

REQUIREMENTS FOR GRADUATION

Basic Requirements

At Morgan State College the basic requirements for graduation are established in order to assure that every student has experience in the broad areas of human knowledge. With such experience it is believed that the student will be better able to communicate with other cultured people with similar background and will arrive at a better understanding of the social and material world in which he lives.

In addition to achieving the minimum and major requirements, the students must earn at least 128 credits and 256 quality points.*

I. Tools of Learning

The student is expected to demonstrate a level of proficiency in the basic tools of learning which will enable him to proceed at a normal rate. Where tests reveal that the student is deficient in skills such as reading, writing, arithmetic, or speech, he must enter remedial courses in these areas.

II. English Composition 101-102 — 6 credits

The student is placed in a section of English Composition in accordance with his standing on a qualifying examination. The student must complete the work of his section with a minimum grade of "C."

III. Social Science — 12 credits distributed as follows: Six credits in History of Civilization 101-102 and 6 credits selected from the following fields — economics, sociology, political science, geography.

IV. Foreign Language — 6-12 credits

Students who plan to major in biology, chemistry, English, history, political science, sociology, psychology, economics, physics, or music education must pursue from 6 to 12 hours of a foreign language depending upon the high school credits in language submitted at time of admission. Students who demonstrate superior ability in reading a language may be excused from this requirement.

V. Humanities — 10 credits selected in terms of student interest and background. Either of the following groups may be selected:

1. Humanities 101-102 — 10 credits
2. English 125-126 or 127-128 — 6 credits and one course in each of the following groups: Music 181 or Art 103 (2 credits); Philosophy 102, 103 or 110 (2 credits).

*These requirements apply to students who enter in June 1954 and thereafter. Students entering prior to this time are governed by the requirements as published in 1952-53, except for the change in grade point value already noted.

VI. Science — 6 credits

Three credits in Biological Science 101, 3 credits in Physical Science 102 or 8 credits in a laboratory science — chemistry or biology.

VII. Health and Physical Education — 6 credits

This requirement includes 2 credits in health education and 4 credits in physical education.

VIII. Military Science and Tactics — 8 credits.

NOTE: This requirement applies only to male students of freshman and sophomore classification.

To meet the basic requirements for graduation from Morgan State College, a student must earn a minimum of 16 credits in Division I, 12 credits in Division II, and 12 credits in Division III. See page 76 for description of basic requirements for graduation.

From Division I 16 credits

English 101-102, Humanities 101-102, or English 125-126, English 127-128, Art 103, Music 181, Philosophy 102, 103 or 110.

From Division II 12-14 credits

Science 101-102 or a laboratory science — Biology 101-102, Chemistry 101-102, or Physics 101-102, Health Education 100, Physical Education 101-102 and 4 credits elected from the following — Physical Education 201, 202, 120, 140, 190.

From Division III 12 credits

History 101-102; 6 credits selected from among economics, sociology, political science or geography.

Major Requirements

A candidate for graduation must complete from 30 to 50 semester hours in a field of concentration in addition to the basic requirements. The required courses for each major are listed under the heading of each department in which a major is offered. The quality points must equal twice the number of semester hours earned.

A major must be selected in the sophomore year, and any change thereafter in the major field must be approved by the consultant of the department and the Dean and recorded in the Office of the Registrar.

Elective Requirements

The department head will assist the student in choosing additional courses to complete 128 semester credit-hours. Such courses may be directly related to the department major or may be selected from other departments in terms of the personal needs and interests of the individual student. The quality points must equal twice the number of semester-hours earned.

HOMES ECONOMICS EDUCATION

101. Home Economics Survey — One hour lecture; 1 credit.

This course covers the development of home economics and professional opportunities in this field. It is required of all majors.

200. Home Economics Seminar — One hour lecture; 1 credit.

This course is designed to help encourage advanced students to secure a broad, dynamic and functioning concept of newer trends and practices and understanding of current research in the field of home economics. It is required of all seniors.

201. Consumer Economics — Two hours lecture; 2 credits.

This course deals with the investigation of conditions and laws affecting the production, distribution and consumption of wealth or material as a means of satisfying human desires which directly affect the consumer.

254. Methods of Teaching Home Economics — Three hours lecture; 3 credits.

See Department of Education for description, page 152.

255. Problems in Teaching Home Economics — Three hours lecture; 3 credits.

See Department of Education for description, page 152.

258. Observation and Student-Teaching — 6 credits.

See Department of Education for description, page 152.

DEPARTMENT OF MATHEMATICS

PROFESSOR STEPHENS, *Head of the Department*

PROFESSORS MISHOE; SAUNDERS; ASSOCIATE PROFESSOR CORNISH;
ASSISTANT PROFESSOR PROCTOR; INSTRUCTORS FORD, WILLIAMS

Objectives of the Department

It is the purpose of the department to assist students to develop an appreciation of the power, orderliness of thought and precision of expression in mathematics and to provide training in mathematics necessary for the study of other subjects. In this process ideals of perfection as to logical structure and correct mental habits will be formed. Students who complete a major in the department are prepared to teach mathematics on the secondary level and to become mathematicians in government services and industry. A proper distribution of courses will enable the student to meet admission requirements of professional schools of mathematics.

Requirements for a Major in Mathematics:

Students desiring a major in mathematics must earn thirty semester hours of mathematics distributed according to either of the two sequences depending upon the needs of the student: (1) Mathematics 111, 121, 126, 141-142, followed by at least 12 hours of mathematics, 6

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on the 200 level, or (2) Mathematics 113-114, 141-142, and at least 14 hours of mathematics, 6 on the 200 level. In general, majors should complete Mathematics 142 by the end of the sophomore year and they usually will take considerably more courses in mathematics on the 200 level than required. No credit toward a major in mathematics will be given for courses numbered below 111. The supporting course is Physics 101-102. Majors are strongly urged to include German and French among their electives.

Students are assigned beginning courses in mathematics according to their performance on the general classification test given to all entering freshmen during registration.

Qualified students who plan to major in mathematics, chemistry, biology, physics, economics, psychology or science education should elect Mathematics 113-114. A student who receives credit for Mathematics 113-114 cannot thereafter receive credit for Mathematics 111, 121 or 126. Also, a student cannot receive credit for Mathematics 110 if he has previously received credit for any course in mathematics numbered above 110. High school deficiencies may be removed by passing Mathematics 110. In this case no college credit will be given.

Pre-engineering students should register in the Mathematics Department.

C 101. Solid Geometry — Three hours; 3 credits.

The properties of the straight line and plane, the polyhedron, cylinder, cone and sphere are studied. This course is not open to students who present admission credit in Solid Geometry. Prerequisite: Mathematics 100a or equivalent.

110. Fundamentals of Mathematics — Four hours; 4 credits.

This course is designed for those students with limited mathematical background. Emphasis is placed upon teaching students how to study mathematics. Some of the topics from arithmetic, elementary algebra, plane geometry included in this course are whole numbers and fractions, per cents; lines, angles and planes; literal numbers and formulas; positive and negative numbers, linear equations; properties of geometric figures; ratio, proportion and variation; graphs and elementary concepts in statistics and finance.

111. College Algebra — Three hours; 3 credits.

Quadratics, progressions, permutations, combinations, complex numbers, binomial theorem, determinants, and other selected topics will be presented in this course. Prerequisite: Mathematics 100a and 102.

113-114. Introduction to Mathematical Analysis — Four hours; 8 credits.

This course is designed to unite the most useful parts of elementary mathematical theory into a logical structure. This comprehensive survey treats of functions and graphs, exact relationships, trigonometric functions, logarithms, rectangular coordinates, solution of equations, polar

coordinates, trigonometric analysis, definite integrals, progressions and series, combinations, probability, statistical methods, complex numbers. Prerequisite: Consent of instructor.

115-116. Foundations of Analysis and Sets — Two hours; 4 credits.

This course will develop the number system beginning with Peano axioms and introduce notions from set theory. The first semester will cover material similar to that in Bourbaki's "Theorie des Ensembles." Students will be led to understand the meaning of a mathematical proof and encouraged to read mathematical literature written in German and French. Prerequisite: Consent of instructor.

121. Plane Trigonometry — Three hours; 3 credits.

The following topics will be included in this course; definitions and relations of trigonometric functions, logarithms, solutions of right and oblique triangles, trigonometric identities and equations. Prerequisite: Mathematics 100a and 102 or equivalent.

122. Spherical Trigonometry — Three hours; 3 credits.

This course is a study of the geometry of the sphere. It includes the solution of right and oblique spherical triangles with applications to navigation. Prerequisite: Mathematics 101 and 121.

126. Analytic Geometry — Four hours; 4 credits.

This course includes a discussion of Cartesian coordinates, loci and their equations, translation and rotation of axes, parametric representation, polar coordinates, and loci in space.

131. Mathematics Finance — Three hours; 3 credits.

The application of mathematics to interest, annuities, sinking funds, depreciation, valuation of stocks and bonds, life insurance, and building and loan associations is the content of this course. Prerequisite: Mathematics 111.

141-142. Differential and Integral Calculus — Four hours; 8 credits.

This course develops the theory and formulae for differentiation and integration with applications to geometry and physics. It also treats power series, multiple integrals, partial differential and simple differential equations. Prerequisite: Mathematics 114 or 126.

204. Introduction to Differential Equations — Three hours; 3 credits.

This is a first course dealing with methods of solving ordinary differential equations with application to geometry and physics. The following topics are included: equations of the first order and first degree; equations of the first order but not of the first degree; singular solutions; linear equations with constant and variable coefficients; equations of more than one variable. Prerequisite: Mathematics 142.

205-206. Advanced Calculus — Three hours lecture throughout the year; 6 credits.

This course is essential for all students who expect to pursue graduate work in mathematics. The topics covered will be limits and continu-

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ity; partial differentiation; multiple integrals; line, surface, and space integrals; theorems of Green and Stokes; infinite series; improper integrals; Gamma and Beta functions; implicit functions; solutions of differential equations by series; introduction to functions of a complex variable; vector analysis; Fourier series. Prerequisite: Mathematics 142.

211. Theory of Equations — Three hours; 3 credits.

This is a course designed to familiarize the student with complex numbers, trigonometric solutions of equations, cubic and quartic equations, properties of polynomials and polynomial functions, isolation and computation of real roots, determinants and systems of linear equations, symmetric functions, and criteria for ruler and compass constructions. Prerequisite: Mathematics 141.

212. Introduction to Matrices — Three hours; 3 credits.

This is a study of linear transformations and matrices, linear vector spaces, equivalent and canonical forms, quadratic and hermitian form, Cayley-Hamilton theorem, invariant factors and elementary divisors. Prerequisite: Consent of instructor.

213. Introduction to Modern Algebra — Three hours; 3 credits.

In this course the number system and elementary theory of groups will be studied. Rings, integral domains, fields and ideals as well as an introduction to polynomials and matrices over a field will be considered. Prerequisite: Consent of instructor.

221. College Geometry — Three hours; 3 credits.

The topics covered in this course are similar figures, quadrilaterals, inversion, triangles in perspective, theorems of Ceva and Menelaus, poles and polars, the nine point circle and orthocenter, the Miquel point and Simson line. Prerequisite: Consent of instructor.

222. Solid Analytic Geometry — Three hours; 3 credits.

This course leans heavily on determinant theory to discuss lines, planes and transformations of coordinates in space; quadric surfaces, the general equation of the second degree, and properties of quadrics. Prerequisite: Consent of instructor.

231-232. Mathematical Theory of Statistics — Three hours per week lecture throughout the year; 6 credits.

A course designed to provide the foundations for further work in statistics. The following topics will be considered; namely, graphical representation of frequency distributions; moments and moment generating functions; various distributions related to the normal including the binomial, Poisson and Student's distributions; linear, multiple, and partial correlations; regression; large and small sample theory; Tchebycheff's inequality; law of large numbers and testing statistical hypotheses.

This course in Mathematical Theory of Statistics is not a duplication of Psychology 217 and/or Economics 253-254 since this course emphasizes the mathematical theory of statistics requiring a knowledge of calculus as a prerequisite.