of California, 1928; M.S., University of Maryland, 1931; M.P.A., Harvard University, 1948; D.P.A., 1951.
- IRVIN C. HAUT**, Director, Agricultural Experiment Station and Head, Department of Horticulture.  
B.S., University of Idaho, 1928; M.S., State College of Washington, 1930; Ph.D., University of Maryland, 1933.
- LEON P. SMITH**, Dean of the College of Arts and Sciences.  
B.A., Emory University, 1919; M.A., University of Chicago, 1928; Ph.D., 1930; Diplome de l'Institut de Touraine, 1932.
- J. FREEMAN PYLE**, Dean of the College of Business and Public Administration.  
Ph.B., University of Chicago, 1917; M.A., 1918; Ph.D., 1925.
- MYRON S. AISENBERG**, Dean of the School of Dentistry.  
D.D.S., University of Maryland, 1922.
- VERNON E. ANDERSON**, Dean of the College of Education.  
B.S., University of Minnesota, 1930; M.A., 1936; Ph.D., University of Colorado, 1942.
- \***S. SIDNEY STEINBERG**, Dean of the College of Engineering.  
B.E., Cooper Union School of Engineering, 1910; C.E., 1913; Registered Professional Engineer.
- WILBERT J. HUFF**, Director, Engineering Experiment Station and Chairman of the Division of Physical Sciences.  
B.A., Ohio Northern University, 1911; B.A., Yale College, 1914; Ph.D., Yale University, 1917; D.Sc. (hon.), Ohio Northern University, 1927.
- ROGER HOWELL**, Dean of the School of Law.  
B.A., Johns Hopkins University, 1914; Ph.D., 1917; LL.B., University of Maryland, 1917.
- WILLIAM S. STONE**, Dean of the School of Medicine and Director of Medical Education and Research.  
B.S., University of Idaho, 1924; M.S., 1925; M.D., University of Louisville, 1929; Ph.D., (hon.), University of Louisville, 1946.
- FLORENCE M. GIPE**, Dean of the School of Nursing.  
B.S., Catholic University of America, 1937; M.S., University of Pennsylvania, 1940; Ed.D., University of Maryland, 1952.
- CLIFFORD G. BLITCH**, Director of the University Hospital.  
M.D., Vanderbilt University Medical School, 1928.

\*Resigned January 31, 1957.

- EDWARD BARBER**, Dean of the College of Military Science.  
B.S., Massachusetts Institute of Technology, 1935; M.A., Georgetown University, 1936; Brigadier General, U.S. Air Force.
- NOEL E. FOSS**, Dean of the School of Pharmacy.  
Ph.C., South Dakota State College, 1929; B.S., 1929; M.S., University of Maryland, 1932; Ph.D., 1933.
- LESTER M. FRALEY**, Dean of the College of Physical Education, Recreation, and Health.  
B.A., Randolph-Macon College, 1928; M.A., 1937; Ph.D., Peabody College, 1939.
- RAY W. EHRENSBERGER**, Dean of the College of Special and Continuation Studies.  
B.A., Wabash College, 1929; M.A., Butler University, 1930; Ph.D., Syracuse University, 1937.
- GEARY F. EPPLEY**, Director of Student Welfare and Dean of Men.  
B.S., Maryland State College, 1920; M.S., University of Maryland, 1926.
- ADELE H. STAMP**, Dean of Women.  
B.A., Tulane University, 1921; M.A., University of Maryland, 1924.
- G. WATSON ALGIRE**, Director of Admissions and Registrations.  
B.A., University of Maryland, 1930; M.S., 1931.
- NORMA J. AZLEIN**, Registrar.  
B.A., University of Chicago, 1940.
- DAVID L. BRIGHAM**, Alumni Secretary.  
B.A., University of Maryland, 1938.
- WILLIAM W. COBEY**, Director of Athletics.  
A.B., University of Maryland, 1930.
- GEORGE O. WEBER**, Director and Supervising Engineer, Department of Physical Plant.  
B.S., University of Maryland, 1933.
- GEORGE W. MORRISON**, Associate Director and Supervising Engineer Physical Plant. (Baltimore).  
B.S., University of Maryland, 1927; E.E., 1931.
- C. WILBUR CISSEL**, Director of Finance and Business.  
B.A., University of Maryland, 1932; M.A., 1934; C.P.A., 1939.
- HOWARD ROVELSTAD**, Director of Libraries.  
B.A., University of Illinois, 1936; M.A., 1937; B.S.L.S., Columbia University, 1940.
- GEORGE W. FOGG**, Director of Personnel.  
B.A., University of Maryland, 1926; M.A., 1928.
- ROBERT J. MCCARTNEY**, Director of University Relations.  
B.A., University of Massachusetts, 1941.
- HARRY A. BISHOP**, Director of the Student Health Service.  
M.D., University of Maryland, 1912.
- ROBERT E. KENDIG**, Professor of Air Science and Commandant of Cadets, Air Force R.O.T.C.  
A.B., William and Mary College, 1939.

#### DIVISION CHAIRMEN

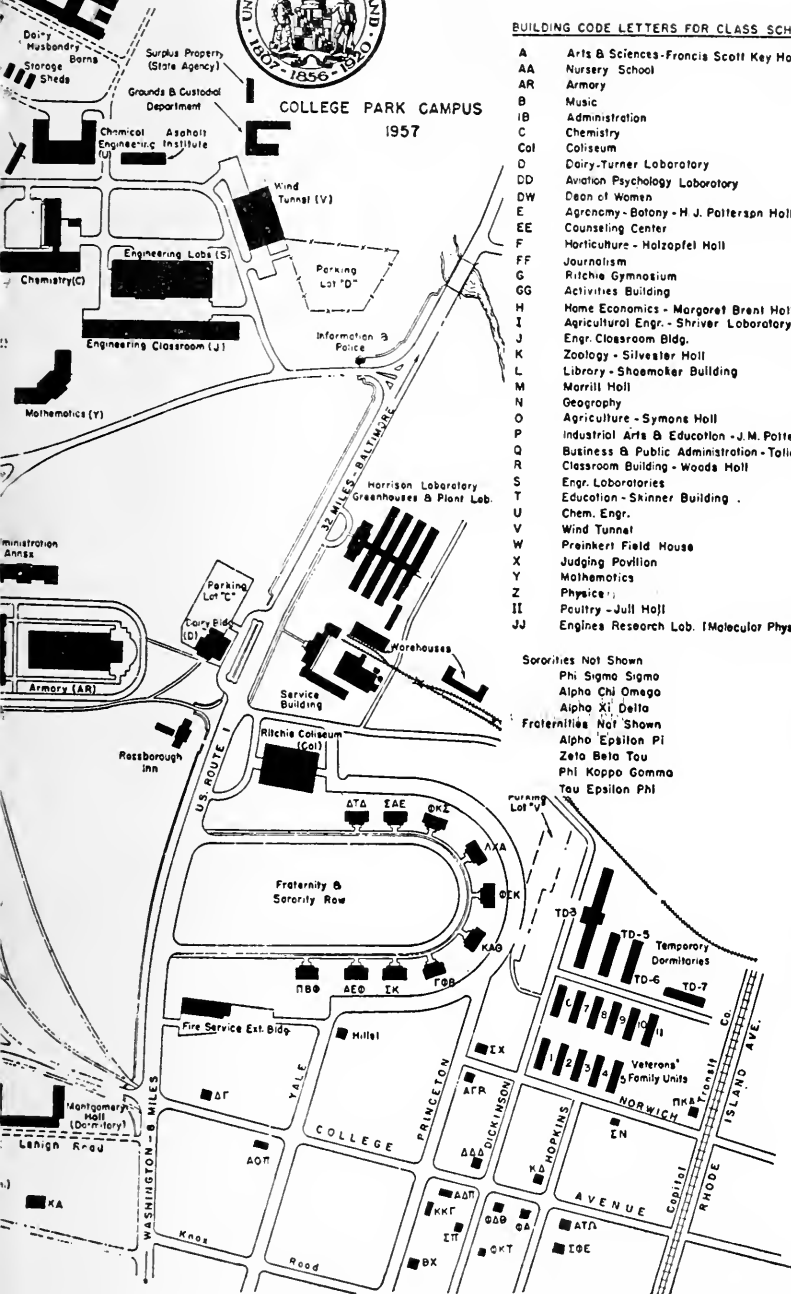
- CHARLES E. WHITE**, Chairman of the Lower Division.  
B.S., University of Maryland, 1923; M.S., 1924; Ph.D., 1926.
- JOHN E. FABER, JR.**, Chairman of the Division of Biological Sciences.  
B.S., University of Maryland, 1926; M.S., 1927; Ph.D., 1937.
- ADOLF E. ZUCKER**, Chairman of the Division of Humanities.  
B.A., University of Illinois, 1912; M.A., 1913; Ph.D., University of Pennsylvania, 1917.
- HAROLD C. HOFSSOMMER**, Chairman of the Division of Social Sciences.  
B.S., Northwestern University, 1921; M.A., 1923; Ph.D., Cornell University, 1929.
- WILBERT J. HUFF**, Chairman of the Division of Physical Sciences.  
B.A., Ohio Northern University, 1911; B.A., Yale College, 1914; Ph.D., Yale University, 1917; D.Sc. (hon.), Ohio Northern University, 1927.



UNIVERSITY OF MARYLAND



COLLEGE PARK CAMPUS  
1957



BUILDING CODE LETTERS FOR CLASS SCHEDULES.

- A Arts & Sciences-Francis Scott Key Hall
- AA Nursery School
- AR Armory
- B Music
- IB Administration
- C Chemistry
- Col Coliseum
- D Dairy-Turner Laboratory
- DD Aviation Psychology Laboratory
- DW Dean of Women
- E Agronomy - Botany - H J. Patterson Hall
- EE Counseling Center
- F Horticulture - Holzappel Hall
- FF Journalism
- G Ritchie Gymnasium
- GG Activities Building
- H Home Economics - Margaret Brent Hall
- I Agricultural Engr. - Shriver Laboratory
- J Engr. Classroom Bldg.
- K Zoology - Silvester Hall
- L Library - Shoemaker Building
- M Merrill Hall
- N Geography
- O Agriculture - Symons Hall
- P Industrial Arts & Education - J.M. Patterson Bldg.
- Q Business & Public Administration - Talliofero Hall
- R Classroom Building - Woods Hall
- S Engr. Laboratories
- T Education - Skinner Building
- U Chem. Engr.
- V Wind Tunnel
- W Preinkert Field House
- X Judging Pavilion
- Y Mathematics
- Z Physics
- II Poultry - Jull Hall
- JJ Engines Research Lab. (Molecular Physics)

- Sororities Not Shown  
Phi Sigma Sigma  
Alpha Chi Omega  
Alpha Xi Delta
- Fraternities Not Shown  
Alpha Epsilon Pi  
Zeta Beta Tau  
Phi Kappa Gamma  
Tau Epsilon Phi

## 1957-58 CALENDAR

### First Semester

#### 1957

September 17-20	Tuesday-Friday	Registration, first semester
September 23	Monday	Instruction begins
November 27	Wednesday after last class	Thanksgiving recess begins
December 2	Monday, 8 A.M.	Thanksgiving recess ends
December 21	Saturday after last class	Christmas recess begins

#### 1958

January 6	Monday, 8 A.M.	Christmas recess ends
January 20	Monday	Charter Day
January 21	Tuesday	Pre-Examination Study Day
January 22-29	Wednesday-Wednesday, inc.	First Semester examinations

### Second Semester

February 4-7	Tuesday-Friday	Registration, second semester
February 10	Monday	Instruction begins
February 22	Saturday	Washington's birthday, holiday
March 25	Tuesday	Maryland Day
April 3	Thursday after last class	Easter recess begins
April 8	Tuesday, 8 A.M.	Easter recess ends
May 15	Thursday	Military Day
May 28	Wednesday	Pre-Examination Study Day
May 29-June 6	Thursday-Friday, inc.	Second Semester examinations
May 30	Friday	Memorial Day, holiday
June 1	Sunday	Baccalaureate exercises
June 7	Saturday	Commencement exercises

### Summer Session, 1958

June 23	Monday	Registration, Summer Session
June 24	Tuesday	Summer Session begins
August 1	Friday	Summer Session ends

### Short Courses

June 16-21	Monday-Saturday	Rural Women's Short Course
August 4-9	Monday-Saturday	4-H Club Week
September 2-5	Tuesday-Friday	Firemen's Short Course



# SUMMER SESSION, 1957

JUNE 24—AUGUST 2

Vernon E. Anderson, Ph.D., Director

Orval L. Ulry, Ph.D., Assistant Director

**GRACE LUCILE ADAMS**, Assistant Professor of Education, Institute for Child Study.

B.S., University of Southern California, 1940; M.S., University of Southern California, 1956.

**ARTHUR M. AHALT**, Professor and Head, Department of Agricultural Education.

B.S., University of Maryland, 1931; M.S., Pennsylvania State College, 1937.

**FRANCIS J. ALBERTS**, Assistant Professor of Personnel Administration.

B.A., University of Rochester, 1947; M.S., University of Rochester, 1950; Ph.D., New York University, 1953.

**ALBERT L. ALFORD**, Instructor in Government and Politics.

B.A., University of Akron, 1948; M.A., Princeton University, 1951; Ph.D., Princeton University, 1953.

**ROWANNETTA S. ALLEN**, Director of Instruction, Board of Education, Prince George's County, Maryland. Visiting Lecturer in Education.

B.A., American University, 1929; M.Ed., University of Maryland, 1941.

**FRANK G. ANDERSON**, Assistant Professor of Sociology.

B.A., Cornell University, 1941; Ph.D., University of New Mexico, 1951.

**JOHN P. AUGELLI**, Associate Professor of Geography.

B.A., Clark University, 1943; M.A., Harvard University, 1949; Ph.D., Harvard University, 1951.

**WILLIAM T. AVERY**, Professor and Head, Department of Classical Languages and Literatures.

B.A., Western Reserve University, 1934; M.A., Western Reserve University, 1935; Ph.D., Western Reserve University, 1937. Fellow of the American Academy in Rome, 1937-39.

**EDWARD W. BAKER**, Entomologist, Bureau of Entomology and Plant Quarantine, U.S. Department of Agriculture. Visiting Lecturer in Zoology.

B.S., University of California, 1936; Ph.D., University of California, 1938.

**JACK C. BARNES**, Instructor in English.

B.A., Duke University, 1939; M.A., Duke University, 1947; Ph.D., University of Maryland, 1954.

**WHITNEY K. BATES**, Instructor in History.

B.A., University of Washington, 1941; M.A., University of Wisconsin, 1948; Ph.D., University of Wisconsin, 1951.

**GEORGE F. BATKA**, Assistant Professor of Speech.

B.A., Wichita University, 1938; M.A., University of Michigan, 1941.

**RICHARD H. BAUER**, Associate Professor of History.

B.A., University of Chicago; M.A., University of Chicago, 1928; Ph.D., University of Chicago, 1935.

**GLENN O. BLOUGH**, Associate Professor of Education.

B.A., University of Michigan, 1929; M.A., University of Michigan, 1932; LL.D., Central Michigan College of Education, 1950.

**LUCILLE BOWIE**, Instructor in Education, Institute for Child Study.

B.S., University of Maryland, 1942; M.A., Teachers College, Columbia University, 1946.

**RICHARD M. BRANDT**, Assistant Professor of Education, Institute for Child Study.

B.M.E., University of Virginia, 1943; M.A., University of Michigan, 1949; Ed.D., University of Maryland, 1954.

**PELA FAY BRAUCHER**, Associate Professor of Foods and Nutrition.

B.A., Goucher College, 1927; M.S., Pennsylvania State University.

**GLEN D. BROWN**, Professor of Industrial Education.

B.A., Indiana State Teachers College, 1916; M.A., Indiana University, 1931.

**JOSHUA R. C. BROWN**, Associate Professor of Zoology.

B.A., Duke University, 1948; M.A., Duke University, 1949; Ph.D., Duke University, 1953.

**RUSSELL G. BROWN**, Associate Professor of Botany.

B.S., West Virginia University, 1929; M.S., West Virginia University, 1930; Ph.D., University of Maryland, 1934.

**MARIE D. BRYAN**, Associate Professor of Education.

B.A., Goucher College, 1923; M.A., University of Maryland, 1945.

**ALOIS J. BURDA**, Junior Instructor of Mathematics.

B.S., U. S. Naval Academy, 1940.

**RICHARD H. BYRNE**, Associate Professor of Education.

B.A., Franklin and Marshall College, 1938; M.A., Franklin and Marshall College, 1947; Ed. D., Columbia University, 1952.

**CHARLES E. CALHOUN**, Professor of Finance.

B.A., University of Washington, 1925; M.B.A., University of Washington, 1930.

**JOSEPH H. CAMIN**, Visiting Lecturer in Zoology.

B.S., Ohio State University, 1946; M.S., Ohio State University, 1947; Ph.D., Ohio State University, 1949.

**MARJORIE H. CAMPBELL**, Instructor in Science Education, Teacher's College, District of Columbia. Visiting Lecturer in Education.

B.S., University of Maryland, 1938; M.A., University of Maryland, 1940.

**JOHN T. CARRUTHERS**, Assistant Professor of Chemistry.

**CLIFTON BOB CLARK**, Assistant Professor of Physics, U.S. Naval Academy, Annapolis, Maryland. Visiting Lecturer in Physics.

B.A., University of Arkansas, 1949; M.A., University of Arkansas, 1950; Ph.D., University of Maryland, 1957.

**GERALD F. COMBS**, Professor of Poultry Husbandry.

B.S., University of Illinois, 1940; Ph.D., Cornell University, 1948.

**SARA E. CONLON**, Instructor in Speech and Dramatic Arts.

B.A., University of Maryland, 1947; M.A., State University of Iowa, 1950.

- FRANKLIN D. COOLEY, Associate Professor of English.  
B.A., Johns Hopkins University, 1927; M.A., University of Maryland, 1933;  
Ph.D., Johns Hopkins University, 1940.
- LESLIE C. COSTELLO, Instructor in Zoology.  
B.S., University of Maryland, 1952; M.S., University of Maryland, 1954.
- CARROLL E. COX, Professor of Bitany.  
B.A., University of Delaware, 1938; M.S., Virginia Polytechnic Institute, 1940;  
Ph.D., University of Maryland, 1943.
- DOROTHY D. CRAVEN, Instructor in Speech.  
B.S., (Education), Southeast Missouri State Teachers College, 1945; M.A.,  
University of Iowa, 1948.
- FRANK H. CRONIN, Associate Professor of Physical Education; Head Golf  
Coach.  
B.S., University of Maryland, 1946.
- VIENNA CURTISS, Professor and Head of Department of Practical Art.  
B.A., Arizona State College, 1933; M.A., Columbia University, 1935.
- MADELINE E. DALTON, Supervisor, Classes for Children with Retarded Mental  
Development, New York City. Visiting Lecturer in Education.  
B.A., Hunter College, 1935; M.A., Hunter College, 1942.
- RICHARD F. DAVIS, Associate Professor and Head, Department of Dairy.  
B.S., University of New Hampshire, 1950; M.S., University of New Hampshire,  
1952; Ph.D., Cornell University, 1953.
- MARIE DENECKE, Instructor in Education.  
B.A., Columbia University, 1938; M.A., University of Maryland, 1942.
- GEORGE W. DENEMARK, Professor of Education and Assistant Dean.  
B.A., University of Chicago, 1943; M.A., University of Chicago, 1948; M.Ed.,  
University of Illinois, 1950; Ed.D., University of Illinois, 1956.
- CAROLYN C. DUNLAP, Director of Practice, State Teachers College, Salisbury,  
Maryland. Visiting Lecturer in Education.  
B.A., Western Maryland College, 1939; M.A., University of Maryland, 1950;  
Ed.D., University of Maryland, 1954.
- CHARLES B. EDELSON, Instructor in Accounting.  
B.B.A., University of New Mexico, 1949; M.B.A., Indiana University, 1950; C.P.A.  
Maryland, 1951.
- GERTRUDE EHRLICH, Assistant Professor of Mathematics.  
B.S., Georgia State College for Women, 1943; M.A., University of North Carolina,  
1945; Ph.D., University of Tennessee, 1953.
- EMORY G. EVANS, Instructor in History.  
B.A., Randolph-Macon College, 1950; M.A., University of Virginia, 1954; Ph.D.,  
University of Virginia, 1957.
- MARVIN H. EYLER, Assistant Professor of Physical Education.  
B.A., Houghton College, 1942; M.S., University of Illinois, 1948; Ph.D., Uni-  
versity of Illinois, 1956.

- JOHN E. FABER**, Professor and Head of Bacteriology.  
B.S., University of Maryland, 1926; M.S., 1927; Ph.D., 1937.
- BHASKAR S. FADNIS**, Instructor in Mathematics.  
B.S., University of Nagpur, 1944; M.S., University of Nagpur, 1948; Ph.D., University of Nagpur, 1955.
- HUGH G. GAUCH**, Professor of Plant Physiology.  
B.S., Miami University, 1935; M.S., Kansas State College, 1937; Ph.D., University of Chicago, 1939.
- DWIGHT L. GENTRY**, Associate Professor of Marketing.  
B.A., Elon College, 1941; M.B.A., Northwestern University, 1947; Ph.D., University of Illinois, 1952.
- GUY W. GIENGER**, Associate Professor of Agricultural Engineering.  
B.S., University of Maryland, 1933; M.S., University of Maryland, 1936.
- RICHARD A. GOOD**, Associate Professor of Mathematics.  
B.A., Ashland College, 1939; M.A., University of Wisconsin, 1940; Ph.D., University of Wisconsin, 1945.
- RALPH GOODWIN**, Professor and Head of Physics, U. S. Naval Academy, Annapolis, Maryland. Visiting Lecturer in Physics.  
B.A., Simpson College, 1935; M.S., Iowa State College, 1937; Ph.D., Iowa State College, 1939.
- WILLIAM HENRY GRAVELY, JR.**, Associate Professor of English.  
B.A., College of William and Mary, 1924; M.A., University of Virginia, 1934; Ph.D., University of Virginia, 1953.
- ROSE MARIE GRENTZER**, Professor of Music.  
B.A., (Music and Music Education), Carnegie Institute of Technology, 1936; M.A., Carnegie Institute of Technology, 1939.
- JOHN W. GUSTAD**, Professor of Psychology and Director, University Counseling Center.  
B.A., Macalester College, 1943; M.A., University of Minnesota, 1948; Ph.D., University of Minnesota, 1949.
- HAI-TSIN HSU**, Instructor in Mathematics.  
B.E., National Technical College, 1937; M.A., National Chekiang University, 1945; Ph.D., Yale University, 1955.
- HELEN E. HALE**, Supervisor of Senior High Schools, Science and Mathematics, Baltimore County Public Schools, Maryland. Visiting Lecturer in Education.  
B.A., Goucher College, 1935; M.A., Johns Hopkins University, 1952.
- THOMAS W. HALL**, Instructor of Foreign Languages.  
M.A., Middlebury College, 1950.
- ROBERT C. HAMMOCK**, Professor of Secondary Education, University of Alabama. Visiting Lecturer in Education.  
B.A., North Texas State College, 1928; M.A., University of Texas, 1935; Ph.D., University of Texas, 1942.
- HORACE V. HARRISON**, Assistant Professor of Government and Politics.  
B.A., Trinity University, 1932; M.A., University of Texas, 1941; Ph.D., University of Texas, 1951.

- PAUL E. HARRISON, JR.**, Associate Professor of Industrial Education.  
B.Ed., Northern Illinois State Teachers College, DeKalb, 1942; M.A., Colorado State College of Education, Greeley, 1947; Ph.D., University of Maryland, 1955.
- ELLEN E. HARVEY**, Associate Professor of Physical Education and Recreation.  
B.S., New College, Columbia University, 1935; M.E., Teachers' College, Columbia University, 1941; Ed.D., University of Oregon, 1951.
- ELIZABETH E. HAVILAND**, Assistant Professor of Entomology.  
B.A., Wilmington (Ohio) College, 1923; M.A., Cornell University, 1926; M.S., University of Maryland, 1936; Ph.D., University of Maryland, 1945.
- GUY B. HATHORN**, Assistant Professor of Government and Politics.  
B.A., University of Mississippi, 1940; M.A., University of Mississippi, 1942; Ph.D., Duke University, 1950.
- RICHARD HENDRICKS**, Associate Professor of Speech.  
B.A., Franklin College, 1937; M.A., Ohio State University, 1939; Ph.D., Ohio State University, 1956.
- RICHARD HIGHTON**, Assistant Professor of Zoology.  
B.A., New York University, 1950; M.S., University of Florida, 1953; Ph.D., University of Florida, 1956.
- DAVID WAYNE HIRST**, Instructor in History.  
B.A., University of Connecticut, 1950; M.A., Northwestern University, 1952.
- ROBERT K. HIRZEL**, Instructor in Sociology.  
1950; Ph.D., Louisiana State University, 1954.
- HAROLD C. HOFFSOMMER**, Professor and Head, Department of Sociology.  
B.S., Northwestern University, 1921; M.A., Northwestern University, 1923; Ph.D., Cornell University, 1929.
- HARALD HOLMANN**, Instructor in Mathematics.  
Staatsexamen (M.A.), University of Munster, 1955; Ph.D., University of Munster, 1956.
- H. PALMER HOPKINS**, Assistant Professor of Agricultural Education.  
B.S., Oklahoma A. & M. College, 1936; M.Ed., University of Maryland, 1948.
- WILLIAM F. HORNYAK**, Associate Professor of Physics.  
B.E.E., City College of New York, 1944; M.S., California Institute of Technology, 1945; Ph.D., California Institute of Technology, 1949.
- KENNETH O. HOVET**, Professor of Education.  
B.A., St. Olaf College, 1926; Ph.D., University of Minnesota, 1950.
- JAMES H. HUMPHREY**, Professor of Physical Education and Health.  
B.A., Denison University, 1933; M.A., Western Reserve University, 1946; Ed.D., Boston University, 1951.
- BURRIS F. HUSMAN**, Associate Professor of Physical Education.  
B.S., University of Illinois, 1941; M.S., University of Illinois, 1948; Ed.D., University of Maryland, 1954.
- STANLEY B. JACKSON**, Professor and Head, Department of Mathematics.  
B.A., Bates College, 1933; M.A., Harvard University, 1934; Ph.D., Harvard University, 1937.

**RICHARD H. JAQUITH**, Assistant Professor of Chemistry.

B.S., University of Massachusetts, 1940; M.S., University of Massachusetts, 1942; Ph.D., Michigan State University, 1955.

**WILLIAM ROBERT JENKINS**, Assistant Professor of Plant Pathology.

B.S., College of William and Mary, 1950; M.S., University of Virginia, 1952; Ph.D., University of Maryland, 1954.

**WARREN R. JOHNSON**, Professor of Health Education and Physical Education.

B.A., University of Denver, 1952; M.A., University of Denver, 1946; Ed.D., Boston University, 1950.

**HENRY BRYCE JORDAN**, Assistant Professor of Music.

B.Mus., University of Texas, 1948; M.Mus., University of Texas, 1949; Ph.D., University of North Carolina, 1956.

**LOUIS W. KAZIENKO**, Associate Professor of Educational Psychology, Mankato State Teachers College, Minnesota. Visiting Lecturer in Education.

B.S., University of New Hampshire, 1938; M.A., University of New Hampshire, 1940; Ph.D., University of Nebraska, 1953.

**DORA E. KEARNEY**, Instructor in Mathematics.

B.A., University of Minnesota, 1920; M.A., University of Minnesota, 1924.

**MARY A. KEMBLE**, Instructor in Music and Music Education.

B.S., (Music) State Teachers College, Mansfield, Pennsylvania, 1930; B.S., (Education), State Teachers College, Mansfield, Pennsylvania, 1936; M.S., University of Pennsylvania, 1930.

**FLORANCE B. KING**, Professor and Head, Department of Foods and Nutrition.

B.S., University of Illinois, 1914; M.A., University of California, 1926; Ph.D., University of Indiana, 1929.

**CHARLES F. KRAMER**, Associate Professor of Foreign Languages.

Ph.B., Dickinson College, 1911; M.A., Dickinson College, 1912.

**ROBERT W. KRAUSS**, Assistant Professor of Botany.

B.A., Oberlin College, 1947; M.S., University of Hawaii, 1949; Ph.D., University of Maryland, 1951.

**NORMAN C. LAFFER**, Associate Professor of Bacteriology.

B.S., Allegheny College, 1929; M.S., University of Maine, 1932; Ph.D., University of Illinois, 1937.

**HOWARD J. LASTER**, Assistant Professor of Physics.

B.A., Harvard College, 1951; Ph.D., Cornell University, 1957.

**VICTOR B. LAWHEAD**, Associate Professor of Education, Ball State Teachers College, Muncie, Indiana. Visiting Lecturer in Education.

B.A., De Pau University, 1940; M.A., The Ohio State University, 1947; Ph.D., The Ohio State University, 1950.

**LEROY L. LEE**, Assistant Professor of Accounting.

C.P.A., Maryland, 1949; A.M., George Washington, 1952.

- JOHN LEMBACH**, Associate Professor of Art and Art Education.  
B.A., University of Chicago, 1934; M.A., Northwestern University, 1937; Ed.D., Columbia University, 1946.
- MARY REA LEWIS**, Visiting Lecturer in Education.  
B.S., Teachers College, Columbia University, 1929; M.A., Teachers College, Columbia University, 1933.
- R. A. LITTLEFORD**, Associate Professor of Zoology.  
B.S., University of Maryland, 1933; M.S., University of Maryland, 1934; Ph.D., University of Maryland, 1938.
- ROBERT F. LUCE**, Instructor in Civil Engineering.  
B.S., Yale University, 1910. Registered Professional Engineer.
- THOMAS M. MAGOON**, Assistant Professor of Psychology and Assistant Director, Student Counseling Center.  
B.A., Dartmouth College, 1947; M.A., University of Minnesota, 1951; Ph.D., University of Minnesota, 1954.
- DONALD MALEY**, Professor of Industrial Education.  
B.S., State Teachers College, California, Pennsylvania, 1943; M.A., University of Maryland, 1947; Ph.D., University of Maryland, 1950.
- BENJAMIN H. MASSEY**, Professor of Physical Education.  
B.A., Erskine College, 1938; M.S., University of Illinois, 1947; Ph.D., University of Illinois, 1950.
- WESLEY J. MATSON**, Assistant Professor of Education.  
B.S., University of Minnesota, 1948; M.A., University of California, 1954.
- MARTHA MAXWELL**, Counselor-Instruction in Psychology.  
B.A., University of Maryland, 1946; M.A., University of Maryland, 1948.
- NANCY JANE MEARIG**, Instructor in Home Management.  
B.S., New York State College for Teachers, Buffalo, New York, 1947; M.S., Purdue University, 1952.
- WALTER S. MEASDAY**, Assistant Professor of Economics.  
B.A., College of William and Mary, 1945; Ph.D., Massachusetts Institute of Technology, 1955.
- BRUCE L. MELVIN**, Associate Professor of Sociology.  
B.S., University of Missouri, 1916; M.A., University of Missouri, 1917; Ph.D., University of Missouri, 1921.
- GEORGE R. MERRILL**, Instructor in Industrial Education.  
B.S., University of Maryland, 1954; M.Ed., University of Maryland, 1955.
- HORACE S. MERRILL**, Professor of History.  
B.E., River Falls State College, Wisconsin, 1932; Ph.M., University of Wisconsin, 1933; Ph.D., University of Wisconsin, 1942.
- MADELAINE J. MERSHON**, Professor of Education, Institute for Child Study.  
B.S., Drake University, 1940; M.A., University of Chicago, 1943; Ph.D., University of Chicago, 1950.
- CHARLTON G. MEYER**, Instructor in Music.  
B.Mus., Curtis Institute of Music, 1952.

- DOROTHY R. MOHR**, Professor of Physical Education.  
B.S., University of Chicago, 1932; M.A., University of Chicago, 1933; Ph.D., University of Iowa, 1944.
- E. AUBERT MOONEY, JR.**, Associate Professor of English.  
B.A., Furman University, 1930; M.A., University of Virginia, 1933; Ph.D., Cornell University, 1937.
- DELBERT T. MORGAN**, Associate Professor of Botany.  
B.S., Kent State University, 1940; M.A., Columbia University, 1942; Ph.D., Columbia University, 1948.
- H. GERTHON MORGAN**, Professor of Education, Institute for Child Study.  
B.A., Furman University, 1940; M.A., University of Chicago, 1943; Ph.D., University of Chicago, 1946.
- EARL W. MOUNCE**, Professor of Law and Labor.  
B.S., University of Missouri, 1921; M.A., University of Southern California, 1922; B.A., University of Southern California, 1927; L.L.M., University of Southern California, 1945.
- CHARLES D. MURPHY**, Professor and Acting Head, Department of English.  
B.A., University of Wisconsin, 1929; M.A., Harvard University, 1930; Ph.D., Cornell University, 1940.
- BOYD L. NELSON**, Assistant Professor of Statistics and Business Administration.  
B.A., University of Wisconsin, 1947; M.A., University of Wisconsin, 1948; Ph.D., University of Wisconsin, 1952.
- GRACIELA P. NEMES**, Instructor in Foreign Languages.  
B.S., Trinity College, 1942; M.A., University of Maryland, 1949; Ph.D., University of Maryland, 1952.
- CLARENCE A. NEWELL**, Professor of Educational Administration.  
B.A., Hastings College, Nebraska, 1935; M.A., Columbia University, 1939; Ph.D., Columbia University, 1943.
- JANE H. O'NEILL**, Instructor in Office Techniques.  
B.A., University of Maryland, 1932.
- LEO W. O'NEILL**, Associate Professor of Education.  
B.A., University of Chicago, 1938; M.A., University of Kansas City, 1953; Ed.D., University of Colorado, 1955.
- JESS NORMAN PARMER**, Instructor in History.  
B.A., Indiana University, 1949; M.A., University of Connecticut, 1951; Ph.D., Cornell University, 1957.
- ROBERT A. PATERSON**, Instructor in Botany.  
B.A., University of Nevada, 1949; M.A., Stanford University, 1951.
- ARTHUR S. PATRICK**, Associate Professor of Office Management and Business Education.  
B.S., Wisconsin State College, 1931; M.A., University of Iowa, 1940; Ph.D., American University, 1956.
- BERNARD PECK**, Instructor in Education, Institute for Child Study.  
B.A., Indiana University, 1939; M.A., Columbia University, 1941.



**HUGH B. PICKARD**, Associate Professor of Chemistry.

B.A., Haverford College, 1933; Ph.D., Northwestern University, 1938.

**HARRY W. PIPER**, Assistant Professor of Civil Engineering.

B.Arch.E., Catholic University of America, 1940; Registered Professional Engineer.

**GORDON W. PRANGE**, Professor of History.

B.A., University of Iowa, 1932; M.A., University of Iowa, 1934; Ph.D., University of Iowa, 1937.

**ERNEST F. PRATT**, Professor of Chemistry.

B.A., University of Redlands, 1937; M.A., Oregon State University, 1939; M.A., University of Michigan, 1941; Ph.D., University of Michigan, 1942.

**DANIEL A. PRESCOTT**, Professor of Education and Director, Institute for Child Study.

B.S., Tufts College, 1920; M.Ed., Harvard University, 1922; Ed.D., Harvard University, 1923.

**PHILO T. PRITZKAU**, Associate Professor of Education, University of Connecticut. Visiting Lecturer in Education.

B.A., Valparaiso University, 1926; Ph.B., University of Chicago, 1927; M.A., University of Chicago, 1931; Ed.D., Teachers College, Columbia University, 1951.

**ROBERT D. RAPPLEYE**, Associate Professor of Botany.

B.S., University of Maryland, 1941; M.S., University of Maryland, 1947; Ph.D., University of Maryland, 1954.

**ROBERT G. RISINGER**, Associate Professor of Education.

B.S., Ball State Teachers College, Muncie, Indiana, 1940; M.A., University of Chicago, 1947; Ed.D., University of Colorado, 1955.

**ALICE L. ROBINSON**, Supervisor of Libraries, Montgomery County Board of Education, Maryland. Visiting Lecturer in Library Science.

B.A., Baldwin-Wallace College, 1934; B.S. in Library Science, Western Reserve University, 1940; M.A., Western Reserve University, 1952.

**WILLIAM G. ROSEN**, Assistant Professor of Mathematics.

B.S., University of Illinois, 1943; M.S., University of Illinois, 1947; Ph.D., University of Illinois, 1954.

**WILLIAM B. RUNGE**, Associate Professor of Secondary Education and State Supervisor of Distributive Education, University of New Mexico. Visiting Lecturer in Education.

B.S., Colorado State College of Agriculture and Mechanic Arts, 1935; M.Ed., Colorado State College of Agriculture and Mechanic Arts, 1944; Ed.D., University of Southern California, 1953.

**ALVIN W. SCHINDLER**, Professor of Education.

B.A., Iowa State College, 1927; M.A., University of Iowa, 1929; Ph.D., University of Iowa, 1934.

**FRANK J. SCHMIDT**, Instructor in Sociology.

B.A., University of Chicago, 1941; M.A., University of Chicago, 1946; Ph.D., University of Chicago, 1950.

**JENNYE FAYE SCHULTZ**, Visiting Lecturer in Education.

B.A., Mississippi College, 1951; M.A., University of Alabama, 1954.

- MARK SCHWEIZER**, Assistant Professor of Foreign Languages.  
M.A., University of Maryland, 1931; Ph.D., University of Maryland.
- PAUL W. SHANKWEILER**, Associate Professor of Sociology.  
Ph.B., Muhlenberg University, 1919; M.A., Columbia University, 1921; Ph.D., University of North Carolina, 1934.
- GEORGE D. SHELBY**, Assistant Professor of Economics.  
B.A., University of Cincinnati, 1947; Ph.D., University of California, 1955.
- JULIUS C. SHEPHERD**, Instructor in Mathematics.  
B.A., East Carolina Teachers College, 1944; M.A., East Carolina Teachers College, 1947.
- DAVID E. SIMONS**, Assistant Professor of Electrical Engineering.  
B.S., University of Maryland, 1949; M.S., University of Maryland, 1951.
- HUGH D. SISLER**, Assistant Professor of Botany.  
B.S., University of Maryland, 1949; M.S., University of Maryland, 1951; Ph.D., University of Maryland, 1953.
- ELKAN E. SNYDER**, Assistant Director, Bureau for Children With Retarded Mental Development, Board of Education, New York City. Visiting Lecturer in Education.  
B.S., New York University, 1950; M.A., New York University, 1951.
- ALLEN R. SOLEM**, Associate Professor of Psychology.  
B.A., University of Minnesota, 1938; M.A., Wayne University, 1948; Ph.D., University of Michigan, 1953.
- DAVID S. SPARKS**, Assistant Professor of History.  
B.A., Grinnell College, 1944; M.A., University of Chicago, 1945; Ph.D., University of Chicago, 1951.
- MABEL S. SPENCER**, Assistant Professor of Home Economics Education.  
B.S., West Virginia University, 1925; M.S., West Virginia University, 1946.
- FAGUE K. SPRINGMANN**, Associate Professor of Music.  
B.Mus., Westminster Choir College, 1939.
- DONALD STANGER**, Assistant Professor of Education, Institute for Child Study.  
B.S., State Teachers College, Glassboro, New Jersey, 1948; M.A., Columbia University, 1949; Ed.D., University of Maryland, 1955.
- E. THOMAS STARCHER**, Instructor in Speech.  
B.A., University of Southern California, 1940; M.S., University of Arkansas, 1948.
- RUEBEN G. STEINMEYER**, Professor of Government and Politics.  
B.A., American University, 1929; Ph.D., American University, 1935.
- R. W. STRANDTMANN**, Professor of Biology, Texas Technological College. Visiting Lecturer in Zoology.  
B.S., Southwestern Texas Technology College, 1935; M.S., Texas Agricultural and Mechanical College, 1937; Ph.D., Ohio State University, 1944.
- CLARA G. STRATEMEYER**, Elementary Supervisor, Montgomery County Schools, Maryland. Visiting Lecturer in Education.  
B.S., Teachers College, Columbia University, 1928; M.A., Teachers College, Columbia University, 1929; Ph.D., Teachers College, Columbia University, 1936.

**WARREN L. STRAUSBAUGH**, Associate Professor and Head, Department of Speech and Dramatic Arts.

B.S., Wooster College, 1932; M.A., University of Iowa, 1935.

**ROLAND N. STROMBERG**, Assistant Professor of History.

B.A., University of Kansas City, 1939; M.A., American University, 1946; Ph.D., University of Maryland, 1952.

**CALVIN F. STUNTZ**, Associate Professor of Chemistry.

B.A., University of Buffalo, 1939; Ph.D., University of Buffalo, 1947.

**FRED R. THOMPSON**, Associate Professor of Education, Institute for Child Study.

B.A., University of Texas, 1929; M.A., University of Texas, 1939; Ed.D., University of Maryland, 1952.

**WILLIAM F. TIERNEY**, Assistant Professor of Industrial Education.

B.S., Teachers College of Connecticut, 1941; M.A., Ohio State University, 1949; Ed.D., University of Maryland, 1952.

**ORVAL L. ULRY**, Associate Professor of Education and Assistant Director of Summer Session.

B.S., Ohio State University, 1938; M.A., Ohio State University, 1944; Ph.D., Ohio State University, 1953.

**JAMES A. VAN ZWOLL**, Professor of School Administration.

B.A., Calvin College, Grand Rapids, Michigan, 1933; M.A., University of Michigan, 1937; Ph.D., University of Michigan, 1942.

**ANTOINE VISCONTI**, Lecturer in Physics.

Docteur ès Sciences, Faculté des Sciences de Paris, 1951.

**WALTER B. WAETJEN**, Associate Professor of Education, Institute for Child Study.

B.S., State Teachers College, Millersville, Pennsylvania, 1942; M.S., University of Pennsylvania, 1947; Ed.D., University of Maryland, 1951.

**ROBERT E. WAGNER**, Professor and Head, Department of Agronomy.

B.S., Kansas State College, 1942; M.S., University of Wisconsin, 1943; Ph.D., University of Wisconsin, 1950.

**GLADYS A. WIGGIN**, Professor of Education.

B.S., University of Minnesota, 1929; M.A., University of Minnesota, 1939; Ph.D., University of Maryland, 1947.

**FRANK H. WILCOX, JR.**, Assistant Professor of Poultry.

B.S., University of Connecticut, 1951; M.S., Cornell University, 1953; Ph.D., Cornell University, 1955.

**G. FORREST WOODS**, Professor of Chemistry.

B.A., Northwestern University, 1935; M.S., Harvard University, 1937; Ph.D., Harvard University, 1940.

**HOWARD WRIGHT**, Professor of Accounting.

B.S., Temple University, 1937; M.A., University of Iowa, 1940; C.P.A., State of Texas, 1940; Ph.D., University of Iowa, 1947.

**LELAND B. YEAGER**, Assistant Professor of Economics.

B.A., Oberlin College, 1948; M.A., Columbia University, 1949; Ph.D., Columbia University, 1952.

**JACQUELINE L. ZEMEL**, Instructor in Mathematics.

B.S., Queens College, 1949; M.A., Syracuse University, 1951.

## SUMMER SESSION

Vernon E. Anderson, Ph.D., Director  
 Orval L. Ulry, Ph.D., Assistant Director  
 Alma Frothingham, Administrative Assistant

## REGISTRATION SCHEDULE AND CALENDAR OF DATES

**Advanced Registration Schedule for Students in Education**  
 (By appointment only)

May 1 through May 25—9:00 A.M.- 2:30 P.M., Mondays through Fridays  
 9:00 A.M.-11:00 A.M., Saturdays

**Registration Schedule for New Graduate Students**

Friday, June 21	9:00 A. M.	A—E	11:00 A. M.	L—R
	10:00 A. M.	F—K	1:00 P. M.	S—Z

**Registration Schedule for Undergraduate Students and  
 Returning Graduate Students**

Date	Time	Students	Time	Students
Monday, June 24	8:30 A. M.	A—C	12:30 P. M.	L—O
	9:30 A. M.	D—F	1:30 P. M.	P—S
	10:30 A. M.	G—K	2:30 P. M.	T—Z

To expedite registration, students have been put into groups on the basis of the first letter of the last name. All students should register according to the above schedule.

June 25, Tuesday..... Classes begin.

June 29, Saturday.....Classes as usual, Monday schedule.

July 4, Thursday.....Holiday.

August 2, Friday.....Close of Summer Session.

## REGISTRATION

Registration for undergraduate and graduate students will take place on Monday, June 24, from 8:30 A. M. to 2:30 P. M. New graduate students should register on Friday, June 21, from 9:00 A. M. to 1:00 P. M., and should report to the office of the department or college concerned with their graduate programs, at the time listed in the Registration Schedule.

All students must obtain admission to the University from the Director of Admissions or the Dean of the Graduate School before registration.

Registration begins in the office of the appropriate dean at the time listed in the Registration Schedule. After registration forms have been filled out and

approved by the dean, students complete registration at the Armory where they receive bills, pay fees, and submit all forms to the Registrar.

Instruction will begin on Tuesday, June 25, at 8:00 A. M. The late registration fee, charged on and after Tuesday, June 25, is \$5.00.

### Advanced Registration

Undergraduate and graduate students in Education may register for the Summer Session between May 1 and 25 by appointment with the advisers in the College of Education. The hours for advanced registration will be 9:00 A. M. to 2:30 P. M., Mondays through Fridays, and 9:00 A. M. to 11:00 A. M. on Saturdays.

Students who wish to register early should arrange to complete registration after conference with the Dean by paying fees at the Cashier's Office and submitting all approved registration forms to the Office of the Registrar.

New students who wish to register in advance must be formally admitted to the University prior to registration. New undergraduate students should file applications for admission with the Office of Admissions and new graduate students should apply to the Dean of the Graduate School.

### TERMS OF ADMISSION

All summer school students must be admitted to the university. This applies to all non-degree as well as degree candidates. Persons not previously admitted should file their applications with Mr. G. W. Algire, Director of Admissions, not later than June 8, 1957.

Graduates of accredited two-and three-year normal schools with satisfactory normal school records may be admitted to advanced standing in the College of Education. The record and objectives of the individual student determine the exact amount of credit allowed. The student is given individual counsel as to the best procedure for fulfilling the requirements for a degree.

Applications for admission to the Graduate School must be in the hands of the Dean of the Graduate School by June 8. Applications must include transcripts of undergraduate records. Students not desiring graduate credit may register as "Special Students" and not seek admission to the Graduate School. Only students admitted to the Graduate School may register for courses numbered 200 or above.

### DEFINITION OF RESIDENCE AND NON-RESIDENCE

Students who are minors are considered to be resident students if at the time of their registration their parents have been domiciled in this State for at least one year.

The status of the residence of a student is determined at the time of his first registration in the University, and may not thereafter be changed by him unless, in the case of a minor, his parents move to and become legal residents

of this State by maintaining such residence for at least one full year. However, the right of the minor student to change from a non-resident to resident status must be established by him prior to the registration period set for any semester.

Adult students are considered to be residents if at the time of their registration they have been domiciled in this State for at least one year provided such residence has not been acquired while attending any school or college in Maryland or elsewhere.

The word domicile as used in this regulation shall mean the permanent place of abode. For the purpose of this rule only one domicile may be maintained.

### ACADEMIC CREDIT

The semester hour is the unit of credit. During the Summer Session a course meeting five times a week for six weeks requiring the standard amount of outside work is given a weight of two semester hours.

Students who are matriculated as candidates for degrees will be given credit towards the appropriate degree for satisfactory completion of courses. All courses offered in the Summer Session are creditable towards the appropriate degree.

Teachers and other students will receive official reports specifying the amount and quality of work completed. These reports will be accepted by the Maryland State Department of Education and by the appropriate education authorities in other states for the extension and renewal of certificates in accordance with their laws and regulations.

### MARKING SYSTEM

The following symbols are used for marks: A, B, C, and D—passing; F—Failure; I—Incomplete. Mark A denotes superior scholarship; mark B, good scholarship; mark C, fair scholarship; and mark D, passing scholarship. The mark of I (incomplete) is exceptional. Regulations governing the use of an incomplete mark are printed in the Academic Regulations.

### NORMAL AND MAXIMUM LOADS

Six semester hours is the normal load for the Summer Session. Undergraduate students in the College of Education and teachers in service may take a maximum of eight semester hours if they have above-average grades. The maximum load for graduate students is six semester hours. For details, see "Tuition and Fees."

### TUITION AND FEES

#### Undergraduate Students

General Tuition Fee, Per Credit Hour .....	\$10.00
Non-residence Fee .....	15.00
Must be paid by all students who are not residents of Maryland.	

Matriculation Fee .....	10.00
Payable only once, upon admission to the University. Every student must be matriculated.	
Infirmary Fee .....	1.00
Recreation Fee .....	1.00
Required of all students registered in the Summer School.	

### Graduate Students

General Tuition Fee, Per Credit Hour .....	\$10.00
Matriculation Fee .....	10.00
Payable only once, upon admission to the Graduate School.	
Recreation Fee .....	1.00
Required of all students registered in the Summer School.	
Infirmary Fee (voluntary) .....	1.00
The Infirmary services are available to graduate students who elect to pay at the time of registration the fee of \$1.00 for the Summer Session.	

There is no non-residence fee for graduate students.

### Miscellaneous Information

Auditors pay the same fees as regular students.

The diploma fee is \$10.00 for bachelors' and masters' degrees, and \$50.00 for doctors' degrees.

A fee of \$3.00 is charged for each change in program after June 29. If such change involves entrance to a course, it must be approved by the instructor in charge of the course entered. Courses cannot be dropped after July 12.

A special laboratory fee may be charged for certain courses where such fee is noted in the course description.

All laboratory courses in chemistry carry laboratory fees of \$10.00; in addition the student is charged for any apparatus which cannot be returned to the stock room in perfect condition. Other laboratory fees are stated in connection with individual courses.

Physical Education Fee charged each student registered for any physical activity course, \$3.00.

Late Registration fee, \$5.00.

### LIVING ACCOMMODATIONS—MEALS

Dormitory accommodations are available at the following cost per term, on the basis indicated:

Regular Dormitories	Single Room	Double Room
Women (with maid service)	\$45	\$35
Men (without maid service)	\$35	\$25

There is no definite guarantee that a request for a single room can be granted because the availability of space is determined by the number of persons requesting rooms for the Summer session.

The Dining Hall will operate entirely on the Cafeteria plan and meals will be served at a minimum cost with a choice of foods.

**THE UNIVERSITY DORMITORIES WILL NOT BE OPEN FOR OCCUPANCY UNTIL 12 O'CLOCK NOON, SUNDAY, JUNE 23.**

Early application for reservations is advisable, as only those who have made reservations will be assured that rooms are ready for their occupancy. Rooms will not be held later than noon of Tuesday, June 25. For reservations write to Miss M. Margaret Jameson, Associate Dean of Women, or Mr. Robert C. James, Men's Dormitory Manager. **Do not send a deposit for room.**

Students attending the Summer School and occupying rooms in the dormitories will provide themselves with towels, pillows, pillow cases, sheets, blankets, bureau scarf, desk blotter, and waste basket. Trunks for the men's dormitories should be marked with student's name and addressed to "Men's Dormitories." Trunks for the women's dormitories should include name of dormitory and room number if it has been assigned in advance. Trunks sent by express should be prepaid. Cleanliness and neatness of rooms is the responsibility of the individual.

#### OFF-CAMPUS HOUSING

Off-campus rooms are available. Inquiries concerning them should be addressed to Mr. Doyle Royal, Office of Director of Student Welfare. He will furnish the names of those householders to whom students should write to make their own arrangements.

The University assumes no responsibility for rooms and board offered to Summer Session patrons outside of the University dormitories and dining room. Eating establishments in the vicinity are inspected by the County Health Service.

#### CANCELLATION OF COURSES

Courses may be cancelled if the number of students enrolled is below certain minima. In general, freshman and sophomore courses will not be maintained for classes smaller than 20. Minimum enrollments for upper level under-graduate courses and graduate courses will be 15 and 10 respectively.

#### WITHDRAWAL AND REFUND OF FEES

Any student compelled to leave the University at any time during the Summer Session must file in the office of the Registrar an application for withdrawal, bearing the proper signatures. If this is not done, the student will not be entitled, as a matter of course, to a certificate of honorable dismissal, and will forfeit his right to any refund to which he would otherwise be



entitled. The date used in computing refunds is the date the application for withdrawal is filed in the office of the Registrar.

In the case of a minor, official withdrawal will be permitted only with the written consent of the student's parent or guardian.

Students withdrawing from the University will receive a refund of all charges, less the matriculation fee in accordance with the following schedule:

<i>Period from Date Instruction Begins</i>	<i>Percentage Refundable</i>
One week or less .....	60%
Between one and two weeks .....	20%
Over two weeks .....	0

No refunds of fixed charges, lodging, tuition, laboratory fees, etc., are allowed when courses are dropped, unless the student withdraws from the University.

### STUDENT HEALTH

The University Infirmary, located on the campus, in charge of the regular University physician and nurse, provides medical service of a routine nature for the undergraduate students in the Summer Session and for those graduate students who elect to pay the \$1.00 fee. Students who are ill should report promptly to the University Infirmary, either in person or by phone (Extension 326).

### PARKING OF AUTOMOBILES

For the use of students, staff members, and employees, several parking lots are provided. The University rules forbid the parking of cars on any of the campus roads. These rules are enforced by State police.

### SUMMER GRADUATE WORK

Masters' degrees are offered through the Graduate School as follows:

- Master of Arts
- Master of Science
- Master of Arts in American Civilization
- Master of Education
- Master of Business Administration

Doctors' degrees offered through the Graduate School are as follows:

- Doctor of Philosophy
- Doctor of Education

Graduate work in the Summer School may be counted as residence toward a Master's degree or Doctor of Education degree. A full year of residence or the equivalent is the minimum requirement for each degree.

The requirements for each of the seven degrees above may be procured from the Graduate School upon request.

Special regulations governing graduate work in Education and supplementing the statements contained in the Graduate School Announcements are available in duplicated form and may be obtained from the College of Education. Each graduate student in Education should have a copy. Students seeking the Master's degree as a qualification for a certificate issued by the Maryland State Department of Education or any other certifying authority should consult the appropriate bulletin for specific requirements. Advisers will assist students in planning to meet such requirements.

All students desiring graduate credit, whether for meeting degree requirements, for transfer to another institution, or for any other purpose, must be regularly matriculated and registered in the Graduate School.

### CANDIDATES FOR DEGREES

All students who expect to complete requirements for degrees during the Summer Session should make applications for diplomas at the office of the Registrar during the first two weeks of the Summer Session.

### UNIVERSITY BOOKSTORE

For the convenience of students, the University maintains a students' supply store, located in the Student Union Building, where students may obtain at reasonable prices textbooks, stationery, classroom materials and equipment.

The bookstore operates on a cash basis.

### THE PROGRAM IN AMERICAN CIVILIZATION

The University considers that it is important for every student to achieve an appreciative understanding of this country, its history and its culture. It has therefore established a comprehensive program in American Civilization. This program is also designed to provide the student with a general educational background.

Work in American Civilization is offered at three distinct academic levels. The first level is required of all freshmen and sophomores at the University and is described below. The second level is for undergraduate students wishing to carry a major in this field (see catalog for the College of Arts and Sciences). The third level is for students desiring to do graduate work in this field (see catalog for the Graduate School).

All students receiving a baccalaureate degree from the University of Maryland must (except as specific exceptions are noted in printed curricula) obtain 24 semester hours of credit in the lower division courses of the American Civilization Program. Although the courses in the Program are prescribed generally, some choice is permitted, especially for students who demonstrate in classification tests good previous preparation in one or more of the required subjects.

The 24 semester hours in American Civilization are as follows:

1. English (12 hours, Eng. 1, 2 and 3, 4 or 5, 6), American History (6 hours Hist. 5, 6), and American Government (3 hours, G. & P. 1) are required subjects; however, students who qualify in one, two, or all three of these areas by means of University administered tests will substitute certain elective courses. Through such testing a student may be released from 3 hours of English (9 hours would remain an absolute requirement), 3 hours of American History (3 hours remaining as an absolute requirement), and 3 hours of American Government. Students released from 3 hours of English will take Eng. 21 instead of Eng. 1 and 2. Those released from 3 hours in History will take Hist. 56 instead of Hist. 5 and 6. Students who have been exempted from courses in English, History, or American Government may not take such courses for credit.

2. For the 3 additional hours of the 24 hours required the student elects one course from the following group (Elective Group I):

Economics 37, Fundamentals of Economics (Not open to Freshmen; students who may wish to take additional courses in economics should substitute Economics 31 for Economics 37)

Philosophy 1, Philosophy of Modern Man  
Sociology 1, Sociology of American Life

3. Students who, on the basis of tests, have been released from 3, 6 or 9 hours in otherwise required courses in English, American History or American Government (see 1 above), shall select the replacements for these courses from any or all of the following groups: (a) more advanced courses in the same department as the required courses in which the student is excused, or (b) Elective Group I (see 2 above) provided that the same course may not be used as both a Group I and a Group II choice, or (c) Elective Group II. Group II consists of the following 3-hour courses:

History 2, History of Modern Europe; either History 51 or 52, The Humanities; either Music 20, Survey of Music Literature or Art 22, History of American Art; Psychology 1, Introduction to Psychology; and Sociology 5, Anthropology.

This course is one of a group of three courses within the Elective Group I of the American Civilization Program. It may also be taken by students who qualify by test to select substitute courses in the Program (provided the student has not taken the course as his Group I elective).

This course may be taken by students who qualify to select courses within Elective Group II of the American Civilization Program.

#### LECTURE SERIES ON PROBLEMS AND TRENDS IN CONTEMPORARY AMERICAN EDUCATION

All Summer Session students and faculty members are cordially invited to attend a series of lectures to be given by educators of national prominence.

The lecture series has been planned to present a broad overview of some of the key issues and trends that relate to the improvement of instruction at elementary, secondary, and teacher education levels. A listing of specific topics and speakers is included in a separate brochure which will be available on request at the time of registration.

These lectures are scheduled for Mondays and Wednesdays from 1:00 to 3:00 P.M. in Room 115 of the Physics Building, beginning on Wednesday, June 26th, and ending on Wednesday, July 31st.

Those students wishing to register for this series on a regular class basis and earn three hours of undergraduate or graduate credit may do so by supplementing attendance at these lectures by participation in a series of discussion groups led by regular university staff members. Additional details are available in the description of Ed. 190 which appears with the College of Education course offerings in this bulletin.

### TYPEWRITING DEMONSTRATION FOR BUSINESS EDUCATION TEACHERS

The College of Education offers the business teacher registered for the summer session an opportunity to observe pupils at work in a typewriting laboratory. (See B. Ed. 101, page 38.) These observations will aid the classroom teacher in: (1) designing purposeful classroom activities involving development of the basic typewriting skills, (2) planning with the pupil the organization of an effective set of "work" habits, (3) analyzing through case studies the methods of dealing with the various aspects of individual pupil progress, (4) applying the principles of the psychology of skills to the teaching of typewriting, and (5) developing improved methods for course construction, selection of instructional materials, and measuring pupil achievement.

**Typewriting Laboratory.** The typewriting laboratory will meet daily from 9 to 11 A. M. in Room Q-143. Any student, from grade 7 up, may sign up for this typewriting laboratory. The charge will be \$35.00 for the six weeks period and no credit will be allowed for the work. No refunds will be made.

### CONFERENCES, INSTITUTES AND WORKSHOPS

#### Institute of Acarology

The Institute of Acarology provides a unique opportunity for entomologists, parasitologists, zoologists and advanced students in the field of biology to study the mites and ticks. The recent important discoveries of the role of the Acarina in the fields of public health and agriculture have emphasized the need for an understanding of all phases of knowledge concerned with mites and ticks. Their part in the epidemiology of the encephalitides, scrub typhus, "Q" fever, haemorrhagic fever, and other diseases, as well as their increased destruction of plants that has followed the introduction of the newer insecticides have brought them to the attention of an increasing number of biologists. Three courses (see page 69) involving lecture, laboratory and field work will be offered from July 15 through August 2 in the Department of Zoology, University of Maryland.

The 1956 lectures were presented by Dr. G. W. Wharton, Department of Zoology, University of Maryland; Dr. David H. Johnson, Division of Mammals, U. S. National Museum, Washington, D. C.; Mr. George Goodwin, Librarian, Smithsonian Institution, Washington, D. C.; Dr. Henry S. Fuller, Department of Entomology, Army Medical Graduate School, Walter Reed Medical Center, Washington, D. C.; Dr. Louis Lipovsky, Department of Entomology, Army Medical Graduate School, Walter Reed Medical Center, Washington, D. C.; Dr. Floyd F. Smith, U. S. Department of Agriculture, Agricultural Research Center, Beltsville, Maryland; Dr. Dale W. Jenkins, Entomology Branch, Chemical Corps Research and Development Command, Fort Detrick, Maryland; Dr. Ralph E. Heal, Executive Secretary, National Pest Control Association, New York, New York; Dr. Joseph H. Camin, Chicago Academy of Sciences, Chicago, Illinois; Mr. J. Keller, Plant Industry Station, U. S. Department of Agriculture, Beltsville, Maryland; and Dr. Russell W. Strandmann, Department of Biology, Texas Technological College, Lubbock, Texas.

Special lectures on subjects of acarological interest were also presented at the Animal Parasite Laboratory, U. S. Department of Agriculture, Beltsville, Maryland, by Dr. Benjamin Schwartz and Dr. A. O. Foster.

**National Science Foundation Summer Institute**  
**For**  
**Teachers of Science and Mathematics**

The College of Agriculture, the College of Arts and Sciences and the College of Education are cooperating to offer a program of courses designed for junior and senior high school teachers of science and mathematics. These courses combine in various ways to provide curricula for the participants of a 6-week Institute for teachers of science and mathematics. The Summer Institute has the support of the National Science Foundation. It is designed primarily to enable junior and senior high school teachers to improve their knowledge of the subjects they teach. Credit earned in this Summer Institute and in similar related science courses may accumulate up to one-half of the total credit-hour requirement for the Master of Education degree.

A National Science Foundation grant makes it possible for the 1957 Summer Institute to provide financial assistance to about 50 participants. A stipend will be paid to each participant at the rate of \$75 per week plus \$15 per week for each dependent (to a maximum of 4). This stipend will be tax free to students enrolled for credit toward a degree. A travel allowance equal to a single round trip at the rate of 4 cents per mile from home to the Institute (not to exceed \$80) will be paid each holder of a stipend. All tuition and fee charges will also be paid by the National Science Foundation.

The Summer Institute covers three general fields: Biological Sciences, Mathematics, and Physical Sciences. Basic to the program will be three consecutive two-week seminars covering each of these fields. They will be listed in the Summer Session Catalog as Zoology 199, Mathematics 199, and Physics 199, respectively. Each will meet five times a week during the two weeks and

count as one credit hour. Participants in the Institute will be expected to register for at least two of the three seminars.

The following courses are included in the program. Courses especially prepared for teachers are indicated by an asterisk (\*). In addition, other courses of particular interest to teachers will be indicated by a dagger (†).

Bio logical Sciences	Mathematics	Physical Sciences
†Bact. 1	†Math. 10	†Chem. 3
†Bact. 5	†Math. 11	†Chem. 19
†Bot. 1	†Math. 18	†Chem. 37, 38
†Bot. 102	†Math. 19	*Chem. 111
*Ent. 11S	†Math. 20	†Phys. 109
†Zool. 1	†Math. 21	*Phys. 122A
†Zool. 104	†Math. 140S	†Phys. 130, 131
*Zool. 108S	*Math. 182	*Phys. 160A
*Zool. 199 (N.S.F. Institute Seminar)	*Math. 199 (Math. N.S.F. Inst. Sem.)	*Phys. 199 (Phys. N.S.F. Inst. Sem.)

These courses are described in detail in this catalog under the headings of the respective departments. Each participant will be limited to a maximum of 6 credit hours for the summer. Stipends will be available only for those participants scheduling at least 5 credit hours from among the above-listed courses.

Inquiries should be sent to Dr. G. W. Wharton, Director of the N. S. F. Summer Institute, Department of Zoology, University of Maryland, College Park, Maryland.

#### Institute for Child Study Summer Workshop

The Institute for Child Study, College of Education, offers a six-week human development workshop each summer providing opportunities for (1) study and synthesis of scientific knowledge about children and youth; (2) experience in the analysis of case records; (3) preparation of study group leaders for in-service child study programs; (4) planning in-service child study programs for teachers or other human relations workers; (5) planning pre-service teacher education courses and laboratory experiences for prospective teachers; (6) examination of implications of scientific knowledge about human development and behavior for school organization, curriculum development, guidance services, club leadership, and other agencies devoted to fostering the mental health and optimal development of children, youth, and adults.

While the workshop is designed mainly for teachers and administrators who have been actively engaged in the Child Study Program sponsored by the Institute or persons who are interested in participating in such a program, the experience has meaning for and has proved valuable for persons in other fields where human relations are a vital factor. Inquiries should be addressed to Director, Summer Workshop in Human Development.

**The Parent-Teacher Association Summer Conference  
July 15, 16, 17**

The College of Education will cooperate with the Maryland Congress of Parents and Teachers in planning their convention to be held this summer on the University campus. Persons of national reputation will be present as speakers and discussion leaders at the conference.

**Special Education Workshop**

The need to increase the number of well-prepared persons in all agencies and professions dealing with the mentally retarded and the brain-injured is of countrywide concern. For this reason, the College of Education, in cooperation with the State Department of Education and the Montgomery County Board of Education, is sponsoring a special education workshop of unique design for a three-week period, July 1—19, 1957.

While the workshop is designed mainly for teachers who are actively engaged in a program of special education for retarded children, it will be of value to all professional workers in the field. Special consultants in medicine, psychiatry, psychology, speech, social work, physio-therapy, and occupational therapy will demonstrate and elaborate upon recent findings in their special disciplines. After lectures and demonstrations by the specialists, the larger group will be divided into smaller groups which will be led by recognized authorities in the various fields who are experienced in more than one discipline. Classes for retarded children will be available for observation and demonstration purposes.

The workshop will be planned to assist its members in the understanding of the special services available to teachers and how these services can be utilized in the classroom. For those who are not teachers a clearer understanding of the team approach to the problems of retardation will be emphasized. Methods of teaching retarded children will be an integral part of the workshop for teachers as well as specific training in the analysis and correction of learning disabilities. The enrollment will be limited to one hundred twenty-five. Additional details are available in the description of Ed. 189 which appears with the College of Education course offerings in this bulletin. Further information may be secured by writing to the Assistant Director of the Summer Session, College Park, Maryland.

**Workshop on the Improvement of Science Teaching**

This workshop is co-sponsored by The Future Scientists of America Foundation of the National Science Teachers Association, The West Virginia Pulp and Paper Company, and the University of Maryland. It is designed for forty junior and senior high school science teachers to be selected by a joint committee of the National Science Teachers Association and the University of Maryland from a list of names of teachers submitted by junior and senior high school principals in the immediate plant communities of The West Virginia Pulp and Paper Company.

Designed around the theme, "Effective Teaching and Career Counseling in the Junior and Senior High School Science Program," the workshop will feature a study of the special role of the science teacher in helping young people make wise choices relative to careers in science and science-related areas as well as to increase personal know-how in the science subjects taught.

Additional details are available in the description of Ed. 189 which appears with the College of Education course offerings in this bulletin.

The workshop will be held on the College Park campus of the University of Maryland from June 23 to July 6, 1957.

### Transportation Institute

In cooperation with the State Department of Education and the public schools of the State, the College of Education and the College of Special and Continuation Studies are sponsoring a 4-day non-credit "Transportation Institute" from June 25 to June 28. This institute is planned to be of service to school bus drivers, transportation supervisors, teachers and principals who are involved in pupil transportation on a part-time basis, and other interested persons. Areas of interest that have been identified include (1) the need for the selection and training of school bus drivers, (2) the planning for and the organization of in-service training programs for school bus drivers, (3) the possibilities of establishing certain state-wide policies with respect to school bus operation, and (4) the defining of the job of the transportation supervisor.

The major part of the institute will be open for small-group work sessions where participants will be urged to share their experiences and know-how in the solving of their common problems. A director will coordinate the entire institute and consultants on both the state and national levels will be available as needed.

## COURSE OFFERINGS AND DESCRIPTIONS

An "S" before a course number denotes that the course is offered in summer school only. An "S" after a course number indicates a regular course modified for summer school offering.

### AGRICULTURAL ECONOMICS AND MARKETING

**A. E. 109. Research Problems (1-2).** To be arranged. (Staff.)

With the permission of the instructor, students will work on any research problems in agricultural economics. There will be occasional conferences for the purpose of making reports on progress of work.

**A. E. 200. Special Problems in Farm Economics (2).** To be arranged. (Staff.)

An advanced course dealing extensively with some of the economic problems affecting the farmer, such as land values, taxation, credit, prices, production adjustments, transportation, marketing and cooperation.



A. E. 203. Research. Credit According to work accomplished. (Staff.)

Students will be assigned research in agricultural economics under the supervision of the instructor. The work will consist of original investigation in problems of agricultural economics.

### AGRICULTURAL EDUCATION AND RURAL LIFE

Summer courses in Agricultural Education and Rural Life are offered primarily for teachers of vocational agriculture, extension field agents and others interested in the professional and cultural development of rural communities. These courses are arranged to articulate with certain courses in Agricultural Economics and Marketing, Agronomy, Animal Husbandry, Botany, Dairy Husbandry, Horticulture, and Poultry. Courses in both groups are offered in a cycle.

In 1957, one one-credit course will be offered per week for the last four weeks of Summer School. Students can take as many of these courses as they can arrange to attend. The schedule for each course will depend upon the nature of the material presented, but the total number of meetings per credit will be in accordance with graduate course standards. For example, in courses that are presented largely through the laboratory method the class will meet the greater part of each day. In courses where the lecture method is used, there will be a minimum of three hours of class each day, and the students will be expected to spend considerable time outside of classes in various kinds of assignments. Some courses will be a combination of lectures and laboratories in varying degrees.

By pursuing a program of three properly selected one-week courses successfully for eight consecutive summers and submitting a satisfactory thesis a student can earn a Master of Science degree with a major in Agricultural Education. The time required for this degree can be shortened by attending some full six-week Summer School Sessions, by attending one or more full semesters, by taking University Extension courses offered over the State, and by taking courses given in the evening and on Saturday on the campus. Minor credit can be taken in either Agricultural or Secondary Education courses.

Teachers should register for these courses on the regular registration days or during the week of June 24 while the FFA State Convention and Contests are being held. Teachers registering for the field problems or research courses may register at the same time, but will work under the direction of an assigned member of the staff, rather than on the basis of one-week per credit.

R. Ed. S208 A-B. Problems in Teaching Farm Mechanics (1-1). July 8 through July 12. Part B. I Arranged. (Gienger.)

This course deals with the latest developments in the teaching of Farm Mechanics. Various methods in use will be compared and studied under laboratory conditions.

R. Ed. S209 A-B. Adult Education in Agriculture (1-1). July 15 through July 19. Part B. Arranged. 0-138. (Ahalt.)

Principles of adult education as applied to rural groups, especially young and adult farmers. Organizing classes, planning courses and instructional methods are stressed.

**R. Ed. 220. Field Problems in Rural Education (1-3).** Prerequisite, six semester hours of graduate study. Arranged. O-138. (Ahalt, Hopkins.)

Problems accepted depend upon the character of the work of the student and the facilities available for study. Periodic conferences required. Final report must follow accepted pattern for field investigations.

**R. Ed. S250, A-B. Seminar in Rural Education (1-1).** July 29 through August 2. Part B. Arranged. O-138. (Hopkins.)

Current problems of teaching agriculture are analyzed and discussed. Students are asked to make investigations, prepare papers and make reports.

**R. Ed. 251. Research. (1-6).** Arranged, O-138. (Ahalt, Hopkins.)

Principles of research are studied, problems for thesis are selected, methods of developing a thesis are discussed, and a thesis is written.

Also see, Agron. S210. July 22 through July 26.

## AGRONOMY

### A. Crops

**Agron. 208. Research Methods (2).** (Staff.)

Development of research viewpoint by detailed study and report on crop research of the Maryland Agricultural Experiment Station, review of literature, or original work by the student on specific phases of a problem.

**Agron. 209. Research in Crops (1-6).** Credit according to work accomplished. (Staff.)

With approval or suggestion of the head of the department the student will choose his own problems for study.

**Agron. S210. Cropping Systems (1).** July 22 to July 26. Arranged; E-103. (Wagner.)

An advanced course primarily designed for teachers of vocational agriculture and county agents. It deals with outstanding problems and the latest developments in the field.

### B. Soils

**Agron. 118. Special Problems in Soils (1).** Prerequisite, Agron. 10 and permission of instructor. (Staff.)

A detailed study including a written report of an important soils problem.

**Agron. 256. Soil Research (1-6).** (Staff.)

## ANIMAL HUSBANDRY

**A. H. 172. Special Problems in Animal Husbandry (1-2).** Work assigned in proportion to amount of credit. Prerequisite, permission of instructor.  
(Staff.)

A course designed for advanced undergraduates in which specific problems relating to Animal Husbandry will be assigned.

**A. H. 201. Special Problems in Animal Husbandry (1-2).** Work assigned in proportion to amount of credit. Prerequisite, permission of instructor.  
(Staff.)

Problems will be assigned which relate specifically to the character of work the student is pursuing.

**A. H. 204. Research (1-6).** Credit to be determined by amount and character of work done.

With the approval of the head of the department, students will be required to pursue original research in some phase of Animal Husbandry, carrying the same to completion, and report the results in the form of a thesis.

## BACTERIOLOGY

†**Bact. 1. General Bacteriology (4).** Five lectures and five two-hour laboratory periods a week. Lecture, 8:00; T-219; laboratory, 9:00, 10:00; T-311. Laboratory fee, \$10.00.  
(Laffer.)

The physiology, culture, and differentiation of bacteria. Fundamental principles of microbiology in relation to man and his environment.

†**Bact. 5. Advanced General Bacteriology (4).** Five lectures and five two-hour laboratory periods a week. Lecture, 9:00; T-219; laboratory, 10:00, 11:00; T-307. Prerequisite, Bact. 1 and Chem. 3. Laboratory fee, \$10.00.  
(Laffer.)

Emphasis will be given to the fundamental procedures and techniques used in the field of bacteriology. Lectures will consist of the explanation of various laboratory procedures.

**Bact. 181. Bacteriological Problems (3).** Eight two-hour laboratory periods a week. To be arranged. Prerequisite 16 credits in bacteriology. Registration only upon consent of the instructor. Laboratory fee, \$10.00.  
(Faber.)

This course is arranged to provide qualified majors in bacteriology, and majors in allied fields an opportunity to pursue specific bacteriological problems under the supervision of a member of the Department.

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†Recommended for teachers.

**Bact. 291. Research.** Prerequisite, 30 credits in bacteriology. Laboratory fee, \$10.00.

Credits according to work done. The investigation is outlined in consultation with and pursued under the supervision of a senior staff member of the department.

### BOTANY

†**Bot. 1. General Botany (4).** Lecture 10:00, E-214; Laboratory 1:00, 2:00; E-238. Laboratory fee, \$5.00. (Paterson.)

General introduction to botany including all phases of the subject. Emphasis on the fundamental biological principles of the higher plants.

†**Bot. 102. Plant Ecology (3).** Lecture 8:00, E-214; laboratory 1:00, 2:00, 3:00, M., W., F., E-236. Prerequisite, Bot. 1, or equivalent. Laboratory fee, \$5.00. (Brown.)

A study of plants in relation to their environments. Plant successions and formations of North America are treated briefly and local examples studied.

The subject matter of this course is especially useful to science teachers and is offered as a part of their graduate program.

**Bot. 206. Research in Plant Physiology.** (Credit according to work done). (Gauch, Krauss.)

**Bot. 214. Research in Plant Cytology and Morphology.** (Credit according to work done.) (D. T. Morgan, Rappleye.)

**Bot. 225. Research in Plant Pathology.** (Credit according to work done). (Cox, Sisler, Jenkins.)

### BUSINESS ORGANIZATION AND ADMINISTRATION

**B. A. 20. Principles of Accounting (4).** Ten periods a week. Daily 8:00, 9:00; Q-28. Prerequisite, sophomore standing. (Edelson.)

The fundamental principles and problems involved in accounting for proprietorships, corporations and partnerships.

**B. A. 21. Principles of Accounting (4).** Ten periods a week. Daily 8:00, 9:00; Q-29A. Prerequisite, sophomore standing. (Wright.)

The fundamental principles and problems involved in accounting for proprietorships, corporations and partnerships.

**B. A. 111. Intermediate Accounting (3).** Eight periods a week. Daily 8:00; M., W., F., 9:00; Q-29. Prerequisite, B. A. 21. (Lee.)

A comprehensive study of the theory and problems of valuation of assets, application of funds, corporation accounts and statements, and the interpretation of accounting statements.

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†Recommended for teachers.

**B. A. 130. Elements of Business Statistics (3).** Eight periods a week. Daily 8:00; M., W., F., 9:00; Q-243. Prerequisite, junior standing. Required for graduation. Laboratory fee, \$3.50. (Nelson.)

This course is devoted to a study of the fundamentals of statistics. Emphasis is placed upon the collection of data; hand and machine tabulation; graphic charting; statistical distribution; averages; index numbers; sampling; elementary tests of reliability; and simple correlations.

**B. A. 140. Financial Management (3).** Eight periods a week. Daily 8:00; M., W., F., 9:00; Q-146. Prerequisite, Economics 140. (Calhoun.)

This course deals with principles and practices involved in the organization, financing, and reconstruction of corporations; the various types of securities, and their use in raising funds, apportioning income; risk and control; intercorporate relations; and new developments. Emphasis on solution of problems of financial policy faced by management.

**B. A. 150a. Marketing Principles and Organization (3).** Eight periods a week. Daily 10:00; M., W., F., 11:00; Q-146. Prerequisite, Economics 32 or 37. (Gentry.)

This is an introductory course in the field of marketing. Its purpose is to give a general understanding and appreciation of the forces operating, institutions employed, and methods followed in marketing agricultural products, natural products, services, and manufactured goods.

**B. A. 160. Personnel Management (3).** Eight periods a week. Daily 10:00; M., W., F., 11:00; Q-148. Prerequisite, Economics 160. (Alberts.)

This course deals essentially with functional and administrative relationships between management and the labor-force. It comprises a survey of the scientific selection of employees, "in-service" training, job analysis, classification and rating, motivation of employees, employee adjustment, wage incentives, employee discipline and techniques of supervision, and elimination of employment hazards.

**B. A. 181. Business Law (4).** Ten periods a week. Daily 10:00, 11:00; Q-30. Prerequisite, senior standing. Required in all Business Administration curriculums. (Mounce.)

Legal aspects of business relationships, contracts, negotiable instruments, agency, partnerships, corporations, real and personal property and sales.

## CHEMISTRY

All laboratory courses in Chemistry carry a laboratory fee of \$10.00; in addition the student is charged for any apparatus which cannot be returned to the stock room in perfect condition.

†Chem. 3. **General Chemistry (4).** Second Semester. Five lectures and five three-hour laboratory periods per week. Prerequisite, Chem. 1. Lecture, 11:00, U-16. Laboratory, 1:00, 2:00, 3:00, C-120. (Rollinson.)

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†Recommended for teachers.

†Chem. 19. **Elements of Quantitative Analysis (4)**. Five lectures and five three-hour laboratory periods per week. Prerequisite, Chem. 1 and 3. Lecture 9:00, C-215; laboratory, 10:00, 11:00, 12:00; C-306. (Stuntz.)

†Chem. 37. **Elementary Organic Chemistry (2)**. Second semester. Five lectures per week. Prerequisites, Chem. 35. 8:00, C-215. (Woods.)

†Chem. 38. **Elementary Organic Laboratory (2)**. Second semester. Five three-hour laboratory periods per week. 9:00, 10:00, 11:00; C-221. (Woods.)

\*Chem. 111. **Chemical Principles (4)**. Five lectures and five three-hour laboratory periods per week. Prerequisite, Chem. 1 and 3, or equivalent. Not open to students seeking a major in the physical sciences, since the course content is covered elsewhere in their curriculum. Lecture, 11:00; C-215; laboratory, 8:00, 9:00, 10:00; C-107. (Jaquith.)

A course in the principles of chemistry with accompanying laboratory work consisting of simple quantitative experiments. (Credit applicable only toward degree in College of Education.)

Chem. 144. **Advanced Organic Laboratory (2 or 4)**. Five or ten three-hour laboratory periods per week. Prerequisites, Chem. 37 and 38. Laboratory periods arranged. C-206. (Pratt.)

Chem. 146, 148. **The Identification of Organic Compounds (2, 2)**. Five three-hour laboratory periods per week. Prerequisites, Chem. 37 and 38. Laboratory periods arranged. C-208. Two recitations per week. Arranged. (Pratt.)

Chem. 192, 194. **Glassblowing Laboratory (1, 1)**. Three three-hour laboratory periods per week. M., W., 7:00, 8:00, 9:00; S, 9:00, 10:00, 11:00; C-B3. (Carruthers.)

Chem. 254. **Advanced Organic Preparations (2 or 4)**. Five or ten three-hour laboratory periods per week. Laboratory periods arranged. C-206. (Pratt.)

Chem. 258. **The Identification of Organic Compounds, an advanced course (2 or 4)**. Five or ten three-hour laboratory periods per week. Laboratory periods arranged. C-208. Two recitations per week. Arranged. (Pratt.)

Chem. 311. **Physicochemical Calculations (2)**. Five lectures per week. 9:00; Y-18. (Pickard.)

Chem. 360. **Research.** (Staff.)

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†Recommended for teachers.

\*Intended for teachers.

## CLASSICAL LANGUAGES AND LITERATURES

**Lat. 103S. Roman Satire (2).** Daily 9:00; A-8. (Avery.)

Lectures and readings on the origins and development of Roman satire. The reading of selections from the satires of Horace, Petronius' *Cena Trimalchionis*, and the satires of Juvenal. Reports.

**Lat. 210. Vulgar Latin Readings (3).** Arranged. (Avery.)

An intensive review of the phonology, morphology, and syntax of Classical Latin, followed by the study of the deviations of Vulgar Latin from the classical norms, with the reading of illustrative texts. The reading of selections from the *Peregrinatio ad loca sancta* and the study of divergences from classical usage therein, with special emphasis on those which anticipate subsequent developments in the Romance Languages. Reports.

NOTE:—This course is especially recommended for students doing graduate work in the Roman Languages as well as for those interested in the development of Latin.

## DAIRY

**Dairy S201. Advanced Dairy Production (1).** 8:00; D-308, July 2 to July 20. (Davis.)

An advanced course primarily designed for teachers of vocational agriculture and county agents. It includes a study of the newer discoveries in dairy cattle nutrition, breeding and management.

**Dairy 204. Special Problems in Dairying (1-5).** Prerequisite permission of Professor in charge of work. Credit in accordance with the amount and character of work done. (Staff.)

Methods of conducting dairy research and the presentation of results are stressed. A research problem which relates specifically to the work the student is pursuing will be assigned.

**Dairy 208. Research (1-6).** Credit to be determined by the amount and quality of work done. (Staff.)

Original investigation by the student of some subject assigned by the Major Professor, the completion of the assignment and the preparation of a thesis in accordance with requirements for an advanced degree.

## ECONOMICS

**Econ. 5. Economic Developments (2).** 10:00; Q-147. Prerequisite, none. (Measday.)

An introduction to modern economic institutions—their origins, development and present status. Commercial revolution, industrial revolution, and age of mass production. Emphasis on developments in England, Western Europe and the United States.

**Econ. 31. Principles of Economics (3).** Eight periods a week. Daily 8:00; M., W., F., 9:00; Q-147. Prerequisite, sophomore standing.

A general analysis of the functioning of the economic system. A considerable portion of the course is devoted to a study of basic concepts and explanatory principles. The remainder deals with the major problems of the economic system.

**Econ. 32. Principles of Economics (3).** Eight periods a week. Daily 12:00; M., W., F., 1:00; Q-30. Prerequisite, Economics 31. (Yeager.)

A general analysis of the functioning of the economic system. A considerable portion of the course is devoted to a study of basic concepts and explanatory principles. The remainder deals with the major problems of the economic system.

**Econ. 140. Money and Banking (3).** Eight periods a week. Daily 8:00; M., W., F., 9:00; Q-148. Prerequisite,, Economics 32 or 37. (Shelby.)

A study of the organization, functions, and operation of our monetary, credit, and banking system; the relation of commercial banking to the Federal Reserve System; the relation of money and credit to prices; domestic and foreign exchange and the impact of public policy upon banking and credit.

**Econ. 160. Labor Economics (3).** Eight periods a week. Daily 12:00; M., W., F., 1:00; Q-31. Prerequisite, Economics 32 or 37. (Measday.)

The historical development and chief characteristics of the American Labor movement are first surveyed. Present day problems are then examined in detail; wage theories, unemployment, social security, labor organization, collective bargaining.

## EDUCATION

### Business Education

**B. Ed. 101. Methods and Materials in Teaching Office Skills (2).** Daily, 11:00; Q-246. (Patrick, O'Neill).

Problems in development of occupational competency, achievement tests, standards of achievement, instructional materials, transcription, and the integration of office skills. For experienced teachers. Observation period for methods of teaching typewriting, at 10:00, see page 26 for details.

**B. Ed. 103. Basic Business Subjects in the Junior High School (2).** Daily, 9:00; Q-246. (Patrick).

Deals with the exploratory aspects of basic business subjects and fundamentals of consumer business education, available instructional materials, and teaching procedures.

**B. Ed. 200. Administration and Supervision of Business Education (2).** Daily, 8:00; Q-246. (Patrick.)

Major emphasis on departmental organization, curriculum, equipment, budget making, guidance, placement and follow-up, visual aids and the in-service training of teachers. For administrators, supervisors, and teachers of business subjects.

### Elementary—Secondary

**Ed. 52. Children's Literature (2).** 8:00; T-4. (Bryan.)

A study of literary values in prose and verse for children.



**Ed. 107. Philosophy of Education (2).** 8:00; T-218. (Wiggin.)

A study of the great educational philosophers and systems of thought affecting the development of modern education.

**Ed. 121. The Language Arts in the Elementary School (2).**

Section 1—9:00; R-202. (Stratemeyer.)

Section 2—10:00; T-219. (Lewis.)

Section 3—11:00; T-219. (Lewis.)

Concerned with the teaching of spelling, handwriting, oral and written expression, and creative expression. Special emphasis given to skills having real significance to pupils.

**Ed. 122. The Social Studies in the Elementary School (2).**

Section 1—9:00; T-5. (O'Neill.)

Section 2—10:00; T-5. (O'Neill.)

Section 3—11:00; R-202. (Stratemeyer.)

Consideration given to curriculum, organization, methods of teaching, evaluation of newer materials, and utilization of environmental resources.

**Ed. 124. Arithmetic in the Elementary School (2).**

Section 1— 8:00; A-14. (Schindler.)

Section 2—10:00; A-14. (Schultz.)

Emphasis on materials and procedures which help pupils sense arithmetical meanings and relationships. Helps teachers gain a better understanding of the number system and arithmetical processes.

**Ed. 125. Art in Elementary Schools (2).**

Section 1—M., W., 10:00-12:30; A-302. (Lembach.)

Section 2—T., Th., 10:00-12:30; A-302. (Lembach.)

Concerned with art methods and materials for elementary schools. Includes laboratory experiences with materials appropriate for elementary schools.

Applications for enrollment must be mailed to the Director of the Summer Session before June 15, 1957. Enrollment will be limited to 25 persons per section.

**Ed. 127. Teaching in Elementary Schools (6).** Daily, 9:00, 10:00, 11:00; T-18. (Allen.)

An overview of elementary school teaching designed for individuals without specific preparation for elementary school teaching or for individuals without recent teaching experience.

Applications for enrollment must be mailed to the Director of Summer Session before June 15, 1957. Enrollment will be limited to 25 persons.

**\*Ed. 130. Theory of the Junior High School (2). 8:00; R-112.**

(Lawhead.)

This course gives a general overview of the junior high school. It includes consideration of the purposes, functions, and characteristics of this school unit; a study of its population, organization, program of studies, methods, staff, and other similar topics together with their implications for prospective teachers.

**\*Ed. 131. Theory of the Senior High School (2). 8:00; R-112.**

(Lawhead.)

The secondary school population; the school as an instrument of society; relation of the secondary school to other schools; aims of secondary education; curriculum and methods; extra-curricular activities; guidance and placement; teacher certification and employment in Maryland and the District of Columbia.

**Ed. 133. Methods of Teaching the Social Studies (2). 8:00; T-10.**

(Risinger.)

Designed to give practical training in the everyday teaching situations. Emphasis is placed on the use of various lesson techniques, audio and visual aids, reference materials, and testing programs. Attention is given to the adaption of teaching methods to individual and group differences. Consideration is given to present tendencies and aims of instruction in the social studies.

**Ed. 134. Materials and Procedure for the High School Core Curriculum (2). 9:00; R-112. Fee, \$1.00.**

(Lawhead.)

This course is designed to bring practical suggestions to teachers who are in charge of core classes in junior and senior high schools. Materials and teaching procedures for specific units of work are stressed.

**Ed. 137. Science in the Junior High School (2). 9:00; T-102.**

(Blough and Ulry.)

A study of the place, function and content of science in junior high school programs. Application to core curriculum organization. Laboratory fee, \$2.00.

**Ed. 141. High School Course of Study—English (2). 10:00; T-4.**

(Bryan.)

Methods and techniques used in teaching the language arts in secondary schools.

**Ed. 142. High School Course of Study—Literature (2). 11:00; T-4.**

(Bryan.)

Representative selections of the literature studied in secondary schools and methods of presentation.

**Ed. 145. Principles of High School Teaching (3). Daily, 11:00; M., W., F., 12:00; R-112.**

(Risinger.)

This course is concerned with the principles and methods of teaching in junior and senior high schools.

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\*Credit is accepted for Ed. 130 or Ed. 131, but not for both courses.

**Ed. 147. Audio-Visual Education (2). Fee, \$1.00. (Maley.)**

Section 1—8:00; P-306.

Section 2—9:00; P-306.

Sensory impressions in their relation to learning; projection apparatus, its cost and operation; slides, film-strips, and films; physical principles underlying projection; auditory aids to instruction; field trips; pictures, models, and graphic materials; integration of sensory aids with organized instruction.

**Ed. 150. Educational Measurement (2). 9:00; T-10. (Risinger.)**

Constructing and interpreting measures of achievement.

**Ed. 153. The Teaching of Reading (2). (Matson.)**

Section 1—Primary and intermediate grades—8:00; T-12.

Section 2—Intermediate and secondary grades—9:00; T-12.

Section 3—Primary and intermediate grades—11:00; T-12.

Concerned with fundamentals of developmental reading instruction, including reading readiness, uses of experience records, procedures in using basal readers, the improvement of comprehension, teaching reading in all areas of the curriculum, uses of children's literature, the program in word analysis, and procedures for determining individual needs.

**Ed. 154. Remedial Reading Instruction (2). 8:00; T-102. (Dunlap.)**

For supervisors and teachers who wish to help retarded readers. Concerned with causes of reading difficulties, the identification and diagnosis of retarded pupils, instructional materials, and teaching procedures. Prerequisite, Ed. 153 or the equivalent.

Applications for enrollment must be mailed to the Director of Summer Session before June 15, 1957. Enrollment will be limited to 30 persons.

**Ed. 160. Educational Sociology (2). 10:00; R-112. (Lawhead.)**

This course deals with data of the social sciences which are germane to the work of teachers. Consideration is given to implications of democratic ideology for educational endeavor, educational tasks imposed by changes in population and technological trends, the welfare status of pupils, the socio-economic attitudes of individuals who control the schools, and other elements of community background which have significance in relation to schools.

**Ed. 161. Principles of Guidance (2). 11:00; T-20. (Byrne.)**

Overview of principles and practices of guidance-oriented education.

**Ed. 162. Mental Hygiene in the Classroom (2). (Denecke.)**

Section 1— 8:00; T-103.

Section 2— 9:00; T-103.

Section 3—11:00; T-103.

The practical application of the principles of mental hygiene to classroom problems.

Ed. 170. Introduction to Special Education (2). 8:00; R-7. (Dalton.)

Designed to give an understanding of the needs of all types of exceptional children stressing preventive and remedial measures.

Ed. 188. Special Problems in Education (1-3). Arranged. Prerequisite, consent of instructor. Available only to mature students who have definite plans for individual study of approved problems. (Staff.)

NOTE: Course cards must have the title of the problem and the name of the faculty member who has approved it.

Ed. 189. Workshops, Clinics, and Institutes: Special Education (3). Daily, 8:30-12:30, with afternoons for special conferences, committee work, study, and use of special library facilities. Three weeks, July 1-19. Place to be arranged. (Snyder.)

The Special Education Workshop will be centered on the understanding of special services available to teachers and the utilization of these services in the classroom. The team approach to the problem of retardation will be emphasized. Lectures by staff and consultants; small group work; study of individual problems; and observation of demonstration classes will be included. Enrollment limited to 125.

Ed. 189. Workshops, Clinics, and Institutes: Methods of Teaching Retarded Children (3). Daily, 8:30-12:30, with afternoons for special conferences, committee work, study, and use of special library facilities. Three weeks, July 1-19. (Held in conjunction with the Special Education Workshop.) Place to be arranged. (Dalton.)

A section of the workshop in Special Education, especially planned for teachers who wish to work on methods of teaching retarded children. Demonstration classes for observation purposes are included in the workshop. Opportunity to pursue individual problems. Activities of the total workshop will be a part of the program, including lectures by staff and consultants, small group work, and observation.

Ed. 189. Workshops, Clinics, and Institutes: The Improvement of Science Teaching (2). Time and place to be arranged. June 23-July 6, 1957. (Hale, Ulry.)

*Open only to forty junior and senior high school science teachers selected from plant communities of the West Virginia Pulp and Paper Company.*

This workshop is designed around the theme, "Effective Teaching and Career Counseling in the Junior and Senior High School Science Program," and features lectures by scientists, seminars on science instruction, field trips, and scientists interviews in university, industrial, and government research centers.

Ed. 190. Problems and Trends in Contemporary American Education (3). Lectures, M., W., 1:00, 2:00; Z-115. Discussions, M., T., W., Th., 11:00; T-102, T-108. (Denemark, Blough.)

Designed to present a broad overview of some key issues and trends that relate to the improvement of instruction at elementary, secondary, and teacher education levels. Lectures by visiting educators of national prominence will be reviewed and analyzed in discussion groups led by regular University staff members.

**Ed. 207. Seminar in History and Philosophy of Education (2).** 10:00;  
**T-218.** (Wiggin.)

**Ed. 210. The Organization and Administration of Public Education (2).**

Section 1— 9:00; T-20. (Newell.)

Section 2—10:00; A-7. (Runge.)

The basic course in school administration. The course deals with the organization and administration of school systems—at the local, state, and federal levels; and with the administrative relationships involved.

**Ed. 211. The Organization, Administration, and Supervision of Secondary Schools (2).** 11:00; R-102. (Hammock.)

The work of the secondary school principal. The course includes topics such as personnel problems, supervision, school-community relationships, student activities, schedule making, and internal financial accounting.

**Ed. 212. School Finance and Business Administration (2).** 10:00; T-20.  
(Van Zwoll.)

An introduction to principles and practices in the administration of the public school finance activity. Sources of tax revenue, the budget, and the function of finance in the educational program are considered.

**Ed. 216. High School Supervision (2).** 8:00; R-102. (Hammock.)

Deals with recent trends in supervision; the nature and function of supervision; planning supervisory programs; evaluation and rating; participation of teachers and other groups in policy development; school workshops; and other means for the improvement of instruction.

**Ed. 217. Administration and Supervision in Elementary Schools (2).**  
8:00; T-211. (Pritzkau.)

Problems in organizing and administering elementary schools and improving instruction.

**Ed. 219. Seminar in School Administration (2).** 11:00; T10. (Newell.)

**Ed. 225. School Public Relations (2).** 8:00; T-5. (Van Zwoll.)

A study of the interrelationships between the community and the school. Public opinion, propaganda, and the ways in which various specified agents and agencies within the school have a part in the school public relations program are explored.

**Ed. 227. Public School Personnel Administration (2).** 9:00; T-4.  
(Van Zwoll.)

A comparison of practices with principles governing the satisfaction of school personnel needs, including a study of tenure, salary schedules, supervision, rewards, and other benefits.

**Ed. 229. Seminar in Elementary Education (2).** (Dunlap.)

Section 1—10:00; T-102.

Section 2—11:00; T-218.

Primarily for individuals who wish to write seminar papers. Enrollment should be preceded by at least 12 hours of graduate work in education.

**Ed. 230. Elementary School Supervision (2).** 11:00; T-211. (Pritzkau.)

Concerned with the nature and function of supervision, various supervisory techniques and procedures, human relationship factors, and personal qualities for effective supervision.

**Ed. 234. The School Curriculum (2).** 8:00; R-110. (Hovet.)

A foundations course embracing the curriculum as a whole from early childhood through adolescence, including a review of historical developments, an analysis of conditions affecting curriculum change, an examination of issues in curriculum making, and a consideration of current trends in curriculum design.

**Ed. 235. Curriculum Development in Elementary Schools (2).** 9:00; T-211. (Pritzkau.)

Concerned with problems encountered in curriculum evaluation and revision. Sociological and philosophical factors, principles for the selection and organization of content and learning activities, patterns of curriculum organization and the utilization of personnel for curriculum development.

**Ed. 236. Curriculum Development in the Secondary School (2).** 11:00; A-7. (Runge.)

Curriculum planning: philosophical bases, objectives, learning experiences, organization of appropriate content, and means of evaluation.

**Ed. 237. Curriculum Theory and Research (2).** 9:00; R-110. (Hovet.)

The school curriculum considered within the totality of factors affecting pupil behavior patterns, an analysis of research contributing to the development of curriculum theory, a study of curriculum theory as basic to improved curriculum design, the function of theory in guiding research, and the construction of theory through the utilization of concepts from the behavioral research disciplines.

**Ed. 243. Problems of Teaching Arithmetic in Elementary Schools (2).** 9:00; A-14. (Schindler.)

Implications of current theory and results of research for the teaching of arithmetic in elementary schools.

**Ed. 244. Problems in Teaching Language Arts in Elementary Schools (2).** 10:00; R-202. (Stratemeyer.)

Implications of current theory and the results of research for the language arts in the elementary schools.

**Ed. 245. Applications of Theory and Research to High School Teaching (2).** 9:00; T-218. (Hammock.)

Implications of experimental practices, the proposals of eminent writers, and the results of research for the improvement of teaching on the secondary level.

**Ed. 246. Problems of Teaching Social Studies in Elementary Schools (2).** 11:00; T-5. (O'Neill.)

Application to the social studies program of selected theory and research in the social sciences, emphasizing patterns of behavior, environmental influences, and critical thinking.

Applications for enrollment must be mailed to the Director of the Summer Session before June 15, 1957. Enrollment will be limited to 25 persons.

**Ed. 247. Seminar in Science Education (2).** 8:00; T-119. (Blough.)

This course is concerned with science education in the elementary school. Prerequisite, a science education course.

Applications for enrollment must be mailed to the Director of the Summer Session before June 15, 1957. Enrollment will be limited to 25 persons.

**Ed. 250. Analysis of the Individual (2).** 11:00; A-133. (Kazienko.)

Knowing students through use of numerous techniques. Ed. 161 desirable as prior course.

**Ed. 253. Guidance Information (2).** 9:00; A-7. (Runge.)

How to find, file, and use information needed by students for making choices, plans, and adaptations in schools, occupations, and in inter-personal relations. Ed. 161 desirable as prior course.

**Ed 254. Organization and Administration of Guidance Programs (2).** 8:00; A-21. (Kazienko.)

How to instill the guidance point of view, and to implement guidance practices. All guidance courses except Seminar are prerequisite.

**Ed. 260. Principles of School Counseling (2).** 10:00; A-130. (Kazienko.)

Exploration of counseling theories and the practices which stem from them. Ed. 161, Ed. 250, Ed. 253 are prerequisite.

**Ed. 269. Seminar in Guidance (2).** 9:00; M-104. (Byrne.)

Registration only by approval of instructor. Final guidance course. Students study research and conduct one.

**Ed. 288. Special Problems in Education (1-6).** Arranged. (Staff.)

Master of education or doctoral candidates who desire to pursue special research problems under the direction of their advisers may register for credit under this number.

NOTE: Course card must have the title of the problem and the name of the faculty member under whom the work will be done.

Ed. 289. Research—Thesis (1-6). Arranged. (Staff.)

Students who desire credit for a master's thesis, a doctoral dissertation, or a doctoral project should use this number.

### Home Economics Education

H. E. Ed. 102. Problems in Teaching Home Economics (3). Daily, 8:00; T-108; other meetings arranged. Required of seniors in Home Economics Education. Prerequisite, consent of instructor. (Spencer.)

A study of the managerial aspects of teaching and administering a homemaking program; the physical environment, organization, and sequence of instructional units, resource materials, evaluation, home projects.

Note: This course is also open to elementary teachers who, in their instructional and administrative responsibilities, are concerned with health and nutrition. Special emphasis on methods and instructional materials.

H. E. Ed. 120. Evaluation of Home Economics (2). 9:00; T-108. (Spencer.)

The meaning and function of evaluation in education; the development of a plan for evaluating a homecoming program with emphasis upon types of evaluation devices, their construction, and use. First three weeks.

### Human Development Education

H. D. Ed. 112, 114, 116. Scientific Concepts in Human Development I, II, III (3, 3, 3).

H. D. Ed. 113, 115, 117. Laboratory in Behavior Analysis I, II, III, (3, 3, 3).

Summer workshop courses for undergraduates. In any one summer, concept and laboratory courses must be taken concurrently.

H. D. Ed. 200S. Introduction to Human Development and Child Study (2). 8:00; A-8.

This course offers a general overview of the scientific principles which describe human development and behavior and makes use of these principles in the study of individual children. When this course is offered during the academic year, each student will observe and record the behavior of an individual child through the semester and must have one half-day a week free for this purpose. The course is basic to further work in child study and serves as a prerequisite for advanced courses where the student has not had field work or at least six weeks of workshop experience in child study. When this course is offered during the summer it will be H. D. 200S and intensive laboratory work with case records may be substituted for the study of an individual child.



H. D. Ed. 212, 214, 216. Advanced Scientific Concepts in Human Development, I, II, III (3, 3, 3).

H. D. Ed. 213, 215, 217. Advanced Laboratory in Behavior Analysis, I, II, III (3, 3, 3).

Summer workshop courses for graduates providing credit for as many as three workshops. In any one summer, concept and laboratory courses must be taken concurrently.

H. D. Ed. 218. Workshop in Human Development (6). Prerequisites, H. D. 212, 213, 214, 215, 216, 217.

Summer workshop in human development for graduate students who have had three workshops and wish additional workshop experience. This course can be taken any number of times, but cannot be used as credit toward a degree.

H. D. Ed. 270. Seminars in Special Topics in Human Development (2-6). Arranged.

An opportunity for advanced students to focus in depth on topics of special interest growing out of their basic courses in human development. Prerequisites, consent of instructor.

## Industrial Education

The technical courses which are offered are intended for industrial arts teachers, for arts and crafts teachers, education for industry majors, and adult education leaders.

The professional courses are open to industrial arts teachers and supervisors, to vocational-industrial teachers and supervisors, to school administrators and to other graduate students whose planned programs include work in this area.

**Ind. Ed. 2. Elementary Woodworking (2).** 8:00-9:00; P-218. (Tierney.)

This is a woodworking course which involves primarily the use of hand tools. The course is developed so that the student uses practically every common woodworking hand tool in one or more situations. There is also included elementary wood finishing, the specifying and storing of lumber, and the care and conditioning of tools used. Laboratory fee, \$5.00.

**Ind. Ed. 22. Machine Woodworking I (2).** 8:00-9:00; P-218. (Tierney.)  
Prerequisite, Ind. Ed. 2.

Machine Woodworking I offers initial instruction in the proper operation of the jointer, band saw, variety saw, jig saw, mortiser, shaper, and lathe. The types of jobs which may be performed on each machine and their safe operation are of primary concern. The mediums of instruction are school-shop equipment, hobby items, and useful home projects. Laboratory fee, \$5.00.

**Ind. Ed. 24. Sheet Metal Work (2).** 11:00-12:00; P-116. (Maley.)

Articles are made from metal in its sheet form and involve the operations of cutting, shaping soldering, riveting, wiring, folding, seaming, beading, burning, etc. The student is required to develop his own patterns inclusive of parallel line development, and triangulation. Laboratory fee, \$5.00

**Ind. Ed. 28. Electricity I (2).** 2:00-3:00; P-212. (Harrison.)

An introductory course to electricity in general. It deals with the electrical circuit, elementary wiring problems, the measurement of electrical energy, and a brief treatment of radio. Laboratory fee, \$5.00.

**Ind. Ed. 48. Electricity II (2).** 2:00-3:00; P-2112. (Harrison.)

Principles involved in A-C and D-C electrical equipment, including heating measurements, motors and controls, electro-chemistry, the electric arc, inductance, condensers, radio, and electronics. Laboratory fee, \$5.00.

**Ind. Ed. 66. Art Metal Work (2).** 11:00-12:00; P-116. (Maley.)

Prerequisite, Ind. Ed. 26, or equivalent. Advanced practicum. It includes methods of bowl raising and bowl ornamenting. Laboratory fee, \$5.00.

**Ind. Ed. 105. General Shop (2).** 10:00; P-300. (Tierney.)

Designed to meet needs in organizing and administering a secondary school general shop. Students are rotated through skill and knowledge developing activities in a variety of shop areas. Laboratory fee, \$5.00.

**Ind. Ed. 124 a, b. Organized and Supervised Work Experience.** Arranged. (Merrill.)

(Three credits for each internship period, total: 6 credits). This is a work experience sequence planned for students enrolled in the curriculum, "Education for Industry." The purpose is to provide the students with opportunities for first-hand experiences with business and industry. The student is responsible for obtaining his own employment with the coordinator advising him as regards the job opportunities which have optimum learning value. The nature of the work experience desired is outlined at the outset of employment and the evaluations made by the student and the coordinator are based upon the planned experiences. The time basis for each internship period is 6 forty-hour weeks or 240 work hours. Any one period of internship must be served through continuous employment in a single establishment. Two internship periods are required. The two internships may be served with the same business or industry. The completion for credit of any period of internship requires the employer's recommendation in terms of satisfactory work and work attitudes. More complete details are found in the handbook prepared for the student of this curriculum.

**Ind. Ed. 150. Training Aids Development (2).** 8:00; P-306. (Maley.)

Study of the aids in common use as to their source and application. Special emphasis is placed on principles to be observed in making aids useful to shop teachers. Actual construction and application of such devices will be required.

**Ind. Ed. 165. Modern Industry (2).** 8:00; P-300. (Harrison.)

This course provides an overview of manufacturing industry in the American social, economic, and culture pattern. Representative basic industries are studied from the

viewpoints of personnel and management organization, industrial relations, production procedures, distribution of products, and the like.

**Ind. Ed. 168. Trade or Occupational Analysis (2).** 10:00; P-221.

(Brown.)

Provides a working knowledge of occupational and job analysis which is basic in organizing vocational-industrial courses of study. This course should precede Ind. Ed. 169.

**Ind. Ed. 169. Course Construction (2).** 10:00; P-221.

(Brown.)

Surveys and applies techniques of building and reorganizing courses of study for effective use in vocational and occupational schools.

**Ind. Ed. 170. Principles of Vocational Education (2).** 11:00; P-221.

(Brown.)

The course develops the Vocational Education movement as an integral phase of the American program of public education.

**Ind. Ed. 171. History of Vocational Education (2).** 11:00; P-221.

(Brown.)

An overview of the development of Vocational Education from primitive times to the present.

**Ind. Ed. 214. School Shop Planning and Equipment Selection (2).** 11:00; P-300.

(Tierney.)

This course deals with principles involved in planning a school shop and provides opportunities for applying these principles. Facilities required in the operation of a satisfactory shop program are catalogued and appraised.

**Ind. Ed. 216. Supervision of Industrial Arts (2).** 9:00; P-221.

(Brown.)

**Ind. Ed. 240. Research in Industrial Arts and Vocational Education (2).** Arranged.

This is a course offered by arrangement for persons who are conducting research in the areas of Industrial Arts and Vocational Education.

**Ind. Ed. 241. Content and Method of Industrial Arts (2).** 10:00; P-306.

(Maley.)

Various methods and procedures used in curriculum development are examined and those suited to the field of Industrial Arts education are applied. Methods of and devices for Industrial Arts instruction are studied and practiced.

## Music Education

**Mus. Ed. 128. Workshop in Music for the Elementary School (2).** Prerequisite, Mus. 16 or consent of instructor.

Section 1—9:00; B-1.

(Kemble.)

Section 2—10:00; B-1.

(Kemble.)

A study of the group activities and materials through which the child experiences music. The course is designed to aid both music specialists and classroom teachers. It includes an outline of objectives and a survey of instructional methods.

Mus. Ed. 132. Workshop in Music for the Secondary School (2). 8:00; B-1. Prerequisite, consent of instructor. (Kemble.)

A study of the vocal and instrumental programs in the secondary school. A survey of the needs in general music, and the relationship of music to the core curriculum.

Mus. Ed. 200. Research Methods in Music and Music Education (2). 11:00; B-8. (Grentzer.)

The application of methods of research to problems in the fields of music and music education. The preparation of bibliographies and the written exposition of research projects in the area of the student's major interest.

Mus. Ed. 201. Administration and Supervision of Music in the Public Schools (2). 10:00; B-8. (Grentzer.)

The study of basic principles and practices of supervision and administration with emphasis on curriculum construction, scheduling, budgets, directing of in-service teaching, personnel problems, and school-community relationships.

Mus. Ed. 205. Seminar in Vocal Music in the Elementary Schools (2). 9:00; B-8. (Grentzer.)

A comparative analysis of current methods and materials used in the elementary schools. A study of the music curriculum as a part of the total school program, and of the roles of the classroom teacher and the music specialist.

Mus. Ed. 209. Seminar in Instrumental Music (2). 9:00; B-7. (Jordan.)

A consideration of acoustical properties and basic techniques of the instruments. Problems of ensemble and balance, intonation, precision and interpretation are studied. Materials and musical literature for orchestras, bands, and small ensembles are evaluated.

### Science Education

\*Sci. Ed. 6. The Natural Sciences in the Elementary School (2). Laboratory fee, \$2.00. 9:00; T-119. (Campbell.)

Selecting, organizing, and teaching plant and animal materials. For teachers who need help in identifying and making effective use of living materials brought to the classroom, assisting pupils to find answers to their questions, and planning other worthwhile science experiences.

\*Sci. Ed. 7. The Physical Sciences in the Elementary School (2). Laboratory fee, \$2.00. 10:00; T-119. (Campbell.)

Similar to the previous course except that problems for study are selected from the

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\*Students who have received four credits in Sci. Ed. 1, 2, 3, and 4 should not register for these courses.

various fields of the physical sciences such as electricity and magnetism, weather, heat, light, sound, etc.

**Sci. Ed. 105. Workshop in Science for Elementary Schools (2).** Laboratory fee, \$2.00.

Section 1—11:00; T-119.

(Campbell.)

Section 2—12:00; T-119.

(Blough.)

General science content and teaching materials for practical use in classrooms. Includes experiments, demonstrations, constructions, observations, field trips, and use of audio-visual materials. Emphasis is on content and method related to science units in common use.

Enrollment in each of the above courses will be limited to 35 persons. Applications for enrollment must be mailed to the Director of the Summer Session before June 15, 1957.

## ENGINEERING

**C. E. 100. Theory of Structures (4).** Eight lectures and two three-hour laboratories and one two-hour laboratory per week. Lecture, 8:00, M., T., W., Th., F., and 9:00, M., W., F.; J-6; Laboratory, M., 10:00, 11:00 and T., Th., 9:00, 10:00, 11:00; J-202. Prerequisite, Mech. 50 or equivalent. Required of juniors in civil engineering. (Piper.)

Analytic and graphical determination of dead and live load stresses in beams and framed structures; influence lines; lateral bracing and portals; elements of slope and deflection.

**E. E. 1. Basic Electrical Engineering (4).** Eight lectures and one four-hour laboratory a week. Lecture, 8:00, M., T., W., Th., F., S., and 9:00, M., W.; J-114; laboratory, S., 9:00, 10:00, 11:00, 12:00; S-107-A. Prerequisites, Math. 21, Phys. 21 or concurrent registration. Required of sophomores in electrical engineering. Laboratory fee, \$4.00. (Simons.)

Basic concepts of electrical potential, current, power, and energy; d-c circuit analysis by the mesh-current and nodal methods; network theorems; electric and magnetic fields.

**Surv. 100. Curves and Earthwork (3).** Two and one half hours of lectures and fifteen hours of laboratories per week. Lecture, 8:30-9:30, M., and 8:00-9:30, W.; J-103; laboratory, 9:30-12:30, M., T., W., Th., F.; J-203. Prerequisite, Surv. 50 or equivalent. Required of juniors in civil engineering.

(Luce.)

Computation and field work for simple, compound and reversed circular curves and spirals; parabolic curves; earthwork computations; complete survey and map, including mass diagram of a short route.

## ENGLISH

**Eng. 1, 2. Composition and American Literature (3, 3).** Eight periods a week. Eng. 1 is the prerequisite of Eng. 2. (Gravely and Staff.)

## Eng. 1—

Section 1—Daily, 8:00; M., W., F., 9:00; A-209.

Section 2—Daily, 10:00; M., W., F., 11:00; A-209.

## Eng. 2—

Section 1—Daily, 8:00; M., W., F., 9:00; A-17.

Section 2—Daily, 8:00; M., W., F., 9:00; Q-30.

Section 3—Daily, 10:00; M., W., F., 11:00; A-17.

**Eng. 3, 4. Composition and World Literature (3, 3).** Eight periods a week. Prerequisite Eng. 1, 2. (Cooley and Staff.)

## Eng. 3—

Section 1—Daily, 8:00; M., W., F., 9:00; A-18.

Section 2—Daily, 10:00; M., W., F., 11:00; A-18.

Section 3—Daily, 10:00; M., W., F., 11:00; A-16.

## Eng. 4—

Section 1—Daily, 8:00; M., W., F., 9:00; O-32.

Section 2—Daily, 10:00; M., W., F., 11:00; Q-31.

Section 3—Daily, 10:00; M., W., F., 11:00; A-8.

**Eng. 101S. History of the English Language (2).** 8:00; A-133. Prerequisite, Eng. 1, 2 and 3, 4 or 5, 6. (Barnes.)

**Eng. 135S. Literature of the Victorian Period (2).** 12:00; A-17. Prerequisite, Eng. 1, 2 and 3, 4 or 5, 6. (Mooney.)

A study of the later Victorian writers.

**Eng. 143S. Modern Poetry (2).** 9:00; A-133. Prerequisite, Eng. 1, 2 and 3, 4 or 5, 6. (Murphy.)

A study of some British and American poets of the twentieth century.

**Eng. 151S. American Literature (2).** 10:00; A-133. Prerequisite, Eng. 1, 2 and 3, 4 or 5, 6. (Gravelly.)

American poetry and prose after 1850.

**Eng. 200. Research (1-6).** Arranged. (Murphy and Staff.)

## ENTOMOLOGY

†Ent. 11S. Entomology in Nature Study (3). Daily, 1:00; M., W., F., 2:00; O-200. (Haviland.)

This course is designed to help teachers utilize insects in their teaching. The general availability of insects makes them especially desirable for use in nature study

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†Recommended for teachers.

courses. Teachers should be acquainted, therefore, with the simplest and easiest way to collect, rear, preserve, and identify the common insects about which students are constantly asking questions.

**Ent. 110, 111. Special Problems (1, 1).** Prerequisites to be determined by instructor. Arranged. (Staff.)

An intensive investigation of some entomological problem, preferably of the student's choice. Required of majors in entomology.

**Ent. 201. Advanced Entomology.** Credit and prerequisites to be determined by the department. To be arranged. (Staff.)

Studies of minor problems in morphology, taxonomy and applied entomology, with particular reference to the preparation of the student for individual research.

**Ent. 202. Research.** Credit depends upon the amount of work done. To be arranged. (Staff.)

Required of graduate students majoring in Entomology. This course involves research on an approved project. A dissertation suitable for publication must be submitted at the conclusion of the studies as a part of the requirements for an advanced degree.

## FOREIGN LANGUAGES

**French 0. Intensive Elementary French (0).** Eight periods a week. M., T., W., Th., 11:00, 12:00; T-12. (Kramer.)

Intensive elementary course in the French language designed particularly for graduate students who wish to acquire a reading knowledge.

**French 2. Elementary French (3).** Eight periods a week. Daily, 11:00; M., W., F., 12:00; A-231. Second semester of first-year French. (Hall.)

Elements of grammar; pronunciation and conversation; exercises in composition and translation.

**French 4 or 5. Intermediate Literary French (3) or Fr. 6 or 7. Intermediate Scientific French (3).** Eight periods a week. Daily, 9:00; M., W., F., 8:00; A-231. Prerequisite, French 1 and 2, or equivalent. (Hall.)

Students interested in second year French should consult with Foreign Language Department at time of registration. Arrangements will be made to meet needs of students interested in either the first or second semester of literary or scientific French.

**German 0. Intensive Elementary German (0).** Eight periods a week. M., T., W., Th., 8:00, 9:00; M-101. (Kramer.)

Intensive elementary course in the German language designed particularly for graduate students who wish to acquire a reading knowledge.

**German 2. Elementary German (3).** Eight periods a week. Daily, 11:00; M., W., F., 12:00; A-228. Second semester of first-year German. (Schweizer.)

Elements of grammar; pronunciation and conversation; exercises in composition and translation.

**German 4 or 5. Intermediate Literary German (3) or Ger. 6 or 7. Intermediate Scientific German (3).** Eight periods a week. Daily, 9:00; M., W., F., 8:00; A-228. Prerequisite, German 1 and 2, or equivalent.

(Schweizer.)

Students interested in second year German should consult with Foreign Language Department at time of registration. Arrangements will be made to meet needs of students interested in either the first or second semester of literary or scientific German.

**Spanish 2. Elementary Spanish (3).** Eight periods a week. Daily, 10:00; M., W., F., 9:00; A-212. Second semester of first-year Spanish. (Nemes.)

Elements of grammar, pronunciation and conversation; exercises in composition and translation.

**Spanish 4 or 5. Intermediate Spanish (3).** Eight periods a week. Daily, 12:00; M., W., F., 1:00; A-212. Prerequisite Spanish 1 and 2, or equivalent.

(Nemes.)

Translation, conversation, exercises in pronunciation. Reading of texts designed to give some knowledge of Spanish and Latin-American life, thought, and culture.

## GEOGRAPHY

**Geog. 103. Geographic Concepts and Source Materials (2).** 8:00; N-101. (Augelli.)

A comprehensive and systematic survey of geographic concepts designed exclusively for teachers. Stress will be placed upon the philosophy of geography in relation to the social and physical sciences, the use of the ordinary tools of geography, source materials, and the problems of presenting geographic principles.

**Geog. 190. Political Geography (3).** Eight periods a week. Daily, 9:00; M., W., F., 10:00; N-101. (Augelli.)

Geographical factors in national power and international relations; an analysis of the role of "Geopolitics" and "Geostrategy", with special reference to the current world scene.

## GOVERNMENT AND POLITICS

**G. & P. 1. American Government (3).** Eight periods a week.

Section 1—Daily, 9:00; M., W., F., 8:00; O-30. (Staff.)

Section 2—Daily, 9:00; M., W., F., 8:00; Q-31. (Staff.)

Section 3—Daily, 11:00; M., W., F., 12:00; A-21. (Staff.)

This course is designed as the basic course in government for the American Civilization program, and it or its equivalent is a prerequisite to all other courses in the Department. It is a comprehensive study of government in the United States—national, state, and local.



**G. & P. 4. State Government and Administration (3).** Eight periods a week. Daily 11:00; M., W., F., 12:00; Q-29A. Prerequisite, G. & P. 1. (Alford.)

A study of the organization and functions of state government in the United States, with special emphasis upon the government of Maryland.

**G. & P. 101. International Political Relations (3).** Eight periods a week. Daily 11:00; M., W., F., 12:00; A-12. Prerequisite G. & P. 1. (Harrison.)

A study of the major factors underlying international relations, the influence of geography, climate, nationalism, and imperialism, and the development of foreign policies of the major powers.

**G. & P. 154. Problems of World Politics (3).** Eight periods a week. Daily 9:00; M., W., F., 8:00; A-16. Prerequisite G. & P. 1. (Steinmeyer.)

A study of governmental problems of international scope, such as causes of war, problems of neutrality, and propaganda. Students are required to report on readings from current literature.

**G. & P. 174. Political Parties (3).** Eight periods a week. Daily, 9:00; M., W., F., 8:00; A-12. Prerequisite G. & P. 1. (Hathorn.)

A descriptive and analytical examination of American political parties, nominations, elections, and political leadership.

**G. & P. 207. Seminar in Comparative Governmental Institutions (3).** To be arranged. (Steinmeyer.)

Reports on selected topics assigned for individual study and reading in governmental and political institutions in governments throughout the world.

**G. & P. 299. Thesis Course (3, 6).** To be arranged (Staff.)

## HISTORY

**H. 5. History of American Civilization (3).** Eight periods a week.

Section 1—Daily, 8:00; M., W., F., 9:00; A-207. (Sparks.)

Section 2—Daily, 9:00; M., W., F., 8:00; A-110. (Bates.)

Section 3—Daily, 10:00; M., W., F., 11:00; A-110. (Stromberg.)

**H. 6. History of American Civilization (3).** Eight periods a week.

Section 1—Daily, 9:00; M., W., F., 8:00; A-106. (Hirst.)

Section 2—Daily, 10:00; M., W., F., 11:00; A-106. (Evans.)

Section 3—Daily, 11:00; M., W., F., 12:00; A-130. (Staff.)

**H. 115S. The Old South (2).** 8:00; A-130. Prerequisites, H. 5, 6 or the equivalent. (Evans.)

A study of the institutional and cultural life of the ante-bellum South with particular reference to the background of the Civil War.

H. 116S. *The Civil War* (2). 10:00; A-207. Prerequisites, H. 5, 6, or the equivalent. (Sparks.)

Military aspects; problems of the Confederacy; political, social, and economic effects of the war upon American society.

H. 119. *Recent American History* (2). Eight periods a week. Daily 9:00; M., W., F., 11:00; A-21. Prerequisites, H. 5, 6, or the equivalent. (Merroll.)

Party politics, domestic issues, foreign relations of the United States since World War I.

H. 129S. *The United States and World Affairs* (2). 1:00; A-207. Prerequisites, H. 5, 6, or the equivalent. (Stromberg.)

A consideration of the changed position of the United States with reference to the rest of the world since 1917.

H. 161S. *The Renaissance and Reformation* (2). 12:00. A-207; Prerequisites, H. 1, 2, or 53, 54 or permission of the instructor. (Bauer.)

The culture of the Renaissance, the Protestant revolt and Catholic reaction through the Thirty Years War.

H. 176. *Europe in the World Setting of the Twentieth Century*. (2). Eight periods a week. Daily 8:00; M., W., F., 9:00; A-203. Prerequisites, H. 1, 2 or H. 53, 54. (Staff.)

A study of World War II and its global impacts.

H. 191. *History of Russia* (3). Daily, 10:00; M., W., F., 11:00; A-203. Prerequisites, H. 1, 2, or the equivalent, or the permission of the instructor. (Bauer.)

A History of Russia from the earliest times to the present day.

H. 195S. *The Far East*. (2). 8:00; A-212. (Parmer.)

A survey of the history of China and Japan with special emphasis upon their distinctive cultures and the impact of the West.

H. 196S. *Southeast Asia* (2). 9:00; A-130. (Parmer.)

The political, economic and cultural history of the new nations of Southeast Asia with emphasis on the colonial period and a view to understanding contemporary developments.

H. 200. *Research* (1-6). Credit proportioned to amount of work. Arranged. (Staff.)

H. 201S. *Seminar in American History* (2). 1:00; A-203. (Stromberg.)

H. 250S. *Seminar in European History* (2). 1:00; A-203. (Stromberg.)

## HOME ECONOMICS

**Foods 104. Advanced Foods (2).** Daily, 11:00; H-222. Consent of Instructor required. (King.)

Advanced study of the scientific principles underlying food preparation and processing; their incorporation into the procedures for preparing satisfactory food products; trends in the development of foods; some familiarity with the literature of food research. Laboratory Fee, \$7.00.

**Home Mgt. 152. Experience in Management of the Home (3).** Prerequisites, Home Mgt. 150, 151. Laboratory fee, \$7.00. (Mearig.)

Residence for five weeks in the Home Management House. Experience in planning, coordinating and participating in the activities of a household, composed of a faculty member and a group of students.

**Nut. 112. Dietetics (3).** Daily, 9:00; M., W., F., 10:00; H-222. Laboratory fee, \$7.00. Consent of instructor required. (Baucher.)

A study of food selection for health; food values and nutrition demonstrations; food, its cost and relative nutritive value; nutritional value of new food products; effect of methods of preservation on nutritive values; planning and circulating dietaries for children, adults, family units.

**Pr. Art 100. Mural Design (2).** Daily, 2:00, 3:00, 4:00; June 24-July 13; H-105. Laboratory fee, \$3.00. Consent of the instructor required. (Curtiss.)

Group expression developed in colored chalk or opaque water color on wrapping paper. Techniques appropriate to beginners and to teachers of beginners in the public schools.

**Pr. Art 144. Individual Problems in Interior (2).** Daily, 10:00, 11:00, 12:00; June 24-July 13; H-105. Laboratory fee, \$3.00. Consent of the instructor required. (Curtiss.)

Course content and activities will be determined by individual needs.

## HORTICULTURE

**Hort. 122. Special Problems (2).** Credit arranged according to work done. (Staff.)

For major students in Horticulture or Botany.

**Hort. 208. Advanced Horticultural Research (2 to 6).** (Staff.)

Credit granted according to work done.

## LIBRARY SCIENCE

**L. S. 102. Cataloging and Classification (3).** Eight periods a week. Daily, 1:00; M., W., F., 2:00; M-101. (Robinson.)

Study and practice in classifying books and making dictionary catalog for school libraries. Simplified form as used in the Children's Catalog. Standard Catalog for High School Libraries and Wilson printed cards are studied.

**L. S. 104. Reference and Bibliography for School Libraries (4).** Ten periods a week. Daily, 10:00, 11:00, M-101. (Robinson.)

Evaluation, selection and use of standard reference tools, such as encyclopedias, dictionaries, periodical indexes, atlases and yearbooks, for school libraries. Study of bibliographical procedures and forms.

## MATHEMATICS

**Math. 5. General Mathematics (3).** Eight periods a week. Prerequisite, one unit of algebra. Open only to students in the College of Business and Public Administration, the College of Agriculture, the College of Military Science, and the Department of Industrial Education.

Section 1a—Daily, 10:00; M., W., F., 11:00; Y-123.

Section 1b—Daily, 10:00; M., W., F., 11:00; Y-3. (Good and Staff.)

Fundamental operations, fractions, ratio and proportion, linear equations; exponents, logarithms, percentage, trade discount, simple interest, bank discount, true discount, and promissory notes.

**Math. 6. Mathematics of Finance (3).** Eight periods a week. Daily, 10:00; M., W., F., 11:00; Y-101. Prerequisite, Math. 5, or equivalent. Required of students in the College of Business and Public Administration and open to students in the College of Arts and Sciences for elective credit only. (Shepherd.)

Line diagrams, compound interest, simple interest, ordinary annuities, general annuities, deferred annuities, annuities due, perpetuities, evaluation of bonds, amortization, and sinking funds.

†**Math. 10. Algebra (3).** Eight periods a week. Daily, 10:00; M., W., F., 11:00; Y-28. Prerequisite, one unit each of algebra and plane geometry. (Staff.)

Fundamental operations, factoring, fractions, linear equations, exponents and radicals, logarithms, quadratic equations, progressions, permutations and combinations, probability.

†**Math. 11. Trigonometry and Analytic Geometry (3).** Eight periods a week. Daily, 8:00; M., W., F., 9:00; Y-101. Prerequisite, Math. 10, or equivalent. This course is not recommended for students planning to enroll in Math. 20. (Ehrlich, Shepherd.)

Trigonometric functions, identities, addition formulas, solution of triangles, coordinates, locus problems, the straight line and circle, conic sections, graphs.

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†Recommended for teachers.

†Math. 18. Elementary Mathematical Analysis (5). Twelve periods a week. Prerequisite, high school algebra completed and plane geometry. Open to students in the physical sciences, engineering, and education.

Section 1a—M., T., W., Th., F., S., 10:00, 11:00; Y-4. (Jackson.)

Section 1b—M., T., W., Th., F., S., 10:00, 11:00; Y-5. (Kearney.)

The elementary mathematical functions, especially algebraic, logarithmic, and exponential are studied by means of their properties, their graphical representations, the identities connecting them, and the solution of equations involving them. The beginning techniques of calculus, sequences, permutations and combinations and probability are introduced.

†Math. 19. Elementary Mathematical Analysis (5). Twelve periods a week. Prerequisite, Math. 18 or equivalent. Open to students in the physical sciences, engineering and education.

Section 1a—M., T., W., Th., F., S., 8:00, 9:00; Y-26. (Holmann.)

Section 1b—M., T., W., Th., F., S., 8:00, 9:00; Y-27. (Zemel.)

Section 1c—M., T., W., Th., F., S., 8:00, 9:00; Y-28. (Hsu.)

Section 1d—M., T., W., Th., F., S., 8:00, 9:00; Y-4. (Burda.)

A continuation of the content of Math 18 including a study of the trigonometric and inverse trigonometric functions, determinants, the conic sections, solid analytic geometry, and an introduction to finding areas by integration.

†Math. 20. Calculus (4). Twelve periods a week. M., T., W., Th., F., S., 10:00, 11:00; Y-27. Prerequisite, Math. 19 or equivalent. Open to students in engineering, education, and physical sciences. (Staff.)

Limits, derivatives, differentials, maxima and minima, curve sketching, curvature, kinematics, integration.

†Math. 21. Calculus (4). Twelve periods a week. M., T., W., Th., F., S., 8:00, 9:00; Y-2. Prerequisite Math. 20, or equivalent. Open to students in engineering, education, and physical sciences. (Rosen.)

Integration with geometric and physical applications, partial derivatives, space geometry, multiple integrals, infinite series.

Math. 64. Differential Equations for Engineers (3). Eight periods a week. Daily, 10:00; M., W., F., 11:00; Y-122. Prerequisite, Math. 21, or equivalent. Required of students in mechanical and electrical engineering. (Fadnis.)

Differential equations of the first and second order with emphasis on their engineering applications.

†Math. 140S. History of Mathematics (2). 9:00; Y-123. Prerequisite, Math. 21 or consent of instructor. (Good.)

A survey of the historical development of mathematics and of the mathematicians who have contributed to that development.

**Math. 152S. Vector Analysis (2).** 8:00; Y-122. Prerequisite Math. 21 or equivalent. (Fadnis.)

Algebra and calculus of vectors, with applications.

**\*Math. 182. Foundations of Algebra (3).** Eight periods a week. Daily, 10:00; M., W., F., 11:00; Y-121. Designed primarily for those enrolled in programs with emphasis in teaching mathematics and science. Not open to students seeking a major directly in the physical sciences, since the course content is usually covered elsewhere in their curricula. (Ehrlich.)

Modern ideas in algebra and topics in the theory of equations.

**\*Math. 199. National Science Foundation Summer Institute for Teachers of Science and Mathematics. Seminar (1).** Five 2-hour seminars each week, July 8, July 19. M., T., W., Th., F., 3:00, 4:00. Y-101. Laboratory fee \$5.00. (Ehrlich and Staff.)

A series of lectures and discussions designed to broaden the student's appreciation of the nature of mathematics as a logical discipline, as an adventure of the imagination, and as a field of human endeavor.

## MUSIC

**Music 15. Chapel Choir (1).** 12:00; B-7. (Springmann.)

Open to all students. A program will be prepared and will be presented in the Chapel late in the summer session.

**Music 169. Choral Music (3).** Daily, 11:00; M., W., F., 8:00; B-7. Prerequisite, Music 120 and 121 or the equivalent. (Jordan.)

The history and literature of choral music from the Renaissance to the present, with discussion of related topics such as Gregorian chant, vocal chamber music, etc.

### Applied Music

A new student or one taking music for the first time at this University should register for Music X (Piano) or Music X (Voice), etc. He will receive the proper classification at the end of the Summer Session.

**Music 12, 13, 52, 53, 112, 113, 152, 153. Applied Music (2).** Hours to be arranged with instructor; B-4. Prerequisite, the next lower course in the same instrument. Three half-hour lessons and a minimum of ten practice hours per week. (Staff.)

The student will register for Music 12 (Piano) or Music 12 (Voice), etc. Special fee of \$40.00 for each course.

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\*Intended for teachers.

## SUMMER SCHOOL—1957

## PHYSICAL EDUCATION, RECREATION AND HEALTH

Physical Education Fee per semester (to be charged any student registered for any physical activity course), \$3.00.

**P. E. S10. Physical Education Activities (1-6).** Fee, \$3.00. Instruction and practice in selected sports; golf, and swimming.

Note: 1. Not available for credit by physical education majors.

Note: 2. Non-majors in physical education may use this credit to fulfill graduation requirements in physical education.

Section 1—Swimming (1), 2:00; GG-Pool. (Husman.)

Section 2—Golf (1), Wednesdays, 1:00-5:00; GG-310. (Cronin.)

**P. E. 120. Physical Education for the Elementary School (3).**

M., T., W., Th., 8:00. 9:00; G-100. (Humphrey.)

This course is designed to orient the general elementary teacher to physical education. Principles and practices in elementary physical education will be presented and discussed and a variety of appropriate activities will be considered from a standpoint of their use at the various grade levels.

**P. E. 160. Theory of Exercise (3).** M., T., W., Th., 8:00, 9:00; GG-128. (Staff.)

A study of exercise and its physiological and kinesiological basis. Special emphasis is placed upon the application of exercise to the development and maintenance of physical efficiency. Corrective therapy, conditioning for athletics, the effects of exercise and training on the human organism, fatigue, staleness, relaxation, and the nature of athletic injuries are investigated.

**P. E. 180. Measurement in Physical Education and Health (3).** M., T., W., Th., 1:00, 2:00; GG-205. (Staff.)

The application of the principles and techniques of educational measurement to the teaching of health and physical education: study of the functions and techniques of measurement in the evaluation of student progress toward the objectives of health and physical education, and in the evaluation of the effectiveness of teaching.

**P. E. 200. Seminar in Physical Education, Recreation, and Health (1).** T., 12:00; arranged. GG-114. (Staff.)

**P. E. 201. Foundations of Physical Education, Recreation and Health (3).** M., T., W., Th., 8:00, 9:00; GG-205. (Eyler.)

A study of history, philosophy and principles of physical education, recreation and health as applied to current problems in each area and as related to general education.

**P. E. 205. Analysis of Contemporary Athletics (3).** M., T., W., Th., 10:00, 11:00; GG-205. (Eyler.)

A study of current problems, practices, and national issues of paramount importance to the conduct of athletic competition in a democracy.

**P. E. 210. Methods and Techniques of Research (3).** M., T., W., Th., 10:00, 11:00; W-131. (Mohr.)

A study of methods and techniques of research used in physical education, recreation, and health education; an analysis of examples of their use; and practice in their application to problems of interest to the student.

**P. E. 280. Scientific Bases of Exercise (3).** Prerequisites: Anatomy, Physiology, P. E. 100, 160, or equivalent. M., T., W., Th., 8:00, 9:00; GG-128. (Massey.)

A critical analysis of the role of physical exercise in modern society with attention given to such topics as: the need for physical exercise, its chronic effects, the role of exercise in attaining good physical condition and fitness, factors determining championship performances, and physical fatigue.

**P. E. 288. Special Problems in Physical Education, Recreation and Health (1-6).** (Arranged.)

Master or Doctoral candidates who desire to pursue special research problems under the direction of their advisers may register for 1-6 hours of credit under this number.

**P. E. 289. Research—Thesis (1-5).** (Arranged.)

Students who desire credits for a Master's thesis, a Doctoral dissertation, or a Doctoral project should use this number.

**Hea. 105. Basic Driver Education (3).** M., T., W., Th., 8:00, 9:00; GG-201. (Tompkins.)

This course is the study of the place of the automobile in modern life and deals with the theory and practice of the following: traffic accidents and other traffic problems; objectives and scope of driver-education; motor vehicle laws and regulation; basic classroom instruction; aids to learning and practice driving instruction.

**Hea. 145. Advanced Driver Education (3).** M., T., W., Th., 10:00, 11:00; GG-201. (Tompkins.)

Progressive techniques and practice of advanced driver education; comprehensive programming for traffic safety; psychology in traffic safety; improving the attitudes of younger drivers; teaching to meet driving emergencies; program planning in driver education; resources and agencies; the teacher and driver education; consumer education; measuring and evaluating results; driver education for adults; research and needed research; new developments in driver education; insurance and liability; the future of driver education.

Prerequisites: Hea. 50, Hea. 70, Hea. 80, and Hea. 175.

**Hea. 160. Problems in School Health Education in Elementary and Secondary Schools (3).** M., T., W., Th., 10:00, 11:30; GG-202. (Johnson.)



This is a workshop type course designed particularly for in-service teachers to acquaint them with the best methods of providing good health services, healthful environment and health instruction.

**Hea. 189. Field Laboratory and Workshops: Fundamentals of Sex Education for Teachers (3).** M., T., W., Th., 8:00, 9:00; GG-128. (Johnson.)

This course presents basic information concerning the physical, psychological, and social aspects of sex. Special consideration is given to the adjustment needs and problems of children and youth throughout the school years; and emphasis is placed upon the role that the teacher may play in helping to meet those needs.

## PHYSICS

**Physics 100. Advanced Experiments (1, 2, or 3).** Eight hours laboratory work per week each credit hour. One, two, or three credits may be taken concurrently. Hours arranged, Z-306. Prerequisites, Phys. 52 or 54 and four credits in Phys. 60. Limited to Physics majors. Laboratory fee \$10.00 per credit hour. (Hornyak and Staff.)

Selected fundamental experiments in electricity and magnetism, elementary electronics, atomic physics, and optics.

†**Physics 109. Electronic Circuits (4).** Five two-hour lectures per week. M., T., W., Th., F., 1:00, 2:00; Z-115. Prerequisite, Physics 105 must be taken previously or concurrently. (Hornyak and Staff.)

This course is intended for students preparing for research in experimental physics. It is also recommended for high school science teachers. It will examine the theory of physics detectors and pulse circuits, and its applications in circuit design. There will be lecture demonstrations.

**Physics 122. Properties of Matter (4).** Five two-hour lectures per week. M., T., W., Th., F., 5:00, 6:00; Z-115. Prerequisite, Phys. 118 or equivalent. (Clark.)

This course is limited to Physics majors and includes the work of Physics 122A plus additional lectures and problems.

\***Physics 122A. Properties of Materials (3).** Four two-hour lectures per week. M., T., W., Th., 5:00, 6:00; Z-115. (Clark.)

This course is intended for high school science teachers and will be taught in conjunction with Phys. 122. The macroscopic behavior of the various states of matter will be explained in terms of molecular models. Thermodynamic, electrical and magnetic properties of materials are discussed. The electronic, atomic and molecular structure of various types of solids such as metals, semi-conductors, polymers, glass, and dielectrics are correlated with their bulk properties. The experimental techniques used in molecular structure determinations are described and the theory of molecular binding reviewed. Hydrodynamic and thermodynamic properties of various types of liquids are presented. Some emphasis is given to a discussion of the way in which various types of materials are used in modern technology.

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†Recommended for teachers.

\*Intended for teachers.

‡Physics 130, 131. **Basic Concepts of Physics (4)**. Five two-hour lectures per week. M., T., W., Th., F., 10:00, 11:00; Z-115. Prerequisite, junior standing. Lecture demonstration fee \$4.00. (Goodwin and Staff.)

A primarily descriptive course intended mainly for students in the liberal arts and high school science teachers. This course does not satisfy the requirements of professional schools or serve as a substitute for other physics courses. The main emphasis in the course will be on the concepts of physics, their evolution, and their relation to other branches of human endeavor. This course is specially recommended for high school science teachers to serve as the basic course in physics for this group.

**Physics 150. Special Problems in Physics.** Credit according to work done. Hours and location arranged. Research or special study. Laboratory fee \$10.00 per credit hour when appropriate. Prerequisite, major in physics and consent of Department Head. (Staff.)

\*Physics 160A. **Physics Problems.** (1, 2, or 3). Lectures and discussion sessions arranged. Credit according to work done. (Goodwin and Staff.)

This course, intended primarily for high school science teachers, introduces the student to the proper methods of presenting and solving basic problems in physics. The course consists of lectures and discussion sessions. Those problems which illustrate best the fundamental principles of physics are treated fully. The necessary mathematical methods are developed as needed.

\*Phys. 199. **National Science Foundation Summer Institute for Teachers of Science and Mathematics.** Seminar (1). Five 2-hour seminars each week. July 22, August 2. M., T., W., Th., F., 3:00, 4:00. Z-115. Laboratory fee \$5.00. (Laster and Staff.)

Especially designed for high school teachers in science and mathematics. Includes the fields of chemistry and physics. Experts in these fields will give lectures with emphasis upon contemporary research. Time will be available for discussion, and student participation will be encouraged. Research and laboratory techniques will be demonstrated.

**Physics 248. Special Topics in Modern Physics: Mathematical Physics (2).** Two two and one-half hour lectures per week. T., Th., 7-9:20 P.M.; Z-115. Prerequisite Phys. 201. (Visconti.)

During the summer of 1957, this course will stress the solution of differential and integral equations, approximation procedures in mathematical physics such as perturbation methods and variational techniques, solutions of wave equations, and diffusion problems.

**Physics 250. Research.** Credit according to work done. Hours and location arranged. Laboratory fee \$10.00 per credit hour. Prerequisite, approved application for admission to candidacy or special permission of the Department Head. (Staff.)

Thesis research conducted under approved supervision.

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‡Recommended for teachers.

\*Intended for teachers.

## POULTRY

**P. H. S111. Poultry Breeding and Feeding (1).** Daily 9:00.  
(Wilcox and Combs.)

This course is designed primarily for teachers of vocational agriculture and extension service workers. The first half will be devoted to problems concerning breeding and the development of breeding stock. The second half will be devoted to nutrition.

**P. H. 205. Poultry Literature (1-4).** (Staff.)

Readings on individual topics are assigned. Written reports required. Methods of analysis and presentation of scientific material are discussed.

**P. H. 206. Poultry Research.** Credit in accordance with work done.  
(Staff.)

Practical and fundamental research with poultry may be conducted under the supervision of staff members toward the requirements for the degrees of M.S. and Ph.D.

## PSYCHOLOGY

**Psych. 1. Introduction to Psychology (3).** Eight periods a week. Daily, 9:00; M., W., F., 8:00; M-105.  
(Solem.)

A basic introductory course, intended to bring the student into contact with the major problems confronting psychology and the more important attempts at their solution.

**Psych. 2S. Applied Psychology (2).** Daily 10:00; M-104. Prerequisite, Psych. 1.  
(Solem.)

Applications of research methods to basic human problems in business and industry, in the professions, and in other practical concerns of everyday life.

**Psych. 106. Statistical Methods in Psychology (3).** Daily, 11:00; M., W., F., 12:00; M-104. Prerequisites, Psych. 1 and Math. 1, 5, or 10. Herrnstein.

A basic introduction to quantitative methods used in psychological research; measures of central tendency, of spread, and of correlation. Majors in Psychology should take this course in the junior year.

**Psych. 110. Educational Psychology (3).** Eight periods a week. Daily, 9:00; M., W., F., 10:00; M-102. Prerequisite, Psych. 1.  
(Maxwell.)

Researches on fundamental psychological problems encountered in education. Measurement and significance of individual differences, learning, motivation, transfer of training, and the educational implications of theories of intelligence.

**Psych. 225. Practicum in Counseling and Clinical Procedures (1-3).** Hours arranged. Prerequisite, Psych. 220 and consent of instructor.  
(Gustad, Magoon.)

**Psych. 288. Special Research Problems (1-3).** Hours arranged. Prerequisite, consent of individual faculty supervisor.  
(Staff.)

Psych. 290. Research for Thesis (1-6). Hours arranged. (Staff.)

### SOCIOLOGY

**Soc. 1. Sociology of American Life (3).** Eight periods a week. Daily, 8:00; M., W., F., 9:00; R-205. (Hirzel.)

Sociological analysis of the American social structure; metropolitan, small town, and rural communities; population distribution, composition and change; social organization.

**Soc. 5. Anthropology (3).** Eight periods a week. Daily, 10:00; M., W., F., 11:00; R-103. (Anderson.)

Introduction to anthropology; origins of man; development and transmission of culture; backgrounds of human institutions.

**Soc. 51S. Social Pathology (2).** Daily, 10:00; R-7. Prerequisite, Soc.1 and sophomore standing. (Shankweiler.)

Personal-social disorganization and maladjustment; physical and mental handicaps; economic inadequacies; programs of treatment and control.

**Soc. 114S. The City (2).** Daily 11:00; R-205. (Schmidt.)

The rise of urban civilization and metropolitan regions; ecological processes and structure; the city as a center of dominance; social problems, control and planning.

**Soc. 121S. Population (2).** Daily, 11:00; R-7. (Hirzel.)

Population distribution, composition, and growth in North America and Eurasia; trends in fertility and mortality; migrations; population prospects and policies.

**Soc. 123S. Ethnic Minorities (2).** Daily, 10:00; R-205. (Staff.)

Basic social processes in the relations of ethnic groups within the state; immigration groups and the Negro in the United States; ethnic minorities in Europe.

**Soc. 125S. Cultural History of the Negro (2).** Daily, 8:00; R-103. (Anderson.)

The cultures of Africa south of the Sahara and the cultural adjustments of the Negro in North and South America.

**Soc. 131S. Introduction to Social Service (2).** 9:00; R-7. (Staff.)

General survey of the field of social welfare activities; historical development; growth, functions, and specialization of agencies and services, private and public.

**Soc. 141S. Sociology of Personality (2).** Daily, 9:00; R-103. (Schmidt.)

Development of human nature and personality in contemporary social life; processes of socialization; attitudes, individual differences, and social behavior.

**Soc. 164S The Family and Society (2).** Daily, 9:00; R-6. Prerequisite, Soc. 1 and Soc. 64 or equivalent. (Shankweiler.)

Study of the family as a social institution: its biological and cultural foundations, historic development, changing structure and function: the interactions of marriage and parenthood, disorganizing and reorganizing factors in present day trends.

**Soc. 191. Social Field Training (3).** Time to be arranged. (Staff.)

Prerequisites: For social work field training, Soc. 131; for crime control field training, Soc. 52 and 153. Enrollment restricted to available placements.

Supervised field training in public and private social agencies. The student will select his particular area of interest and be responsible to an agency for a definite program of in-service training. Group meetings, individual conferences, and written progress reports will be required part of the course.

**Soc. 290. Research in Sociology (3-6).** (Credit to be determined). Time to be arranged. (Hoffsommer.)

**Soc. 291. Special Social Problems (3).** (Credit to be determined). Time to be arranged. (Staff.)

## SPEECH AND DRAMATIC ART

**Speech 1. Public Speaking (2).** 8:00; R-101. Fee \$1.00 (Batka.)

The preparation and delivery of short original speeches. Outside readings; reports, etc.

**Speech 2. Public Speaking (2).** 9:00; R-101. Fee \$1.00, Prerequisite, Speech 1. (Batka.)

**Speech 4. Voice and Diction (3).** Eight periods a week. Daily 9:00; M., W., F., 10:00; Studio. (Starcher.)

Emphasis upon the improvement of voice, articulation, and phonation. May be taken concurrently with Speech 1, 2.

**Speech 7. Public Speaking (2).** 11:00; R-101. Fee \$1.00 (Batka.)

The preparation and delivery of speeches on technical and general subjects.

**Speech 106. Clinical Practice (1 to 6 credits).** Hours arranged. (Conlon.)

A laboratory course dealing with the various methods of correction plus actual work in the clinic. Fee \$1.00 per credit hour.

**Speech 111. Seminar (3).** Hours arranged. (Strausbaugh.)

Required of speech majors. Present-day speech research.

**Speech 126. Semantic Aspects of Speech in Human Relations (3).** Eight periods a week. Daily 9:00; M., W., F., 10:00; R-109. (Hendricks.)

An analysis of speech and language habits from the standpoint of General Semantics.

**Speech 138. Methods and Materials in Speech Correction (3).** Eight periods a week. Daily 9:00; M., W., F., 10:00; R-102. Prerequisite, Speech 120 or the equivalent. (Conlon.)

The design and use of methods and materials for diagnosis, measurement, and retraining of the speech-handicapped. Fee \$3.00.

**Speech 200. Thesis (3-6).** Hours arranged. (Hendricks.)

Credit in proportion to work done and results accomplished.

**Speech 201. Special Problems Seminar (3).** Eight periods a week. Daily 11:00; M., W., F., 12:00 R-109. (Craven.)

Review of current theories and investigations pertaining to stuttering problems.

## ZOOLOGY

†**Zool. 1. General Zoology (4).** Five lectures and five two-hour laboratory periods a week. Lecture, 8:00; K-307; laboratory, 9:00, 10:00; K-306. Laboratory fee, \$8.00. (Costello.)

This course, which is cultural and practical in its aim, deals with the basic principles of animal life.

**Zool. 55S. Development of the Human Body (2).** Five lecture periods a week. 11:00; K-106. (Highton.)

A study of the main factors affecting pre-natal and post-natal growth and development of the child with special emphasis on normal development.

†**Zool. 104. Genetics (3).** Eight lecture periods a week. Daily, 9:00; M., W., F., 8:00; K-106. Prerequisite, one course in zoology or botany. (Highton.)

A consideration of the basic principles of heredity.

\***Zool. 108S. Animal Histology (4).** Five lectures and five three-hour laboratory periods a week. Lecture, 11:00; K-216; laboratory, 8:00, 9:00, 10:00; K-216. Prerequisite, one year of zoology. Laboratory fee, \$8.00. (Brown.)

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†Recommended for teachers.

\*Intended for teachers.

A study of the microscopic structure of tissues and organs of animals with special emphasis on mammals. The laboratory will include practice in the preparation of material for gross and microscopic study and for classroom demonstration.

**\*Zool. 199. National Science Foundation Summer Institute for Teachers of Science and Mathematics. Seminar (1).** Five 2-hour seminars each week, June 25, July 5. M., T., W., Th., F., 3:00, 4:00. K-307. Laboratory fee \$5.00.  
(Brown and Staff.)

An integrated discussion of recent advances and basic principles of biology. The program will include lectures by recognized authorities in various fields of biology, laboratory demonstrations, and organized discussion groups. Student participation will be encouraged.

**Zool. 206. Research. Credit to be arranged.** Research on thesis project only. Laboratory fee, \$8.00.  
(Staff.)

**Zool. 208. Special Problems in Zoology.** Credit, hours, and topics to be arranged. Laboratory fee, \$8.00.  
(Staff.)

**Zool. 215S. Fisheries Technology (4).** Five lectures and five three-hour laboratory periods a week. Hours to be arranged. Given at Sea Food Processing Laboratory, Crisfield, Maryland. Laboratory fee, \$8.00. (Littleford.)

The technological aspects of netting and collection of fish and other fishery resources, methods of handling the catch, marketing of fishery products, and recent advances in the utilization of fishery products.

**Zool. 231S. Acarology (3).** July 15 through August 2. Lectures recitations, and laboratory daily, 9:00-12:00, 2:00-4:00; K-307 and K-9. Laboratory fee, \$8.00.  
(Camin.)

An introductory study of the Acarina, or mites and ticks, with special emphasis on classification and biology.

**Zool. 232S. Medical and Veterinary Acarology (3).** July 15 through August 2. Lectures, recitations, and laboratory daily, 9:00-12:00, 2:00-4:00; K-307 and K-109. Laboratory fee, \$8.00.  
(Strandtmann.)

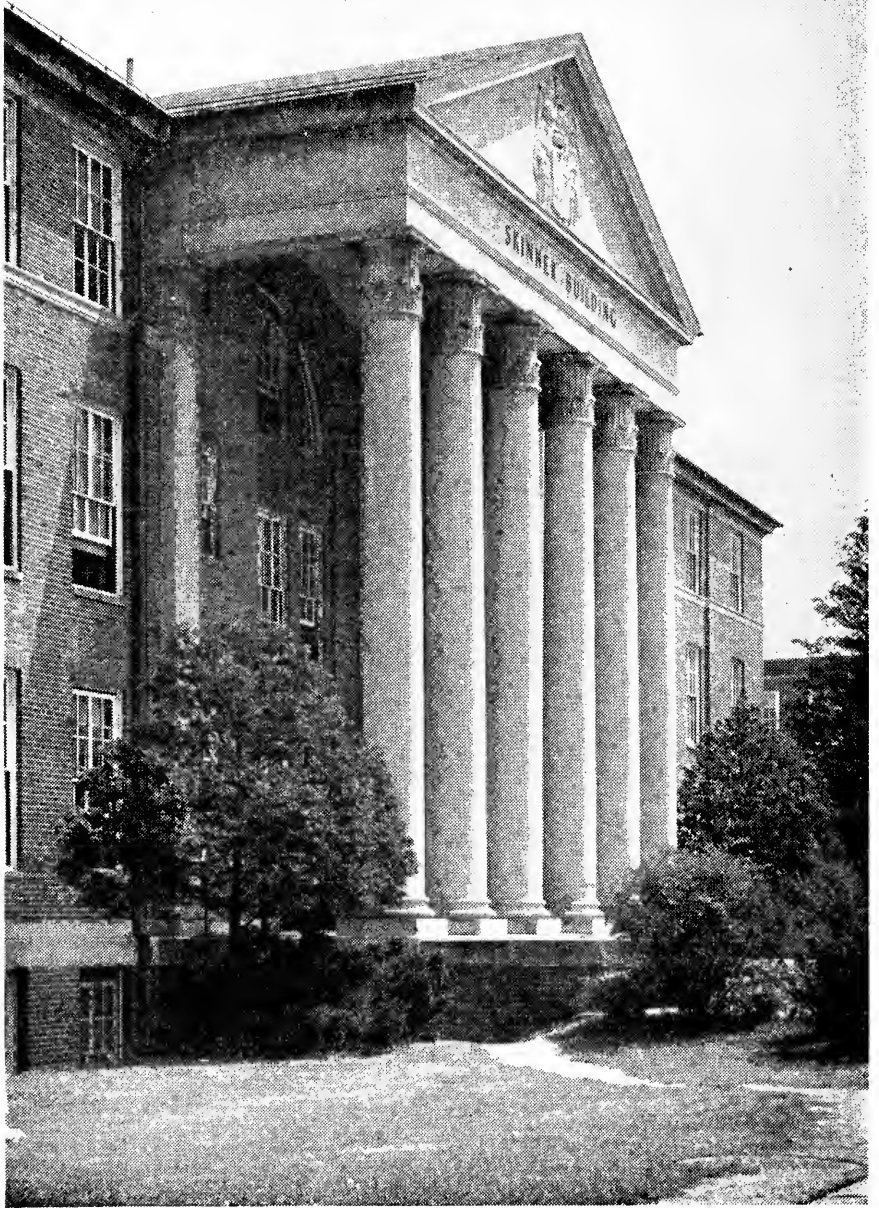
The recognition, collection, culture, and control of Acarina important to public health and animal husbandry with special emphasis on the transmission of diseases.

**Zool. 233S. Agricultural Acarology (3).** July 15 through August 2. Lectures, recitations, and laboratory daily, 9:00-12:00, 2:00-4:00; K-307 and K-6. Laboratory fee, \$8.00.  
(Baker.)

The recognition, collection, culture, and control of acarine pests of crops and ornamentals.

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\*Intended for teachers.



**SKINNER BUILDING**  
**Headquarters of the Summer School**





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“**E**DUCATION does not mean teaching people what they do not know. It means teaching them to behave as they do not behave. It is not teaching the youth the shapes of the letters and the tricks of numbers, and then leaving them to turn their arithmetic to roguery and their literature to lust. It means, on the contrary, training them into the perfect exercise and kingly continence of their bodies and souls. It is painful, continual and difficult work to be done by kindness, by watching, by warning, by precedent, and by praise, but above all—by example.”—John Ruskin.

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“In our country no man is worthy the honored name of statesman, who does not include the highest practicable education of the people in all his plans of administration.”—Horace Mann.

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“Promote, then, as an object of primary importance institutions for the general diffusion of knowledge. In proportion as the structure of a government gives force to public opinion, it is essential that public opinion should be enlightened.”—George Washington.

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“The good education of youth has been esteemed by wise men in all ages as the surest foundation of the happiness both of private families and of commonwealths.”—Benjamin Franklin.

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“The whole people must take upon themselves the education of the whole people and be willing to bear the expense of it.”—John Adams.

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“If a nation expects to be ignorant and free in a state of civilization, it expects what never was and never will be.”—Thomas Jefferson.

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“A popular government without popular information or the means of acquiring it, is but the prologue to a farce or a tragedy, or perhaps both.”

James Madison

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“An educated man is never poor and no gift is more precious than education.”—Abraham Lincoln.

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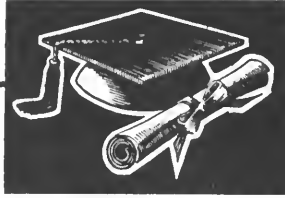
“Without popular education no government which rests on popular action can long endure; the people must be schooled in the knowledge and in the virtues upon which the maintenance and success of free institutions depend.”

—Woodrow Wilson

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“We have faith in education as the foundation of democratic government.”

—Franklin D. Roosevelt



## SEPARATE CATALOGS

### At College Park

Individual catalogs of colleges and schools of the University of Maryland at College Park may be obtained by addressing the Office of University Relations, University of Maryland, College Park, Md.

These catalogs and schools are:

1. General Information
2. College of Agriculture
3. College of Arts and Sciences
4. College of Business and Public Administration
5. College of Education
6. College of Engineering
7. College of Home Economics
8. College of Military Science
9. College of Physical Education, Recreation and Health
10. College of Special and Continuation Studies
11. Summer School
12. Graduate School

### At Baltimore

Individual catalogs for the professional schools of the University of Maryland may be obtained by addressing the Deans of the respective schools at the University of Maryland, Lombard and Greene Streets, Baltimore 1, Maryland. The professional schools are:

13. School of Dentistry
14. School of Law
15. School of Medicine
16. School of Pharmacy
17. School of Nursing

### At Heidelberg

The catalog of the European Program may be obtained by addressing the Dean, College of Special and Continuation Studies, College Park, Maryland.