BULLETIN
MADISON COLLEGE
HARRISONBURG, VIRGINIA

GRADUATE PROGRAM

VOL. XXI, NO. 3
MARCH, 1963
BULLETIN

MADISON COLLEGE

ACCRREDITED BY: Southern Association of Colleges and Secondary Schools, National Council on the Accreditation of Teacher Education for Preparation of Elementary Teachers and Secondary Teachers with the Master's Degree as the Highest Degree Offered, Virginia State Board of Education.


CORPORATE MEMBER OF: American Association of University Women.
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State Board of Education

The State Board of Education of the Commonwealth of Virginia is the governing board of Madison College.

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William L. Mengebier, B.S., M.S., Ph.D.
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John C. Wells, Professor of Physics. A.B., Colgate University; A.M., Ed.D., Columbia University.

Baxter Douglas Wilson, Associate Professor of English. B.A., The Citadel; M.A., Ph.D., University of Virginia.
The Graduate Program of Madison College

Authorization

Madison College was authorized by the State Board of Education at its meeting in March, 1954, to offer the degrees of Master of Arts in Education and Master of Science in Education. On October 31, 1960, the State Board of Education authorized the College to offer the Master of Science degree.

Administration

The Graduate Council of the College has the responsibility of formulating all policies and legislation affecting graduate curricula and work leading to graduate degrees. The Council has full power to make all necessary rules and regulations and to approve candidates for degrees, subject to conformity with policies of the State Board of Education.

The Dean of the College is chairman and the executive officer of the Graduate Council.

Admission to Graduate Study

The applicant must possess a bachelor's degree from a college regarded as standard by Madison College and by a recognized regional or national accrediting agency. Application forms for admission may be obtained from the Dean of the College, who serves as chairman of the Graduate Council. These forms should be completed and returned to the Dean.
before the opening of the term in which the applicant desires
to enroll. Each applicant must also submit a transcript of his/
undergraduate record and of any graduate work completed.
The applicant’s record must be approved by the Graduate
Council before he is admitted to candidacy for a graduate
degree. If the undergraduate record shows a deficiency in
the proposed major or minor fields of study, the applicant
must make up the deficiency by taking such additional courses
as may be required by the Graduate Council in consultation
with the department head concerned. Such courses, if re-
quired, do not count for graduate credit. Admission to gradu-
ate study does not imply admission to candidacy for a degree.

STUDENT ADVISORY COMMITTEES

The Graduate Council in cooperation with the student
and departments concerned shall name a special Advisory
Committee of two faculty members for each student working
in toward a degree. For the Master of Arts in Education and the
Master of Science in Education degrees, one member of this
Committee will be selected from the faculty of the student’s
major department, and the other one from the department in
which the student is minoring. The faculty member from
the major department shall serve as chairman of the Advisory
Committee. The Dean of the College is an ex officio member
of all Advisory Committees.

For the Master of Science degree, the head of the depart-
ment in which the student is majoring shall serve as chair-
man of the Advisory Committee. A second member of the
major department will complete the committee. The major
professor under whom the thesis is being completed must be
a member of the committee.

A Graduate Advisory Committee will not be appointed
until the student has been admitted to candidacy for a degree.
ADMISSION TO CANDIDACY FOR A DEGREE

In order to insure that the graduate degree represents a high quality of work, candidates for the degree will be selected carefully. The applicant shall not be admitted to candidacy for a degree until he has demonstrated sufficient aptitude for graduate work in courses taken at Madison.

In order to become eligible for admission to candidacy for a Master's degree the graduate student must:

1. Complete nine semester hours of credit in graduate courses taken at Madison College. Of these credit hours at least three must be in the major field and three in the minor field.

2. Submit a score on the Aptitude section of the Graduate Record Examination.

3. Notify the Dean of the desire to be considered for admission to candidacy.

When the student has completed the foregoing requirements the Graduate Council will act upon the applicant's request for admission to candidacy.

After being notified of admission to candidacy the student should make an appointment with the Dean to discuss the membership of this Graduate Advisory Committee.

REQUIREMENTS FOR THE MASTER OF ARTS IN EDUCATION AND THE MASTER OF SCIENCE IN EDUCATION DEGREES

Academic Requirements. The candidate must complete (a) twenty-four semester hours of graduate work and submit a thesis, or (b) thirty semester hours of graduate work without a thesis, for the degree of Master of Arts in Education or the degree of Master of Science in Education, depending upon
the concentration. A candidate who is a graduate of a liberal arts program holding the Collegiate Certificate must earn six additional hours of graduate credit in an approved teaching internship in the public schools under supervision. The degree of Master of Arts in Education will be used for those graduate students whose majors or minors are in the Humanities' fields and the social science fields, and the degree of Master of Science in Education will be used for those graduate students who are carrying majors or minors in mathematics, science, and certain special subject fields.

A student who is majoring in education may apply for either the Master of Arts in Education or the Master of Science in Education degree. It is understood that independent research will be required in all programs. The candidate must earn a grade of "B" or better in each course. At least forty per cent of the courses included in the student's program shall be those designated as exclusively for graduate students. No graduate credit will be granted for work done in any course to which undergraduates are admitted unless the student is enrolled in that course as a graduate student.

At least eighteen semester hours of the student's work (or twelve semester hours and a thesis) shall be in the major field of concentration (one field or related fields) with at least twelve semester hours in a minor field. Students who major in professional education and whose interests are in secondary education must earn for a minor at least twelve semester hours credit in a subject-matter field. Students who are majoring in professional education and whose special interests are in elementary education must complete for a minor twelve semester hours credit in one subject-matter field or six semester hours in each of two related subject-matter fields with the approval of the Graduate Council. Either the major or the minor must be in the field of education. At least six semester hours of the minor must be obtained by taking courses at Madison College.
If the applicant does not hold the Collegiate Professional Certificate, or its equivalent, he must obtain such a certificate before the degree is conferred unless excused by the Graduate Council.

Residence Requirements. A student must be in residence at Madison at least two summer terms of six weeks each in which a full load is carried in order to meet the minimum residence requirements for the Master's degree. Evening courses held on the campus will be counted in meeting residence requirements but residence requirements cannot be met by taking only evening classes. The equivalent of at least one academic year of residence is required at Madison with the exception that one summer session of graduate study at another Virginia institution may be accepted toward the residence requirement.¹

Examination Requirements. If the student does not write a thesis the final comprehensive examination will be written. If the student does write a thesis the final comprehensive will be oral.

The final comprehensive examination must be taken during the last semester or summer session in residence on a date designated by the Graduate Council. The last course work of the student must be completed in residence at Madison College.

Courses which are being taken by a student during the term in which he takes the comprehensive examination will not be included in preparing questions for the examination. In other words, the student will be examined only on those courses taken prior to the term in which the comprehensive examination is administered.

A candidate who fails on the comprehensive examination may be permitted a re-examination at the discretion of the

¹ Subject to approval of Southern Association of Colleges and Secondary Schools.
student's major department and the Graduate Council. A re-examination cannot be given sooner than the semester following the unsuccessful examination.

Thesis Requirements. A thesis in the major field of interest and completed to the satisfaction of the Student's Advisory Committee and the Graduate Council may be submitted in partial fulfillment of the requirements for the Master's degree. Students who elect to write a thesis are required to complete twenty-four semester hours in course work. An abstract of the thesis of not more than six hundred words is required.

Students who elect additional course work in lieu of a thesis must earn a total of thirty semester hours in graduate courses.

The Student's Advisory Committee must recommend the thesis subject and outline to the Graduate Council for approval at least three months prior to the time the degree is expected to be awarded.

The thesis shall consist of a written interpretation of a body of facts and opinions gained through critical reading and independent research. There must be an adequate analysis of the assembled data. The thesis must be prepared according to the general requirements established by the Graduate Council and must be completed one month before the time of graduation to assure the Advisory Committee of its acceptability. Three unbound copies of the thesis must be filed with the Chairman of the Graduate Council not later than two weeks before the date of graduation.

REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE

Academic Requirements. This degree is available only to students majoring in one of the sciences or mathematics.
At the present time biology is the only area in which a student may major in working for this degree. The candidate must complete twenty-four semester hours of graduate work and submit a thesis. A minimum of eighteen semester hours must be completed in the major field. The courses constituting the remaining six semester hours in graduate work will be determined by the student's Graduate Advisory Committee in consultation with the student concerned. No graduate credit will be given for a grade below "B". At least forty per cent of the courses included in the student's program shall be those designated as exclusively for graduate students. No graduate credit will be granted for work done in any course to which undergraduates are admitted unless the student is enrolled in that course as a graduate student. If the applicant does not hold the Collegiate Professional Certificate, or its equivalent, he must obtain such a certificate before the degree is conferred unless excused by the Graduate Council.

CREDITS BY TRANSFER

Six hours of graduate work from an accredited college or university may be applied to the requirements for the degree upon approval of the head of the major department and the Dean of the College. At least six semester hours of the minor must be in graduate courses taken at Madison College. Approval to take graduate courses at other institutions must be obtained prior to enrolling in the courses.

No transfer credit will be allowed for courses taken on the graduate level if previously used as credit towards another degree.

SCHOLARSHIP REQUIREMENTS

The grades given in graduate courses are A, B+, B, C and F. Graduate students must receive a mark of "B" or
better in a course if it is to count in meeting requirements for a Master's degree.

After a student is admitted to candidacy for a Master’s degree, he is automatically placed on probation as soon as he receives a grade below “C” in any course or a grade of “C” in as many as two courses. The courses need not be taken simultaneously. Probation is a warning that achievement is not satisfactory. A student on probation will not be permitted to continue his graduate work if he earns a grade of “C” or below in any subsequent course.

Petition for special consideration may be filed with the Chairman of the Graduate Council if the student feels that circumstances outside his control prevented him from doing work of higher quality. All such petitions will be acted upon by the Graduate Council.

**TIME LIMIT**

A graduate student is expected to complete all requirements for the degree within six years from the time he begins his graduate study. The Graduate Council may, however, permit an extension of time because of extenuating circumstances.

**GRADUATE COURSES IN SUMMER SESSIONS**

Courses offered during the Intersession have fifteen class meetings of two hours and forty minutes each and give three semester hours of credit. Graduate courses taught during the Six-Week Session meet for one hour and twenty minutes, five days a week. Each course gives three semester hours of credit. By attending both the Intersession and the Six-Week Session a student may earn a total of nine semester hours of credit.

By attending the Intersession and Six-Week Session and by taking evening classes at Madison College or extension
classes during the regular sessions, it is possible for a student to complete the work for a Master's degree in two calendar years.

PROGRAMS OF STUDY

Madison College offers three programs of study leading to the Master of Arts in Education and Master of Science in Education degrees. These programs are:

1. For Teachers in the Elementary School.
2. For Teachers in the Secondary School.
3. For College Graduates who have not completed the necessary courses in professional education to meet certification requirements.

It is strongly recommended that students who enroll in the program for secondary school teachers major in a subject-matter field. Those who enroll in the program for elementary school teachers may also major in a subject-matter field if the backgrounds and needs of the students concerned indicate that such should be done.

Students may major in biology, business education, English, mathematics, music, physical and health education, and social science as well as in professional education. In addition to the aforementioned areas students may minor in art, home economics and physical science.

Madison also offers a program for teachers of biology which leads to the Master of Science degree.

For details concerning the aforementioned programs and requirements for majors see pages 19-20, 29-34.

REQUIREMENTS FOR MAJORS AND MINORS, AND COURSE DESCRIPTIONS

The courses offered in each department participating in the graduate program are listed on the pages that follow. A
few of the courses listed are taught in the evening during the winter session. A much more comprehensive offering is available in the summer.

At least six semester hours of the minor must be in graduate courses taken at Madison College.

*Courses with numbers from 100 to 200 are open to approved undergraduates. Courses numbered 200 and above are for graduate students only.*

**DEPARTMENT OF ART**

The graduate program of the Department of Art has these aims: (1) to expand the candidate’s subject-matter background; (2) to give the professional teacher an opportunity to learn contemporary techniques, psychology and philosophy of this area for direct application to his job; (3) to introduce the candidate to research; (4) and to give the candidate practice in creative work in the space arts on a higher level than is possible in undergraduate work.

In order to meet the requirements for a minor, the candidate must take Art 150, Art 200 and any two of the divisions of Art 100.

**Art 100. Practice of Art.**

100a. Painting. Three credits.
100b. Crafts. Three credits.
100c. Ceramics. Three credits.
100d. Sculpture. Three credits.
100e. Graphics. Three credits.

Creative work on an advanced level, with study of both historic and contemporary procedures.

**Art 150. Problems in Teaching Art.**

Three credits.

An intensive study of the current philosophies and psychology of
art education for all levels. Analysis of administrative and evaluative procedures.

**ART 200. **THE CRITICISM OF ART.

Three credits.

Study of basic questions existing in art philosophy and esthetics.

**DEPARTMENT OF BIOLOGY**

The graduate program of the Department of Biology has three aims: (1) to supplement the candidate’s subject-matter background and to emphasize the impact of Biological principles on economic and social problems of our times; (2) to give to the professional teacher an opportunity to learn techniques of value for actual classroom experiences as well as to introduce modern concepts of Biology; (3) to introduce all students to research, the one fundamental method by which our knowledge progresses.

All majors and minors will be required to select one course from each of the following subject-matter areas.

Ecology and Taxonomy — Biology 100, Biology 101
Morphology and Anatomy — Biology 140, Biology 210
Functional Biology — Biology 102, Biology 225, Biology 230

The remainder of each major student’s program should be selected according to the student’s aims and interests. Each program must have the approval of the departmental chairman.

A prerequisite for the Master of Science degree is Mathematics 58, Elementary Statistics, or its equivalent.

All candidates for the Master of Science degree will be required to take Biology 300, Thesis, for six credits. Selection
of the thesis topic must have the approval of the chairman of the department.

**Biology 100. Vertebrate Ecology.**

Three credits.

A course designed to acquaint students with the fundamental relationships existing between animals and their environment. Emphasis will be placed on the dynamic aspect of ecology and its importance to mankind. The laboratory will consist of group discussion sessions and selected field trips throughout the Shenandoah regions.

**Biology 101. Plant Ecology.**

Three credits.

A study of the distribution and association of plants in relation to their physical and biological environments. Concepts include migration, invasion, competition, successions and climax as these influence environmental change, conservation and wildlife. Open only by permission of the instructor.

**Biology 102. Vertebrate Physiology.**

Three credits.

A study of vertebrate systemic function. Particular emphasis will be given to the quantitative interpretation of muscle contraction and the nerve impulse. Laboratory exercises will involve the use of vertebrate forms to demonstrate specific functional phenomena.

**Biology 125. Medical Entomology.**

Three credits.

A study of the arthropods that parasitize man or serve as vectors of human pathogens. Morphological features, distribution, life histories, and control methods will be emphasized. Prerequisite: Biology 90 or its equivalent.

**Biology 130. Principles of Genetics.**

Three credits.

A study of the facts and principles of biological inheritance.
Biology 140. Developmental Anatomy of Higher Plants.

Three credits.

A study of the origin, growth, differentiation, and maturation of cells, tissues, and organs and their interrelationships. Emphasis is placed on economically important structures of crop, ornamental, and forest plants.

Biology 200. Physiology of Respiration.

Three credits.

A comparative study of breathing and respiration in selected invertebrates and vertebrates including man. Consideration will be given to the Emden-Meyerhoff and Kreb's cycles. Prerequisite: Chemistry 35-36.


Three credits.

The study and identification of tissues. Practical work in the mounting and staining of selected material.

Biology 225. Invertebrate Physiology.

Three credits.

A comparative study of physiological processes in various invertebrate phyla, interpreted in terms of structural variation, evolutionary history, and ecology.

Biology 230. The Seed Plants.

Three credits.

The morphology and physiology of the Spermatophyta. Prerequisite: Biology 30 or equivalent.


Three credits.

A study of the meaning, value, and necessity of theories as they
are related to man, the animal and plant worlds, and to nature in general. Illustrations showing how theories and progress are related.

**Biology 250. Survey of Radiation Biology.**

Three credits.

A study of the effect of ionizing radiation on the organism. The nature and source of these radiations will be discussed as well as their effect and methods of protection against them. Prerequisites: Biology 27, Chemistry 35, Physics 1-2 or Physics 9. Recommended antecedents: Chemistry 38, Physics 37.

**Biology 300. Thesis.**

Six credits.

A thesis in the major field of interest and completed to the satisfaction of the Student's Advisory Committee and the Graduate Council may be submitted in partial fulfillment of the requirements for the Master's degree. Students who elect to write a thesis are required to complete twenty-four semester hours in course work. The Student's Advisory Committee must recommend the thesis subject and outline to the Graduate Council for approval at least three months prior to the time the degree is expected to be awarded. The thesis must be completed one month before the time of graduation to assure the Advisory Committee of its acceptability.

**DEPARTMENT OF BUSINESS AND BUSINESS EDUCATION**

The graduate program of the Department of Business and Business Education is so planned that the student may achieve the objectives of (1) the improvement of teaching, (2) personal and professional development, and (3) ability to do research.

A major in business education consists of eighteen semester hours of approved courses in business and business education; nine semester hours in education; and three elective semester hours. The Master of Science degree in Education
is awarded upon the successful completion of the graduate program in business education.

Required courses for a *major* in business education are:

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<th>Title</th>
<th>Semester Hours</th>
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<tbody>
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<td>Advanced Studies in the Basic Business Subjects</td>
<td>3</td>
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<tr>
<td>Business Education 130.</td>
<td>Advanced Studies in the Skill Business Subjects</td>
<td>3</td>
</tr>
<tr>
<td>Business Education 150.</td>
<td>Curriculum Construction in Business Education</td>
<td>3</td>
</tr>
<tr>
<td>Business Education 210.</td>
<td>Problems in Business Education</td>
<td>3</td>
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<tr>
<td>Business Education 230.</td>
<td>Seminar in American Business</td>
<td>3</td>
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<tr>
<td>Business Education 250.</td>
<td>Reading and Research</td>
<td>3</td>
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*or*


A minor in business education consists of twelve semester hours of approved courses in business and business education.

Required courses for a *minor* in business education are:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Semester Hours</th>
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<tbody>
<tr>
<td>Business Education 120.</td>
<td>Advanced Studies in the Basic Business Subjects</td>
<td>3</td>
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</table>

*or*

Business Education 130. Advanced Studies in the Skill Business Subjects | 3 |
**Semester Hours**

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<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Business Education 150.</td>
<td>Curriculum Construction in Business Education</td>
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<tr>
<td>Business Education 210.</td>
<td>Problems in Business Education</td>
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<td><strong>or</strong></td>
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<tr>
<td>Business Education 230.</td>
<td>Seminar in American Business</td>
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<td><strong>or</strong></td>
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<tr>
<td><strong>BUSINESS EDUCATION 120.</strong></td>
<td><strong>ADVANCED STUDIES IN THE BASIC BUSINESS SUBJECTS.</strong></td>
<td></td>
</tr>
<tr>
<td>Three credits.</td>
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</tr>
<tr>
<td>Advanced studies for the improvement of the teaching of General Business, Business Law, Economics, Consumer Business Education, and related areas.</td>
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</tr>
<tr>
<td><strong>BUSINESS EDUCATION 130.</strong></td>
<td><strong>ADVANCED STUDIES IN THE SKILL BUSINESS SUBJECTS.</strong></td>
<td></td>
</tr>
<tr>
<td>Three credits.</td>
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<td></td>
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<tr>
<td>Advanced studies for the improvement of the teaching of Typewriting, Shorthand, and Bookkeeping.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BUSINESS EDUCATION 150.</strong></td>
<td><strong>CURRICULUM CONSTRUCTION IN BUSINESS EDUCATION.</strong></td>
<td></td>
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<tr>
<td>Three credits.</td>
<td></td>
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<tr>
<td>Principles, practices and problems in the evaluation and construction of business education curricula to meet the needs of youth and adults in an advancing free enterprise system.</td>
<td></td>
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</tr>
</tbody>
</table>
Business Education 210. Problems in Business Education.

Three credits.

Consideration of individual problems in business. Topics covered will include programmed instruction, data processing, community surveys, tests and measurements, and related areas.


Three credits.

Comprehensive review of current books, magazines, and materials in the areas of Marketing, Banking, Taxation, Selling, Exchanges, Economic Conditions, and other areas essential to improved business understandings.

Business Education 250. Reading and Research.

Three credits.

Examination of approved research procedures for business education. Preparation of reports from assigned field problems applied to various research techniques. (Reading and Research may be done only in the major field of study.)


Three credits.

The major types of economic systems, Socialism, Communism, Fascism and Capitalism, will be analyzed and compared with special attention given to national and world affairs and international relations. The distribution of wealth and income, public debt, and business cycles will be explained and compared. (Also listed as Social Science 260.)

Business Education 300. Thesis.

Six credits.

A thesis in the major field of interest and completed to the satisfaction of the Student’s Advisory Committee and the Graduate Council
may be submitted in partial fulfillment of the requirements for the Master's degree. Students who elect to write a thesis are required to complete twenty-four semester hours in course work. The Student's Advisory Committee must recommend the thesis subject and outline to the Graduate Council for approval at least three months prior to the time the degree is expected to be awarded. The thesis must be completed one month before the time of graduation to assure the Advisory Committee of its acceptability. If a thesis is elected, Business Education 250 will not be taken.

**DEPARTMENT OF CHEMISTRY**

A graduate major or minor in chemistry should be built around the needs and interests of the student. A major in chemistry will consist of 18 semester hours of graduate work in chemistry (or in a related field) subject to the approval of the head of the department; and a minor in chemistry will consist of twelve semester hours of graduate work in chemistry. The student plans his program with the help of the head of the department.

**CHEMISTRY 101. ADVANCED INORGANIC CHEMISTRY.**

Three credits.

A course in fundamental concepts which deal with the relation of structure to properties, the periodic system, typical reactions and applications of physical chemical principles to inorganic systems.

**CHEMISTRY 105. THEORETICAL CHEMISTRY.**

Three credits.

This course deals with some of the fundamental concepts, laws, theories, and philosophies of chemistry. Considerable emphasis is placed on the practical applications of various chemical laws and concepts. To meet the interests and needs of the student, work will be chosen from the areas of Physical Chemistry, Electrochemistry, and Thermodynamics.

*Neither a major nor minor is currently offered in Chemistry.*
Chemistry 106. Theoretical Chemistry.

Three credits.

A continuation of Chemistry 105.

Chemistry 110. Physiological Chemistry.

Three credits.

This course includes a study of foodstuffs, their digestion and metabolism, respiration, body secretions and excretions, the blood, urine, calorimetry, nutrition, endocrine organs, and vitamins.

Chemistry 120. Recent Developments in Chemistry.

Three credits.

A study of recent developments in such areas of chemistry as solvents, metals and alloys, plastics, petrochemicals, silicones, nuclear chemistry, medicinals, rubber and synthetic polymers, paints, detergents, textiles, etc. The material will be selected and taught in such manner that it will be of especial interest and use to teachers of biology, chemistry, and general science.

Chemistry 130. Advanced Organic Preparations.

Three credits.

Emphasis on advanced laboratory preparations and techniques. Considerable time is devoted to theories and mechanisms of reactions in organic chemistry.

Chemistry 140. Advanced Topics.

Three credits.

 Mostly laboratory work at an advanced level together with conferences and independent reading, adapted to the needs of the individual student.

Chemistry 300. Thesis.

Six credits.

A thesis in the major field of interest and completed to the satis-
faction of the Student's Advisory Committee and the Graduate Council may be submitted in partial fulfillment of the requirements for the Master's degree. Students who elect to write a thesis are required to complete twenty-four semester hours in course work. The Student's Advisory Committee must recommend the thesis subject and outline to the Graduate Council for approval at least three months prior to the time the degree is expected to be awarded. The thesis must be completed one month before the time of graduation to assure the Advisory Committee of its acceptability.

DEPARTMENT OF EDUCATION AND PSYCHOLOGY

MAJOR

The candidate for the degree of Master of Arts in Education or the Master of Science in Education must either major or minor in Education.

The graduate program of the Department of Education and Psychology is designed to improve the competency in professional education of teachers holding positions in the elementary school and for teachers in academic and special subject fields in the secondary school.

The Department of Education and Psychology offers three major programs of study. These programs are: (1) for teachers in the elementary school; (2) for teachers in the secondary school; and (3) for college graduates who have not completed sufficient work in professional education to meet certification requirements.

The Department offers the necessary courses to meet requirements of the State Board of Education for approval as guidance counselors.

It is recommended that the teacher in senior high school, who has the Collegiate Professional Certificate, major in a subject field.
The candidate for the Master's degree who elects to major in Education must successfully complete (a) twenty-four semester hours of work and submit a thesis, or (b) thirty semester hours of work without a thesis. Education 230 is required of all students majoring in Education.

PROGRAM TO PREPARE TEACHERS FOR POSITIONS IN ELEMENTARY SCHOOLS

This graduate program of the Department of Education and Psychology is designed to improve the competency in professional education of teachers holding positions in the elementary school.

<table>
<thead>
<tr>
<th>Minimum Requirements</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Required courses</td>
<td></td>
</tr>
<tr>
<td>Education 184. Human Growth and Development</td>
<td>9</td>
</tr>
<tr>
<td>Education 191. The Elementary School Curriculum</td>
<td></td>
</tr>
<tr>
<td>Education 230. Research Methods in Education</td>
<td></td>
</tr>
<tr>
<td>2. Background courses essential for effective teaching in the elementary school are required and should be selected with the approval of the adviser from Education</td>
<td></td>
</tr>
<tr>
<td>Education 100A. Seminar in Education and Psychology: The Elementary School</td>
<td>9</td>
</tr>
<tr>
<td>Education 100B. Seminar in Education and Psychology: Educational Television</td>
<td></td>
</tr>
</tbody>
</table>
Education 100C. Seminar in Education and Psychology: The Total Reading Program

Education 125A. Teaching of a Subject Field: Language Arts

Education 125C. Teaching of a Subject Field: Reading

Education 167. Instruction

Education 220. Comparative Education

Education 260. The Teaching of the Exceptional Child

Education 270. Reading Difficulties: Their Diagnosis and Correction

Education 290. Reading and Research

Education 300. Thesis

3. In a field of interest outside Education to be determined by the Department concerned, courses appropriate to the background of an elementary teacher. 12

(12 hours in one field, or 6 hours in each of two related fields)

PROGRAM TO PREPARE TEACHERS, MAJORING IN EDUCATION, FOR POSITIONS IN SECONDARY SCHOOLS

This program provides a sequence of courses which will improve the competency in professional education of teachers holding positions in the secondary school.
### Minimum Requirements

1. **Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education 112</td>
<td>Secondary School Curriculum and Co-Curriculum</td>
<td>9</td>
</tr>
<tr>
<td>Education 128</td>
<td>The Psychology of Adolescence</td>
<td></td>
</tr>
<tr>
<td>Education 230</td>
<td>Research Methods in Education</td>
<td></td>
</tr>
</tbody>
</table>

2. **Background courses essential for effective teaching in the secondary school are required and should be selected with the approval of the adviser from Education**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education 100B</td>
<td>Seminar in Education and Psychology: Educational Television</td>
</tr>
<tr>
<td>Education 100C</td>
<td>Seminar in Education and Psychology: The Total Reading Program</td>
</tr>
<tr>
<td>Education 103</td>
<td>Philosophy of Education</td>
</tr>
<tr>
<td>Education 105</td>
<td>The Role of the School in Society</td>
</tr>
<tr>
<td>Education 116</td>
<td>Theory and Practice of Guidance</td>
</tr>
<tr>
<td>Education 167</td>
<td>Instruction</td>
</tr>
<tr>
<td>Education 220</td>
<td>Comparative Education</td>
</tr>
</tbody>
</table>
Semester Hours

Education 270. Reading Difficulties: Their Diagnosis and Correction

Education 290. Reading and Research

Education 300. Thesis

3. In a minor field of interest outside Education to be determined by the Department concerned, courses appropriate to the teaching field of the secondary school teacher. 12

Students who wish to major in a subject field should see pages 18-26, 45-65.

PROGRAM FOR COLLEGE GRADUATES WHO HAVE NOT COMPLETED THE NECESSARY COURSES IN PROFESSIONAL EDUCATION AND WHO WISH TO MEET CERTIFICATION REQUIREMENTS

This program provides a sequence of professional courses for college graduates who have not completed the necessary courses in professional education and who wish to qualify for the Collegiate Professional Certificate and for teaching positions in the public schools.

Sufficient undergraduate prerequisites for a strong background in professional education are required of all candidates before entering the graduate program.

Minimum Requirements

1. Required courses 12

   Education 140. Basis of Curriculum Development

   Semester Hours 30
Semester Hours

Education 167. Instruction
Education 184. Human Growth and Development
Education 230. Research Methods in Education

2. Education electives selected with the approval of the adviser in Education 6

Education 100A. Seminar in Education and Psychology: The Elementary School
Education 100B. Seminar in Education and Psychology: Educational Television
Education 100C. Seminar in Education and Psychology: The Total Reading Program
Education 103. Philosophy of Education
Education 104. Occupational and Educational Information
Education 105. The Role of the School in Society
Education 112. Secondary School Curriculum and Co-Curriculum
Education 118. Growth and Development During Childhood and Preadolescence
<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education 125A</td>
<td>Teaching of a Subject Field: Language Arts</td>
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</tr>
<tr>
<td>Education 125C</td>
<td>Teaching of a Subject Field: Reading</td>
<td></td>
</tr>
<tr>
<td>Education 128</td>
<td>The Psychology of Adolescence</td>
<td></td>
</tr>
<tr>
<td>Education 191</td>
<td>The Elementary School Curriculum</td>
<td></td>
</tr>
<tr>
<td>Education 220</td>
<td>Comparative Education</td>
<td></td>
</tr>
<tr>
<td>Education 260</td>
<td>The Teaching of the Exceptional Child</td>
<td></td>
</tr>
<tr>
<td>Education 270</td>
<td>Reading Difficulties: Their Diagnosis and Correction</td>
<td></td>
</tr>
</tbody>
</table>

3. In a minor field of interest outside Education to be determined by the Department concerned, courses appropriate to the teaching field of the candidate

4. A student who holds the Collegiate Certificate must earn six additional hours of graduate credit in an approved teaching internship in the public schools under supervision.

**PROGRAM FOR APPROVAL AS GUIDANCE COUNSELORS**

Qualifications for the Guidance Counselor as defined in the certification regulations for teachers of the State Board of
Education (Vol. 43, No. 1, July, 1960) include the following:

I. The Collegiate Professional Certificate.

II. One or more years of successful teaching experience.

III. A minimum of fifteen semester hours (preferably at the graduate level) in at least four of the following five areas, one of which must be in Counseling and one in Tests and Measurements:

- Principles and Practices of Guidance Counseling
- Counseling
- Tests and Measurements
- Occupational and Educational Information (including Curricula Offering)
- Understanding the Individual (in Relation to His Educational Needs)

IV. Personal qualities which merit the confidence and respect of pupils, parents, teachers, and school administrators.

The courses outlined below are designed to prepare students to meet the requirements of the State Board of Education for approval as Guidance Counselors for public schools in Virginia.

**Semester Hours**

<table>
<thead>
<tr>
<th>Minimum Requirements</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Required courses</td>
<td>18</td>
</tr>
</tbody>
</table>
Semester Hours

a. Education 104. Occupational and Educational Information
Education 137. Individual and Group Tests
Education 150. Techniques in Counseling
Education 210. Organization and Administration of Guidance Programs
Education 230. Research Methods in Education

b. Three hours to be selected from the following, with the approval of the adviser in Education:
Education 118. Growth and Development During Childhood and Preadolescence
Education 128. The Psychology of Adolescence
Education 184. Human Growth and Development

2. In a minor field of interest outside Education, to be determined by the Department concerned

The candidate for the Master’s degree who elects to major in a subject field and to minor in Education must successfully
complete a minimum of twelve semester hours of work. One course should be selected, with the approval of the adviser in Education, from each of the following four groups of courses.

<table>
<thead>
<tr>
<th>Semester Hours</th>
<th>Minimum Requirements</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. One of the following:</td>
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<tr>
<td></td>
<td>Education 118.</td>
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<tr>
<td></td>
<td>Growth and Development During Childhood and Preadolescence</td>
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<td></td>
<td>Education 128.</td>
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<tr>
<td></td>
<td>The Psychology of Adolescence</td>
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<tr>
<td></td>
<td>Education 184.</td>
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<tr>
<td></td>
<td>Human Growth and Development</td>
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<td></td>
<td>Education 260.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Teaching of the Exceptional Child</td>
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<td></td>
<td>2. One of the following:</td>
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<tr>
<td></td>
<td>Education 112.</td>
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<tr>
<td></td>
<td>Secondary School Curriculum and Co-Curriculum</td>
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<tr>
<td></td>
<td>Education 140.</td>
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<tr>
<td></td>
<td>Basis of Curriculum Development</td>
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<td></td>
<td>Education 167.</td>
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<tr>
<td></td>
<td>Instruction</td>
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<tr>
<td></td>
<td>Education 191.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Elementary School Curriculum</td>
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<tr>
<td></td>
<td>3. One of the following:</td>
<td>3</td>
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<tr>
<td></td>
<td>Education 100A.</td>
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<tr>
<td></td>
<td>Seminar in Education and Psychology: The Elementary School</td>
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<tr>
<td>Course Code</td>
<td>Course Title</td>
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</tr>
<tr>
<td>Education 100B</td>
<td>Seminar in Education and Psychology: Educational Television</td>
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</tr>
<tr>
<td>Education 100C</td>
<td>Seminar in Education and Psychology: The Total Reading Program</td>
<td></td>
</tr>
<tr>
<td>Education 105</td>
<td>The Role of the School in Society</td>
<td></td>
</tr>
<tr>
<td>Education 125A</td>
<td>Teaching of a Subject Field: Language Arts</td>
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</tr>
<tr>
<td>Education 125C</td>
<td>Teaching of a Subject Field: Reading</td>
<td></td>
</tr>
<tr>
<td>Education 220</td>
<td>Comparative Education</td>
<td></td>
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<tr>
<td>Education 240</td>
<td>The Fundamentals of Educational Administration</td>
<td></td>
</tr>
<tr>
<td>Education 250</td>
<td>Supervision of Instruction</td>
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</tr>
<tr>
<td>Education 260</td>
<td>The Teaching of the Exceptional Child</td>
<td></td>
</tr>
<tr>
<td>Education 270</td>
<td>Reading Difficulties: Their Diagnosis and Correction</td>
<td></td>
</tr>
<tr>
<td>Education 290</td>
<td>Reading and Research</td>
<td></td>
</tr>
</tbody>
</table>

4. One of the following: 3

Students who wish to major in a subject field should refer to pages 18-26, 45-65.
COURSE OFFERINGS

Education 100A. Seminar in Education and Psychology: The Elementary School.

Three credits.

This course offers the professional worker in the elementary school the opportunity to explore his role in terms of recent experimentation in elementary education.

Education 100B. Seminar in Education and Psychology: Educational Television.

Three credits.

This workshop-type experience will explore the role of television and the implications of this medium for education.

Education 100C. Seminar in Education and Psychology: The Total Reading Program.

Three credits.

The student enrolled in this course will explore the current approaches to the total reading program through workshop-type experiences.

Education 103. Philosophy of Education.

Three credits.

This course includes a critical survey of widely recognized theory regarding the nature and purpose of education in the Western World, with special emphasis upon such theory as it bears on and gives direction to educational policy and practice within the American democracy.

Education 104. Occupational and Educational Information.

Three credits.

A survey of the sources of occupational information and their use in counseling individuals and groups; the philosophy and principles
underlying the integration of occupational and educational guidance; the study of community job resources; and plant and industrial visits.

**Education 105. The Role of the School in Society.**

Three credits.

Interpretation of the school as society's agency for human betterment, with emphasis on cultural living. Some issues that arise in the organization and operation of the schools.

**Education 112. Secondary School Curriculum and Co-Curriculum.**

Three credits.

The principles and forms of curriculum organization, with appraisal of such curricula patterns as the subject-matter curriculum, the correlated, fused, core and experience curriculum are included in this course. Also considered are the techniques for reorganizing the curriculum; leadership in curriculum development, and participation of teachers in curriculum improvement.

**Education 116. Theory and Practice of Guidance.**

Three credits.

An overview of the philosophy and function of guidance in public schools, the role of the classroom teacher in the guidance program, and organization for adequate guidance services will constitute the framework of the course. Consideration will be given to topics such as case studies, record keeping, testing, use of occupational information, and techniques of counseling.

**Education 118. Growth and Development During Childhood and Preadolescence.**

Three credits.

The principles underlying the growth and development of boys and girls in the elementary school are explored in this course. Extensive reading and analysis of current research is required.
**Education 125A. Teaching of a Subject Field: Language Arts.**

Three credits.

This course considers teaching principles and techniques in particular subject fields for both elementary and secondary schools. The level of treatment is determined by the group enrolled and by the preferences of the instructor.

**Education 125C. Teaching of a Subject Field: Reading.**

Three credits.

This course considers teaching principles and techniques in particular subject fields for both elementary and secondary schools. The level of treatment is determined by the group enrolled and by the preferences of the instructor.

**Education 128. The Psychology of Adolescence.**

Three credits.

A study of the dynamics shaping the growth, development, and behavior of the adolescent and youth forms the basis of this course. Extensive analysis and appraisal of current research is required.

**Education 137. Individual and Group Tests.**

Three credits.

The development, administration, and interpretation of standardized tests are considered in this course, as well as the use of such tests in survey programs, in the evaluation of instructional efficiency, and in the planning and improvement of teaching procedures. *A course in Tests and Measurements is strongly recommended before enrolling in Education 137.*

**Education 140. Basis of Curriculum Development.**

Three credits.

This course is designed to help teachers determine what public
schools in a democratic society should teach. Also included is the preparation of curriculum guides in all subject fields at both the elementary and secondary school levels.

**Education 150. Techniques in Counseling.**

Three credits.

This course deals with the various techniques employed in the counseling process. Old and new viewpoints are considered and each student is encouraged to develop his own frame of reference.

**Education 167. Instruction.**

Three credits.

This course includes the following: The theory and practice of teaching in democratic school systems, techniques for studying children and youth; the group process in teaching; motivation of learning; teacher-student planning; the broad unit as a teaching instrument, the role of guidance in teaching; the cooperative appraisal of growth.

**Education 184. Human Growth and Development.**

Three credits.

This course deals with the principles basic to an understanding of the growth and development of human beings. The dynamics influencing behavior are explored. Techniques for studying behavior are considered and case materials analyzed.

**Education 191. The Elementary School Curriculum.**

Three credits.

This course includes a study of the current practices in curriculum development for the elementary school. The activity program, the fusion of various subject-matter areas, the core concept, the development of group activities, and the promotion of creative learning are also considered. Special emphasis is given the role of the teacher in curriculum development.

Three credits.

A consideration of the theory, organization, and personnel practices involved in organizing and administering guidance programs; the role of the guidance counselor; in-service education and program evaluation. Education 116, or its equivalent, is a prerequisite to this course.

Education 220. Comparative Education.

Three credits.

A comparison of the educational system and philosophy of the United States with those of specific foreign countries is included in this course. Although the emphasis is on recent trends and practices, attention is given to the social, economic, and political problems and developments which brought about progress.

Education 230. Research Methods in Education.

Three credits.

This course is designed to develop those skills, insights, and understandings which will enable the student to become both an intelligent consumer and an intelligent producer of educational research.

Education 240. The Fundamentals of Educational Administration.

Three credits.

This course deals with such topics as federal, state and local authority and control of education; financial support for public education; problems related to the administration and supervision of pupil personnel, teaching personnel, and of the instructional program.

Education 250. Supervision of Instruction.

Three credits.

In this course supervision is viewed as educational leadership in the improvement of instruction. The implications of research on the nature and scope of supervision are reviewed; current views on cooperative
planning of supervisory programs are analyzed; and the improvement of supervisory techniques studied.

**Education 260. The Teaching of the Exceptional Child.**

Three credits.

This course is designed to assist the classroom teacher in working with all types of deviant children. Methods of working with the bright, the gifted, the dull child, the brain injured, and the emotionally disturbed are explored.

**Education 270. Reading Difficulties: Their Diagnosis and Correction.**

Three credits.

This course is designed for teachers, principals, and supervisors who wish to develop remedial reading programs in their schools. Emphasis is given to administration and interpretation of diagnostic reading tests and to planning remedial teaching based on test results. Methods and materials for use in remedial teaching are demonstrated. (Offered alternate summers beginning 1960.)

**Education 290. Reading and Research.**

Three credits.

The student registered for this course is given an opportunity for directed reading and research in areas of his special interest. (Reading and Research may be done only in the major field of study.) **Pre-requisite: Education 230 or its equivalent.**

**Education 300. Thesis.**

Six credits.

A thesis in the major field of interest and completed to the satisfaction of the Student’s Advisory Committee and the Graduate Council may be submitted in partial fulfillment of the requirements for the Master’s degree. Students who elect to write a thesis are required to complete twenty-four semester hours in course work. The Student’s Advisory Committee must recommend the thesis subject and outline to
the Graduate Council for approval at least three months prior to the
time the degree is expected to be awarded. The thesis must be com-
pleted one month before the time of graduation to assure the Advisory
Committee of its acceptability.

DEPARTMENT OF ENGLISH

A student may elect to major in English in the Graduate
program at Madison. The requirements are as follows:

Major: A total of at least 18 semester hours in English is
needed, provided that the undergraduate background of
the student is sufficient to warrant his beginning gradu-
ate study in this field. (If undergraduate preparation
in English is insufficient, it will be necessary for the
student to take certain undergraduate English courses.)
These 18 hours must include the following required
courses:

English 101. Growth and Structure of the English
Language

English 120. The Practice of Literary Criticism

English 201. Shakespeare

Nine additional hours in English may be elected from
the courses offered by the department. The student may
elect English 300 (Thesis) with a credit of six semester
hours and one other English course, or if he does not wish
to write a thesis he may elect three additional courses in
English.

The major in English is also required to take twelve hours
in Education distributed as recommended by the Depart-
ment of Education.
Minor: Twelve hours of English are required for a minor. Two courses are prescribed, as follows:

English 101. Growth and Structure of the English Language

English 120. The Practice of Literary Criticism

An additional course for the minor is to be chosen from the graduate offerings in English.

**English 101. The Growth and Structure of the English Language.**

Three credits.

An introduction to the history of the English language with attention to the changing forms of speech as reflected in morphology, phonology, syntax, and semantics. Reading and research in special phases of historical and descriptive grammar.

**English 120. The Practice of Literary Criticism.**

Three credits.

The history and theories of literary criticism are given brief attention. The major emphasis of the course, however, is upon critical examination and analysis, both oral and written, of representative poems, short stories, and dramas. Students are given ample opportunity to practice literary criticism.

**English 130. Studies in American Literature.**

Three credits.

A study of literary movements and significant authors of several of the periods of American literature will be made in different years.

**English 140. Poetry and Prose of the English Renaissance.**

Three credits.

The major literary expressions of the English Renaissance from the rise of humanism to Milton, excluding Shakespeare.
ENGLISH 150. Modern Drama.

Three credits.

A study of the representative plays of modern and contemporary dramatists, beginning with Ibsen, Shaw and O'Neill. Wide reading in the works of the chief contemporary dramatists will be required.


Three credits.

A study of selected authors and movements in the poetry and prose of the Seventeenth Century. Especial attention to Metaphysical poetry and to the development of modern English prose style.


Three credits.

A study of romanticism in the works of the precursors, Wordsworth, Coleridge, Byron, Shelley, Keats, and others. The choice of authors to be studied may vary in different years.

ENGLISH 190. Studies in Old English.

Three credits.

The Old English language with readings in selected poetry and prose of the period.

ENGLISH 201. Shakespeare.

Three credits.

A study of selected plays by Shakespeare, either of the tragedies and histories or of the comedies and histories.

ENGLISH 210. Studies in Middle English Literature.

Three credits.

Selected examples of Middle English literature from the Norman Conquest to the introduction of printing.

Three credits.

A study of several major authors of the neo-classical period will be made in the context of the cultural and intellectual currents of the time. In some years Dryden, Swift, and Pope will receive chief attention; in others, Dr. Johnson and his contemporaries.

ENGLISH 230. Studies in English Literature of the Nineteenth Century.

Three credits.

The course considers the works of several major authors of the century. The choice of authors for study will vary in different years.

ENGLISH 240. Studies in Contemporary Literature.

Three credits.

Poetry and fiction of the most significant contemporary authors will be examined. Choice of authors studied will vary in different years.

ENGLISH 280. Reading and Research.

Three credits.

Opportunity is given the individual student for supervised reading and research in the literature of his special interest. (Reading and Research may be done only in the major field of study.)

ENGLISH 300. Thesis.

Six credits.

A thesis in the major field of interest and completed to the satisfaction of the Student's Advisory Committee and the Graduate Council may be submitted in partial fulfillment of the requirements for the Master's degree. Students who elect to write a thesis are required to complete twenty-four semester hours in course work. The Student's
The Advisory Committee must recommend the thesis subject and outline to the Graduate Council for approval at least three months prior to the time the degree is expected to be awarded. The thesis must be completed one month before the time of graduation to assure the Advisory Committee of its acceptability.

DEPARTMENT OF HOME ECONOMICS

To satisfy the increasing demand for graduate education in all fields of home economics, the department at Madison College offers a limited number of advanced courses.

The graduate courses may be applied toward a minor for the Master's degree.

The graduate courses may be used for renewal of teaching certificates.

Twelve hours of graduate work in home economics constitute a minor.

Home Economics 110. Family Financial Problems.

Three credits.

Analysis of money expenditures of the family in the United States and the use of the family income. Consumer's markets, standards, labels, will be studied with the latest research information on houses, equipment, food, clothing and savings. Prerequisite: Undergraduate course in economics.

Home Economics 120. World Nutrition Needs and Food Resources.

Three credits.

The major world nutrition problems of today are analyzed. Identifying causative factors and investigating corrective measures are an integral part of the course.
Home Economics 140. Clothing Construction Techniques.

Three credits.

The newer techniques in both custom and fast methods of clothing construction are studied. Emphasis is placed on fittings, underlinings, and finishing details. Garments are constructed incorporating the techniques studied. Prerequisite: Home Economics 40 or equivalent.


Three credits.

Review and interpretation of the literature in the field of food and food research. A critical analysis is made of recent developments in new food products. Prerequisite: Home Economics 20 and Home Economics 60 or equivalent. (Offered Summer 1964.)

Home Economics 239. Seminar in Textiles.

Three credits.

Recent trends in textile developments affecting characteristic behavior of old and new fibers as reported in current literature. Study in selection and care for specific consumer needs. Problems in construction involving principles of new fabric use. Study of production and distribution. Field trips. Prerequisite: Home Economics 39 (Textiles) or equivalent. (Offered Summer 1965.)

Home Economics 276. The Sociology of the Family.

(Also listed as Social Science 276.)

Three credits.

The American family is studied in its structural aspects. Primary emphasis is upon the middle class family by reference to the husband-wife, parent-child, and in-law relationships. Family behavior is related to occupational structure, religious orientation, educational patterns and social stratification.

Home Economics 279. Seminar in Vocational Home Economics Education.

Three credits.

A study is made of the contribution of home economics to American
can education. A critical examination is made of trends and issues in curriculum development, instruction, guidance, evaluation, supervision, and research. Prerequisite: Home Economics Education 79 (Vocational Home Economics) or equivalent.

**Home Economics 280. Seminar in Supervision of Student Teachers in Vocational Home Economics.**

Three credits.

A study of the field of supervision including such topics as the nature and function of supervision, in-service improvement of teachers, techniques of classroom visitation, teaching ratings, teachers' meetings, human relations, and the selection of training centers. Prerequisites: Bachelor's degree, teaching experience in vocational home economics.

**Department of Mathematics**

**Major:** For a major in mathematics a minimum of eighteen semester hours in graduate mathematics courses is required. This must include:

Mathematics 220. Introduction to Analysis

and at least one course from each of the following two groups of courses.

A. Mathematics 120. Foundations of Geometry
   Mathematics 125. Modern Geometry

B. Mathematics 110. Fundamental Concepts of Algebra
   Mathematics 130. Introduction to Abstract Algebra
   Mathematics 230. The Algebra of Vectors and Matrices
The remainder of the major program will consist of electives from the graduate offerings in mathematics, chosen in consultation with the head of the department.

*Minor*: For a minor, a minimum of twelve semester hours of graduate courses in mathematics is required. At least one course must be chosen from Group A and at least one from Group B.

**Mathematics 100. Foundations of Mathematics.**

Three credits.

This is an introductory study of the logical structure of mathematics. It is concerned with the place of logical reasoning and the significance of logical structure in both mathematical and scientific thought. Modern postulational concepts and methods will be investigated.

**Mathematics 110. Fundamental Concepts of Algebra.**

Three credits.

Attention is given to the fundamental concepts and postulates which form the foundations of algebra. The complex number system and the elementary theories of numbers, polynomials, and equations are developed using the concepts and terminology of modern algebra.

**Mathematics 120. Foundations of Geometry.**

Three credits.

A study of the structure of Euclidean geometry and the role of logic in geometric proof. Different systems of axioms are studied as a basis for the development of Euclidean geometry.

**Mathematics 125. Modern Geometry.**

Three credits.

A study of the relationships among the different geometries using both synthetic and algebraic methods. The axiomatic structure of
Mathematics 130. Introduction to Abstract Algebra.

Three credits.

This course is a brief introduction to abstract algebra. It includes a discussion of finite arithmetics, the integers and polynomials, vectors, vector spaces, and fields. Numerous examples will be given to help connect the abstract with the familiar.

Mathematics 150. Theory of Numbers.

Three credits.

Topics in elementary number theory including properties of integers and prime numbers, divisibility of numbers, simple Diophantine equations, congruences and residues.


Three credits.

An introductory course in the theory of probability and statistical inference. Probability; discrete and continuous frequency distributions; sampling theory; tests of hypotheses; correlation and regression.

Mathematics 220. Introduction to Analysis.

Three credits.

A survey of the fundamental concepts of the Calculus, including sequences, limits, continuity, and differentiability.


Three credits.

An introduction to vector and matrix algebra in the setting of modern algebraic theory. Vectors of 2 and 3 dimensions are discussed. Both the theory and application of matrices are considered.
Mathematics 280. Reading and Research.

Three credits.

Opportunity is given the individual student for supervised reading and research in areas of his special interest. (Reading and Research may be done only in the major field of study.)

DEPARTMENT OF MUSIC

Music and music education is offered as either a major or a minor field of specialization for the degree of Master of Arts in Education. The candidate who elects to major in music must complete twelve semester hours in music courses and submit a thesis or complete eighteen semester hours in music courses. Candidates who elect to minor in music must complete twelve semester hours in music courses. Music majors will be expected to have completed an undergraduate major, and music minors an undergraduate minor, in music.

Minimum requirements for a music major

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<tr>
<th>Semester Hours</th>
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<tr>
<td>Required courses</td>
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<tr>
<td>1. Music Education 210</td>
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<td>2. One of the following: Music 113, 114, or 115</td>
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<td>3. One of the following with the approval of the music department adviser: Music 110, 111, 121, 135, 137, Music Education 145, Music Education 211</td>
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Electives

Selected, according to student’s interests, from other music courses listed.
Minimum requirements for a music minor

<table>
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**Required courses**

1. Music Education 210 3
2. One of the following with the approval of the music department adviser:
   - Music 113, 114, or 115
   - Music 110, 111, 121, 135, 137, or Music Education 145 3

**Electives**

Selected from other music courses listed.

**Music 110. Choral Materials and Techniques.**

Three credits.

A study of the problems, materials, and techniques of teaching choral music in the high school. Laboratory experiences will be provided at the Virginia Music Camp at Massanetta Springs.

**Music 111. Instrumental Materials and Techniques.**

Three credits.

A study of the problems, materials, and techniques of teaching instrumental music in the high school, with emphasis on orchestra. The orchestra of the Music Camp at Massanetta Springs will provide laboratory experience and opportunities for observation.

**Music 113. Music of the Baroque and Classical Periods.**

Three credits.

A study of vocal, instrumental and organ music of the Baroque Period beginning with the late Renaissance composers Monteverdi, G.
Gabrielli and Sweelinck and culminating in Bach and Handel; the Mannheim School; the pre-classical Viennese composers; Gluck, Haydn, Mozart, Beethoven.


Three credits.


Three credits.

A survey of the trends found in twentieth-century music. Impressionism; “New Music” from Satie to Schoenberg, Bartok, and Hindemith. The music of contemporary American composers. Undergraduate students may enroll with permission of the instructor.

Music 120. Music of the Church.

Three credits.

A study of some of the most common problems of the church musician. Special emphasis will be placed on organ registration, repertory, and service playing; on choirs and choral literature; and on appropriate music for the church year. Students may work along one or more of these lines, according to their interests.

Music 121. Instrumentation.

Three credits.

The arranging of music for orchestra, band, and various ensemble groups. Styles in arranging, range and characteristics of the different instruments, and instrumentation for various types of musical composition.
Music 122. Modern Harmony and Composition.

Three credits.

A study of the harmonic, contrapuntal and other stylistic devices of the twentieth-century composer and their application in creative writing by the student who wishes to acquire a technique in the contemporary idiom.

Composition in both small and larger forms depending upon the talent and background of the student. This course is not only for the talented composition student but also for the teacher and performer who desires an increased understanding of our contemporary music.

Music 123. Modern Harmony and Composition.

Three credits.

A sequel to Music 122. One course may be taken without the other and either may be elected first.


One credit.

Four semester hours of credit in applied music—piano, voice, organ, and an orchestral instrument—may be offered toward the Master's degree. Graduate students will be encouraged to study applied music, and work will be suited to their individual needs.

Music 135. Advanced Conducting (Choral and Instrumental).

Three credits.

Prerequisite—Music 77-78 or equivalent.

Refinement of baton technique.

Score reading. Specific problems selected from standard works. Practical experience with choral and instrumental groups.

Music 136. Master Class in Piano.

Three credits.

Emphasis will be placed on a broadened knowledge and use of
teaching materials and techniques, on repertory and on improving
student's own performance. Students who are more interested in teach-
ing may concentrate on phases of pedagogy in lieu of performance.

Music 137. Instrumental Techniques.

Two credits.

This course is designed for instrumental music teachers who need
further help with one specific instrument or group of instruments.
Members of the group will work together and separately, each on his
special concentration.

Music Education 141. Problems in Music Education.

Three credits.

This course is designed to consider some of the problems most
often found in teaching of music, and will deal to a large extent with
particular interests and needs of members of the group. It will include
work on both elementary and secondary levels, with appropriate study
of materials and procedures for teaching.

Music Education 145. Music Education Seminar:
Principles and Practices in
Elementary School Music.

Three credits.

This course will deal with broader concepts of music in the
elementary school and with ways of achieving a more coordinated,
more continuous, and more complete program. The first week of the
course will be devoted to complete participation in and exploration of
this aspect of the Virginia Music Camp and Workshop at Massanetta
Springs.


Three credits.

The study of representative works from all periods in terms of
their formal and stylistic characteristics. Stylistically the analysis will
include a consideration of the following: melodic and rhythmic ele-
ments, harmonic and contrapuntal techniques, texture (in its many
ramifications), orchestration (vocastration) and the interrelation of these elements in the forms as a whole. Finally the study will view each work as a product of a definite aesthetic concept.


Three credits.

This course deals with psychological factors involved in the teaching of music, with individual measurements in music, and with more recent developments in music education. It is designed to include work which is significant to all branches of music teaching.

Music Education 211. The Supervision and Administration of Music.

Three credits.

The supervision of teachers of music; administrative responsibilities of music teachers and supervisors. The role of the supervisor of music in the schools.

Music Education 212. Projects in Music Education.

Three credits.

Students who elect this course will select, formulate, carry through and evaluate a specific project in the teaching of music in their own schools. Registration may be for Fall or Spring Term; periodic conferences and reports will be arranged.

Music 300. Thesis.

Six credits.

A thesis in the major field of interest and completed to the satisfaction of the Student's Advisory Committee and the Graduate Council may be submitted in partial fulfillment of the requirements for the Master's degree. Students who elect to write a thesis are required to complete twenty-four semester hours in course work. The Student's Advisory Committee must recommend the thesis subject and outline to the Graduate Council for approval at least three months prior to the time the degree is expected to be awarded. The thesis must be com-
DEPARTMENT OF PHYSICAL AND
HEALTH EDUCATION

The graduate programs in physical education and health education are designed to promote competency in teaching and administration, to improve the quality and understanding of research, and to provide advanced instruction in specialized areas.

A candidate for the Master's degree may elect to major in physical education. For this purpose the requirements are thirty semester hours in the major field including:

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<tr>
<td>A. Physical Education 206. Problems in Physical Education 3</td>
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and

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<th>Semester Hours</th>
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<td>B. One of the following:</td>
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| Physical Education 110. Evaluation and Measurement in Physical Education 3 |
| Physical Education 204. Analysis of Movement |
| Physical Education 205. Seminar and Laboratory in Movement |

and

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<th>Semester Hours</th>
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<td>C. Two of the following:</td>
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| Physical Education 107. Intramural and Extramural Sports 6 |
Physical Education 112. Creative Dance Materials

Physical Education 185. Administration of Physical Education

Physical Education 187. Adapting Activities for the Exceptional Child

Physical Education 208. Advanced Coaching and Officiating Techniques

A thesis is strongly recommended and may be presented for six hours of credit; in lieu of a thesis a student may submit six credit hours of class work.

Graduate students are advised to elect a course in health because of the close association of the two fields for teaching certification and in the public schools.

Candidates may minor in physical education and they may elect courses in health education. For a minor in physical education, Physical Education 185 or Physical Education 206 is required.

Other courses in the major and minor will be selected with the assistance of the head of the department.

A. Physical Education

Physical Education 107. Intramural and Extramural Sports.

Three credits.

History of sports in American culture; basic philosophies and resulting policies and practices in sports; the modern sports program in education and in recreation.
Physical Education 110. Evaluation and Measurement in Physical Education.

Three credits.

The emphasis will be upon physiological and kinesiological tests stressing those of endurance, skill and motor ability. The course will provide experience in the use of these tests.

Physical Education 112. Creative Dance Materials.

Three credits.

The exploration and evaluation of creative dance materials for different age and ability levels; practical experience in the use of these materials.

Physical Education 185. Administration of Physical Education.

Three credits.

This course deals with personnel, facilities, equipment, use of time and space, and financial matters. Both the instructional and recreational phases of the physical education program are included.


Three credits.

The course investigates the problems of the exceptional child with special emphasis on those of an orthopedic nature. Observations are scheduled in clinics, hospitals, and schools.

Physical Education 204. Analysis of Movement.

Three credits.

A study of scientific principles basic to kinesiology and their application to complex and advanced levels of motor performance.
PHYSICAL EDUCATION 205. SEMINAR AND LABORATORY IN MOVEMENT.

Three credits.

The course is conducted through observation, participation, and experimentation in laboratory situations and through directed study, discussion, and research. Problems will include several areas of movement.

PHYSICAL EDUCATION 206. PROBLEMS IN PHYSICAL EDUCATION.

Three credits.

A survey of current problems in the field; exploration through literature and published research; investigation of a selected problem.

PHYSICAL EDUCATION 208. ADVANCED COACHING AND OFFICIATING TECHNIQUES.

Three credits.

A study of coaching techniques with particular regard to conditioning techniques, standards governing ethics, and healthful practice. The course includes a review of officiating techniques and rules interpretation.

PHYSICAL EDUCATION 300. THESIS.

Six credits.

A thesis in the major field of interest and completed to the satisfaction of the Student's Advisory Committee and the Graduate Council may be submitted in partial fulfillment of the requirements for the Master's degree. Students who elect to write a thesis are required to complete twenty-four semester hours in course work. The Student's Advisory Committee must recommend the thesis subject and outline to the Graduate Council for approval at least three months prior to the time the degree is expected to be awarded. The thesis must be completed one month before the time of graduation to assure the Advisory Committee of its acceptability.
B. Health Education

Health 103. The Health Program in School and Community.
Three credits.
A study of the major influences on an individual’s health, the programs of each in the school and the community, and the interrelationships of these programs.

Health 115. Recent Developments in Health.
Three credits.
A study of the recent contributions of science and medical and public health services to the field of health education; current health problems and trends.

SCIENCE

The Division of the Natural Sciences is offering the following program in science to give those elementary teachers who are interested in science an opportunity to obtain a minor in science in the graduate program. This minor is limited to elementary teachers.

Students electing this minor will be required to take the three courses listed below and one additional science course. These courses will enable the elementary teacher to become acquainted with three areas of scientific progress from which practical techniques as well as theoretical foundations may be learned.

Biology 100. Vertebrate Ecology.
Three credits.
A course designed to acquaint students with fundamental relationships existing between animals and their environment. Emphasis will be placed on the dynamic aspect of ecology and its importance to
mankind. The laboratory will consist of group discussion sessions and selected field trips throughout the Shenandoah regions.

**Physical Science 100. Earth Science.**

Three credits.

A course designed to familiarize the graduate student with the basic aspects of most branches of geology. Emphasis is upon materials and structure of the earth, and how rock units are shaped into their scenic expression.

**Physical Science 101. Matter and Energy.**

Three credits.

This course is intended to give graduate students planning to teach in the elementary school an understanding of one of the major physical science problems facing mankind. Emphasis is placed on matter and energy as unifying concepts in the physical sciences. The course is taught jointly by staff members of the Chemistry and Physics Departments.

**DEPARTMENT OF SOCIAL SCIENCE AND HISTORY**

A student may elect to major or minor in Social Science and History in the Graduate Program.

**Major—18 hours required.**

9 credit hours concentration in one Social Science subject to be selected from: Economics, Geography, History, Political Science, or Sociology, *and*

9 credit hours in at least two other social science subjects.

**OR**
12 hours credit in one social science subject to be selected from: Economics, Geography, History, Political Science, or Sociology, and

6 hours credit in a thesis.

Minor—12 hours required.

In order to minor in Social Science and History, the student must complete twelve semester hours from any courses listed in the Graduate catalogue.

COURSE OFFERINGS IN ECONOMICS, GEOGRAPHY, POLITICAL SCIENCE, HISTORY AND SOCIOLOGY

A. Economics

1. Social Science 100. Economics Seminar.

   Three credits.

   This course is designed to highlight the American free enterprise system. Students will participate in field trips to examine how our economic system operates at the production level. Lectures and demonstrations in the field will include visits to major representative industrial plants.

   Enrollment is limited. On account of the field trips, a special non-refundable fee of twenty-five dollars ($25.00) must be paid in advance to the Head of the Department of Social Science and History. This special fee will be in addition to the regular registration fees for the course which are payable to the Business Office. The course will be offered during Intersession only.


   Three credits.

   The role of economics in national and world affairs is analyzed and special attention is given to international trade, distri-
bution of wealth, income, taxation and public debt, recurrent major depressions and periods of prosperity, and types of economic systems.

3. **Social Science 230. Seminar in American Business.**

Three credits.

Comprehensive review of current books, magazines, and materials in the areas of Marketing, Banking, Taxation, Selling, Exchanges, Economic Conditions, and other areas essential to improved business understanding. (Also listed as Business Education 230.)

4. **Social Science 260. Economic Systems of the World.**

Three credits.

The major types of economic systems, Socialism, Communism, Fascism and Capitalism, will be analyzed and compared with special attention given to national and world affairs and international relations. The distribution of wealth and income, public debt, and business cycles will be explained and compared.

5. **Social Science 280. Reading and Research.**

Three credits.

Opportunity is offered the individual student for reading and research in the areas of economics which are of special interest to the student. *(Reading and Research may be done only in the major field of study.)*

6. **Social Science 300. Thesis.**

Six credits.

A thesis may be submitted in partial fulfillment of the requirements for the Master's degree. The Student’s Advisory Committee must recommend the thesis subject and outline to the Graduate Council for approval. The thesis must be completed one month before the time of graduation to assure the Advisory Committee of its acceptability.
B. **Geography**

1. **Social Science 110. Geography Seminar.**

   Three credits.

   This course is designed to acquaint the student with the relationship of geography to the other social sciences. The course will emphasize economic aspects of geography. Students will participate in field trips to selective industrial and transportation sites.

   Enrollment is limited. On account of the field trips, a special non-refundable fee of twenty-five dollars ($25.00) must be paid in advance to the Head of the Department of Social Science and History. This special fee will be in addition to the regular registration fees for the course which are payable to the Business Office. The course will be offered during Intersession only.

2. **Social Science 160. Political Geography.**

   Three credits.

   A detailed study of the world's pressure areas based upon cause and effect of political tensions from a geographic frame of reference. Principles of political geography will be discussed in detail and will then be applied to tension areas, past as well as present, while special reference will be made to the geographic causes which helped to create post World War I problems.

3. **Social Science 180. Cultural Geography.**

   Three credits.

   A systematic as well as regional study of the world's cultures as based upon differences and similarities of the geographic environment on a global scale. Emphasis will be on the distribution of population and the problems which have arisen from this distribution.

4. **Social Science 190. The Tropical World.**

   Three credits.

   This course is designed to highlight the areas of the world...
bordering on the Equator, including Central Africa, Southeastern Asia, Central and Northern Latin America and the Pacific. Students will study the physical environment in relationship with the cultural and social characteristics that together make these areas part of the present world political struggle.

5. Social Science 280. Reading and Research.

Three credits.

Opportunity is offered the individual student for reading and research in the areas of geography which are of special interest to the student. (Reading and Research may be done only in the major field of study.)


Six credits.

A thesis may be submitted in partial fulfillment of the requirements for the Master's degree. The Student's Advisory Committee must recommend the thesis subject and outline to the Graduate Council for approval. The thesis must be completed one month before the time of graduation to assure the Advisory Committee of its acceptability.

C. Political Science


Three credits.

This course is designed to acquaint the student with the functions and operations of various branches and agencies of American Government. Lectures and demonstrations in the field will include visits to agencies and departments in Washington, D.C.

Enrollment is limited. On account of the field trips, a special non-refundable fee of twenty-five dollars ($25.00) must be paid in advance to the Head of the Department of Social Science and History. This special fee will be in addition to the regular registration fees for the course which are payable to the Business Office. The course will be offered during Intersession only.
2. **Social Science 150. Problems in State and Local Government.**

Three credits.

This course will focus attention on the major problems faced by local and state governments. The problems will include political leadership, operation of the courts, police power, fiscal problems, metropolitan areas and others.

3. **Social Science 210. Modern Political Theory.**

Three credits.

This course is designed to highlight the major contributions to the development of political thought. Included will be the political theories from the time of Machiavelli to the present.

4. **Social Science 250. Comparative World Governments.**

Three credits.

This course is designed to acquaint the student with the governmental forms and structures of the major world powers. A comparison is made between the American Federal Government and the governments of Russia and England.

5. **Social Science 280. Reading and Research.**

Three credits.

Opportunity is offered the individual student for reading and research in the areas of government which are of special interest to the student. *(Reading and Research may be done only in the major field of study.)*

6. **Social Science 300. Thesis.**

Six credits.

A thesis may be submitted in partial fulfillment of the requirement for the Master's degree. The Student's Advisory Committee must recommend the thesis subject and outline to the Graduate Council for approval. The thesis must be completed one
month before the time of graduation to assure the Advisory Committee of its acceptability.

(D. History

1. Social Science 125. The United States From 1800-1850.

Three credits.

This course offers an opportunity for a thorough study of selected topics from this period of United States History. Research papers, lectures and class discussions will deal with the subjects chosen.

2. Social Science 135. The Twentieth Century World.

Three credits.

This course deals with the major political, economic, and social developments from the beginning of the present century to the contemporary period. The material will provide students with a background for understanding contemporary world affairs.


Three credits.

This course deals with the period through the Revolution. Research papers, lectures, and class discussions will offer an opportunity for a thorough study of selected topics.


Three credits.

This course offers an opportunity for the study of selected subjects and periods from earliest times to the present. Topics include pre-history, the Age of Exploration, the Protestant Reformation, the Industrial Revolution, and other important periods and situations.
5. **Social Science 280. Reading and Research.**

Three credits.

Opportunity is offered the individual student for reading and research in the areas of history which are of special interest to the student. (*Reading and Research* may be done only in the major field of study.)

6. **Social Science 300. Thesis.**

Six credits.

A thesis may be submitted in partial fulfillment of the requirements for the Master’s degree. The Student’s Advisory Committee must recommend the thesis subject and outline to the Graduate Council for approval. The thesis must be completed one month before the time of graduation to assure the Advisory Committee of its acceptability.

E. **Sociology**

1. **Social Science 178. Community Analysis.**

Three credits.

Representative community studies are read as an aid in the development of theories of community organization. A detailed analysis is made of the relationship between social stratification and occupation, family, religion, political behavior and education.

2. **Social Science 270. Social Change.**

Three credits.

An analysis is made of the dynamics of social behavior by reference to changes in value orientation, technology, population characteristics, power structure, system of stratification, and communication techniques.

3. **Social Science 276. The Sociology of the Family.**

Three credits.

The family is studied in its structural aspects. Primary eme
phasis is upon the husband-wife, parent-child, and in-law relationships. Family behavior is related to occupational structure, religious orientation, educational patterns, and social stratification. (Also listed as Home Economics 276.)

4. **Social Science 280. Reading and Research.**

Three credits.

Opportunity is offered the individual student for reading and research in the areas of sociology which are of special interest to the student. (*Reading and Research* may be done only in the major field of study.)

5. **Social Science 300. Thesis.**

Six credits.

A thesis may be submitted in partial fulfillment of the requirements for the Master's degree. The Student's Advisory Committee must recommend the thesis subject and outline to the Graduate Council for approval. The thesis must be completed one month before the time of graduation to assure the Advisory Committee of its acceptability.
For further information concerning graduate study at Madison College write:

Percy H. Warren, Dean
Madison College
Harrisonburg, Virginia