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YALE COLLEGE PROGRAMS OF STUDY

FALL AND SPRING TERMS

1964–1965

T

(no winter term suggests semesters)

Yja 65 A11

BULLETIN OF YALE UNIVERSITY

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INTENSIVE DEPARTMENTAL MAJOR†

Freshman year	*Sophomore year*	*Junior year*	*Senior year*
Engl. 15*	C.C., Philos., or Rel.*	Major	Major
Foreign Lang.*	Major	Major Seminar	Major
Hist., Hist. of Art or Music, Hist. of Sci. and Med.*	Natural Sci., Math. 20a, b, or Foreign Lit.*	Elective	Major Essay
Social Sci.*	Elective	Elective	Elective
Natural Sci.*	Elective		

*Distributional Requirements, pp. 5–6. For Distributional Credits see pp. 6–8.
†In history and in certain Divisional and Special Majors, five courses each in Junior and Senior year are required.

Although Mathematics 10a and 15b are not included in the Distributional Requirements, the opportunity for such a course is called to the attention of the B.A. candidate.

For information about ROTC, see pp. 225–230.

CHARTS FOR SCIENTIFIC AND ENGINEERING PROGRAMS

The charts on the following pages present graphically the normal four-year program in each of the scientific fields. The student is cautioned to read these charts with the stated requirements of distribution (see pp. 5–6) clearly in mind.

BIOCHEMISTRY

Freshman year	*Sophomore year*	*Junior year*	*Senior year*
Chem. 12 or 14*†	Chem. 29 and 29L	Chem. 34 and 34L	Biochem. 101a
Biol. 11†	Math. 20a and 25b	Biol. 31a	Biochem. 102a
Math. 10a† and 15b†	Phys. 22	Biol. 55b	Biochem. 104b
Engl. 15*†	Social Sci.*†	C.C., Philos., or Rel.*	Elective
Foreign Lang.*†	Hist., Hist. of Art or Music, Hist. of Sci. and Med.*†	Elective	Elective or Honors
		Elective	Elective
			Elective (1 term)

BIOLOGY

Freshman year	*Sophomore year*	*Junior year*	*Senior year*
Biol. 11*† (Biol. 20)	Biol. 20‡	Biol. 30	Biol.
Chem. 12†	Hist., Hist. of Art or Music, Hist. of Sci. and Med.*†	Biol. 31a	Biol.§
Math. 10a† and 15b†	Social Sci.*†	C.C., Philos., or Rel.*	Biol. (1 term)
Engl. 15*†	Chem. 33 and 33L	Elective (1 term)	Elective
Foreign Lang.*†	Physics 12 or 22†	Elective	Elective
		Elective	Elective (1 term)

*Distributional Requirements, pp. 5–6. For Distributional Credits see pp. 6–8.
†May be anticipated by excellent work in secondary school. See pp. 6–8.
In some cases, foreign language may require an additional two terms of study.
‡If Biology 20 was taken in the Freshman year, an elective may be taken here.
§One or two term courses in other fields may be taken in place of biology upon approval of the Director of Undergraduate Studies.

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CHEMISTRY

Freshman year	Sophomore year	Junior year	Senior year
Chem. 12 or 14*†	Chem. 29 and 29L	Chem. 34 and 34L	Major
Math. 10a† and 15b†	Math.	Major	Major
Phys. 14a and 15b†‡	Phys. 25§‡ (or Phys. 22)	C.C., Philos., or Rel.*	Elective‖
Foreign Lang.*†	Hist., Hist. of Art or Music; Hist. of Sci. and Med.*†	Elective‖	Elective‖
Engl. 15*† or Literature	Social Sci.*†	Elective‖	Elective‖

ENGINEERING AND APPLIED SCIENCE

Freshman year¶	Sophomore year	Junior year‡‡	Senior year
Chem. 11, 12, or 14*†	E.&A.S. 20	Major	Major
Math. 15a†** and 20b	Phys. 24	Major	Major
Elective "a"†† and Phys. 15b	Social Sci.*†	Major	Major
Engl. 15*†	Hist., Hist. of Art or Music, Hist. of Sci. and Med.*†	C.C., Philos., or Rel.*	Elective
Foreign Lang.*†	Elective	Elective	Elective

*Distributional Requirements, pp. 5–6. For Distributional Credits see pp. 6–8.
†May be anticipated by excellent work in secondary school. See pp. 6–8. In some cases, foreign language may require an additional two terms of study.
‡The two-year sequence of Physics 14a, 15b and 25 is preferred, but Physics 22 will be accepted. For those electing Physics 22 a suitable curriculum will be arranged.
§May be taken in Freshman year if Mathematics 20a is taken concurrently.
‖For the B.S. degree, two advanced term courses in science or mathematics are required.
¶Students specializing in civil engineering are required to take the three-week summer course, C.E. 25s, Surveying and Field Engineering, during the month of June following their Freshman year.
**Students not adequately prepared must take Math. 10a, 15b, and 20a.
††E.&A.S. 10a is appropriate for this elective.
‡‡Students specializing in chemical engineering are required to take the four-week summer laboratory course, Ch.E. 40s, during the month of June following the Junior year.

GEOLOGY

Freshman year	Sophomore year	Junior year	Senior year‡
Science IIa or IIC or Geol. 20a	Geol. 23a and 24b	Geol. 38a, 39b	Geol. 40
Chem. 12†	Phys. 12† or 22	Phys. Chem., or Adv. Zool.	Geol. 35a and Geol. "b" elective
Math. 10a† and 15b†	Adv. Math. or Elem. Biol.	C.C., Philos., or Rel.*	Elective
Engl. 15*†	Social Sci.*†	Elective	Elective
Foreign Lang.*†	Hist., Hist. of Art or Music, Hist. of Sci. and Med.*†	Elective	Elective

INDUSTRIAL ADMINISTRATION

Freshman year	Sophomore year	Junior year	Senior year
English 15*†	I.A. 20a and 25b	I.A. 32a and 33b	Major
Math. 10a† and 15b†	Psych. 10a and 10b	Econ. 23a, 24b and 24Lb	Major
Foreign Lang.*†	Econ. 10*	Major	Major§
Natural Sci.*†	Natural Sci., Math. 20a or b or Foreign Lit.*†	Hist., Hist. of Art or Music, Hist. of Sci. and Med.*	C.C., Philos., or Rel.*
Elective	Elective	Elective	Elective

*Distributional Requirements, pp. 5–6. For Distributional Credits see pp. 6–8.
†May be anticipated by excellent work in secondary school. See pp. 6–8. In some cases, foreign language may require an additional two terms of study.
‡Unless excused by special permission, students are expected to take a summer field course in geology, such a course counting as a half-year advanced elective course in geology required for the major.
§Intensive Majors will be required to take only four courses in the Senior year of which two, including I.A. 91, will be in the major.

5 year courses per year (or 10 term courses) seems to be standard load.

MATHEMATICS

Freshman year	Sophomore year	Junior year	Senior year
Math. I†, 10a† and 15b†, 15a† and 20b, or 27	Math. 20a‡ and 22b‡, or 37	Math.	Math.
Natural Sci.*†	Hist., Hist. of Art or Music, Hist. of Sci. and Med.*†	Math.	Math.
Engl. 15*†	Elective	Science	Math. (or Science)
Foreign Lang.*†	Elective	C.C., Philos., or Rel.*	Elective
Social Sci.*†	Elective	Elective	Elective

MOLECULAR BIOLOGY AND BIOPHYSICS

Freshman year	Sophomore year	Junior year	Senior year
Foreign Lang.*†	Math. 20a and 25b	Physics 33a	Molecular Biol. and Biophys. 45 and 45L and 2 courses each term chosen from Biology, Chemistry, or Physics
Engl. 15*†	Phys. 22 or 25‖	2 courses the first term and 3 courses the second term chosen from Biology, Chemistry, or Physics	
Math. 10a† and 15b†	Social Sci.*†	C.C., Philos., or Rel.*	Elective
Chem. 11 or 12*†	Biol. 11†	Elective	Elective
Elective§	Hist., Hist. of Art or Music, Hist. of Sci. and Med.*†		

*Distributional Requirements, pp. 5–6. For Distributional Credits see pp. 6–8.
†May be anticipated by excellent work in secondary school. See pp. 6–8.
In some cases, foreign language may require an additional two terms of study.
‡Minimal requirements.
§Physics 15 may be elected if extra preparation is required.
‖May be taken in Freshman year if Mathematics 20a is taken concurrently.

PHYSICS

Freshman year	Sophomore year	Junior year	Senior year
Phys. 14a† and 15b†	Phys. 24, 25 or 22§	Phys. 38a‡ and 34b‡	Phys. 32a‡ and 32b‡ or 44‡
Math. 10a† and 15b†	Math. 20a and 25b	Phys. 40‡	At least 1 course each term selected from 36a, 37b, 41a, 41b, 42b, 47b, 50
Chem. 11† or 12†	Hist., Hist. of Art or Music, Hist. of Sci. and Med.*†	Phys. 31a‡ and 31b	C.C., Philos., or Rel.*
Engl. 15*†	Social Science*†	Math. 46a and 48b	Elective
Foreign Lang.*†	Elective	Elective	Elective

*Distributional Requirements, pp. 5–6. For Distributional Credits see pp. 6–8.
†May be anticipated by excellent work in secondary school. See pp. 6–8.
‡Normally required courses for the physics major.
§May be elected in Freshman year if physics and mathematics background is strong.

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countries that are commonly grouped under the term "Latin America," and an understanding of what they have and what they do not have in common. The Latin American Studies major is built upon a system of language and literature, with depth and perspective provided by study of history and the social sciences.

PREREQUISITES FOR THE MAJOR

Students entering the major must have completed satisfactorily two years of college Spanish, or the equivalent. Courses in the summer program of the Language Institute may, in some cases, assist students in meeting this requirement.

Students interested in the major are strongly urged to take Economics 10 and History 10 in their Freshman or Sophomore year.

THE MAJOR

The major calls for seven one-year courses, or the equivalent, taken during the Junior and Senior years. Students with an insufficient command of Spanish may be obliged to take Spanish 50 in addition to the required literature courses.

A. The following three courses are required, normally in Junior year:

[★*Spanish* 64, *Figuras y temas hispanoamericanos.*]

History 34, *The History of Latin America.*

Portuguese 15, *Intensive Elementary and Intermediate Portuguese.*

B. Each student will select one of the following courses, normally in Senior year:

★*Spanish* 63, *Spanish American Literature.*

Portuguese 41, 42, *or* 43, *Brazilian Literature.*

C. In addition, each student will choose, normally in Senior year, the equivalent of three one-year courses in the fields of Spanish or Portuguese literature, anthropology, economics, geography, history, history of art, political science, and sociology. With the advice of the Director, each student will normally make these choices so as to concentrate primarily upon the humanities or upon the social sciences. In particular cases, the Director may permit other courses from the general Yale College or Graduate School curriculum to be selected, with the permission of the instructor, in partial fulfillment of this requirement. Examples might include: Economics 73a, Theory of Economic Development; Economics 74b, Economics of Underdeveloped

Areas; Anthropology 140b, Caribbean Culture, the Afro-European Tradition.

D. *Honors.* Students desiring to enter the Intensive Program within the Latin American Studies major may do so with permission of the Director of Undergraduate Studies. A candidate in the Intensive Major will be expected to write a Senior essay, which will count as a fifth course, in addition to taking the departmental examination. A student in the Standard Program may also be a candidate for honors (see p. 18).

All majors must consult the Director, Mr. Richard M. Morse, 103 WLH.

LINGUISTICS

Linguistics 20, *The Structure of Language.* Mr. Martin. (6)
M, W, F, 1.45.

English and other languages are presented as objects of scientific analysis, with emphasis on the discovery of formal units and patterns in linguistic behavior. Orientation: the social setting of language; language and dialect; the problem of correctness; the relation of speech and writing. Phonetic structure: the phonemic principle. Morphological and syntactic structure. The second term is devoted to the analysis of a language previously unknown to members of the class. Textbook: H. A. Gleason, Jr., *An Introduction to Descriptive Linguistics,* revised edition (1961).

MATHEMATICS

PREREQUISITE for the major: Mathematics 20 and 22, or 27, or the equivalent.

The major. The major in mathematics will normally consist of ten term courses in mathematics numbered 30 or higher. Each student will normally take at least two term courses in three of the four fields: Algebra (Mathematics 52a, 56b, 58a), Analysis (Mathematics 30 (a or b), 31a, 32b, ★37, 54b), Applied Mathematics (Mathematics 41a, 42b, 43a, 44b, 46 (a or b), 48b), and Geometry (Mathematics 60a, 62b, 64a, 65b, 66b). In some instances permission may be granted to take some of the required term courses in related fields.

A candidate for the B.S. degree must take, in addition to the ten term courses required for the major in mathematics, at least two advanced term courses in the physical sciences, to be chosen with the approval of the department.

The Intensive Major. Candidates for a degree with an Intensive

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Major in mathematics will be expected to include at least two terms of graduate course work in their programs. Eligibility for admission to such courses will be determined by consideration of previous work in advanced courses, in particular in Mathematics 31a and 32b, or in ★Mathematics 37.

The master's degree program. Students who complete, by the end of their Senior year, the requirements of the department for the M.A. in mathematics will be eligible to receive this degree at their Senior commencement. Required are: (1) eight term courses numbered 100 or higher, some of which must be completed with grades of 85 (High Pass) or better; (2) a reading knowledge of mathematical literature in a foreign language of importance for mathematical research (normally French, German, or Russian); (3) satisfactory performance on a general oral examination.

The master's program is in no sense a substitute for the B.A. or B.S. program; rather, it is designed to accommodate a very few exceptional students who, by means of accelerated or independent study, can satisfy the department as to their command of the content of the normal undergraduate program. Candidates must submit to the Director of Undergraduate Studies, at the time of registration for the Junior year, a proposal which foresees this level of achievement by the end of Junior year. Their status and progress will be reviewed before they are permitted to continue in the program in Senior year.

At least two terms of graduate work are to be taken in the Junior year (normally Mathematics 100 and/or Mathematics 122a and 124b will be the first graduate courses taken). The general oral examination covers a list of topics available from the Director of Graduate Studies, and will be accepted in lieu of the Senior departmental examination. Details concerning the requirements for the master's degree may be obtained from Mr. Massey, 222A LOM.

Students majoring in mathematics may, with the permission of the department, write a Senior essay. They must submit with their request a statement in writing from the member of the department who is to supervise the work.

Qualified Freshmen and Sophomores may, *with the permission of the instructor,* take any of the following courses numbered 30 or above. In their choice of courses for the Sophomore year, Freshmen with outstanding records in Mathematics 10a, 15b; Mathematics 15a, 20b; Mathematics I; or Mathematics 27, are urged to consider the intensive course, ★Mathematics 37, which covers the material of Mathematics 22, Mathematics 30, and part of that of Mathematics 31a.

Freshmen taking calculus will normally be placed in Mathematics 10a, 15a, or 20a according to their backgrounds and their performances on the Advanced Placement Test and a departmental placement test to be given before classes begin in the fall. The same criteria will be used to determine eligibility for Distributional Credit. One or two divisions of Mathematics 10a and 15b will be designated as special divisions, to be made up of students with strong interests and abilities. Entering Freshmen wishing to be placed in such divisions should indicate their preference when planning their schedules.

Students planning to take courses in mathematics and who have had no previous training in trigonometry, and those who have had less than three years of mathematics in secondary school, are urged to apply for the Basic Mathematics Review Course (p. 258); this course should then be taken concurrently with Mathematics 10a.

NOTE: Credit may not be claimed for both of: Mathematics 22 and 24; 22 and 25; 22 and 29; 22 and 56; 22 and ★37; 30 and 24; 30 and 25; 30 and ★37, nor for Mathematics 27 and any of Mathematics 10, 15, 20, except by permission of the Director of Undergraduate Studies.

Mathematics 10a, *Introductory Analytic Geometry and Calculus.* Consult Mr. Hsiang. (19)

1, 2. M, W, F, 8.	11, 12. T, Th, S, 8.
3, 4. M, W, F, 9.10.	13, 14. T, Th, S, 9.10.
5, 6. M, W, F, 10.10.	15, 16. T, Th, S, 10.10.
7, 8. M, W, F, 11.10.	17, 18. T, Th, S, 11.10.
9, 10. M, W, F, 12.10.	

An introduction to plane analytic geometry and the fundamental ideas of differential and integral calculus. Functions and their limits; technique, theory, and some application of differentiation.

Mathematics 10b, *Introductory Analytic Geometry and Calculus.* Mr. ——. T, Th, S, 10.10. (9)

The content of this course is identical with that of Mathematics 10a.

Mathematics 15a, *Analytic Geometry and Calculus.* Consult Mr. Szczarba. (19)

1. M, W, F, 9.10.	3. T, Th, S, 9.10.
2. M, W, F, 10.10.	4. T, Th, S, 10.10.

A course intended for Freshmen with preparation in calculus and analytic geometry. The trigonometric, exponential, and logarithmic functions; theory, techniques, and some applications of (Riemann) integration. Proofs of basic properties of continuous and differentiable functions.

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Mathematics 15b, *Analytic Geometry and Calculus.* Consult Mr. Hsiang. (19)

1, 2. M, W, F, 8.
3, 4. M, W, F, 9.10.
5, 6. M, W, F, 10.10.
7, 8. M, W, F, 11.10.
9, 10. M, W, F, 12.10.
11, 12. T, Th, S, 8.
13, 14. T, Th, S, 9.10.
15, 16. T, Th, S, 10.10.
17, 18. T, Th, S, 11.10.

The content of this course is identical with that of Mathematics 15a. *After Mathematics* 10a *or the equivalent.*

Mathematics 20a, *Intermediate Analytic Geometry and Calculus.* Consult Mr. Hedlund. (19)

1. M, W, F, 9.10.
2. M, W, F, 10.10.
3. M, W, F, 1.45.
4. T, Th, S, 8.
(Fr.) 5. T, Th, S, 9.10.
6. T, Th, S, 10.10.
7. T, Th, S, 11.10.

Vector geometry in space, infinite series, and calculus of functions of two and three variables. *After Mathematics* 15 *or the equivalent.*

Mathematics 20b, *Intermediate Analytic Geometry and Calculus.* Consult Mr. Szczarba. (19)

1. M, W, F, 9.10.
2. M, W, F, 10.10.
3. T, Th, S, 9.10.
4. T, Th, S, 10.10.

The content and prerequisites of this course are identical with those of Mathematics 20a.

Mathematics 22a, *Linear Algebra and Analytic Geometry.* Consult Mr. Mostow. (19)

1. M, W, F, 1.45.
2. T, Th, S, 11.10.

Vectors and analytic geometry in the plane and space; extensions of the basic notions to real and complex n-space and to abstract vector spaces. Linear equations and determinants, with geometrical interpretations. Algebra of matrices and linear transformations, especially orthogonal and symmetric transformations; quadratic forms and principal axes; characteristic roots and vectors.

Mathematics 22b, *Linear Algebra and Analytic Geometry.* Consult Mr. Seligman. (19)

1. M, W, F, 10.10.
2. T, Th, S, 9.10.
3. T, Th, S, 10.10.

The content of this course is identical with that of Mathematics 22a.

[*Mathematics* 25a *or* b, *Functions of Several Variables.* Omitted 1964–65.]

[*Mathematics* 27, *Intensive Mathematics* I. Omitted 1964–65.]

Mathematics 30b, *Advanced Calculus.* Consult Mr. Mostow. (19)

1. M, W, F, 1.45.
2. T, Th, S, 11.10.

Calculus of vector-valued functions of variable vectors. *After Mathematics* 20 *and* 22, *or the equivalent.*

Mathematics 31a, *Introduction to Analysis.* Consult Mr. Hahn. (3)
M, W, F, 10.10.

An introduction to the theory of functions of real variables, including set theory and point set topology. *After Mathematics* 20 *and* 22 *or* 25, *or by permission.*

Mathematics 32b, *Real Analysis.* Consult Mr. Hahn. (3)
M, W, F, 10.10.

Topics from the theory of functions of real variables, with emphasis on theory of integration. *After Mathematics* 31a *or* ★37, *or by permission.*

[*Mathematics* 36a, *Functions of a Complex Variable.* Omitted 1964–65. See Mathematics 122a.]

★*Mathematics* 37, *Intensive Mathematics* II. Consult Mr. Mostow. (2)
Lect., M, W, F, 9.10.
Rec., One hour to be arranged.

Linear algebra and analytic geometry of spaces of dimensions three and higher. Topics from advanced calculus, especially in functions of several variables, with an emphasis on challenging problems. *After Mathematics* 20 *or* 27, *or by permission.*

Mathematics 41a (*Statistics* 41a), *Introduction to Statistics.* Consult Mr. Anscombe. (2)
M, W, F, 9.10.

Basic concepts and methods of statistics; frequency and probability distributions, normal curve, moments, sampling theory, testing goodness of fit, least squares, analysis of variance. *The laboratory in statistics* (*Mathematics* 45) *must be taken concurrently. Open to Juniors and Seniors after Mathematics* 15 *or the equivalent; open to others by permission.*

Mathematics 42b (*Statistics* 42b), *Mathematical Statistics.* Consult Mr. Anscombe. (2)
M, W, F, 9.10.

Mathematical theory underlying the topics of Mathematics 41a, as well as correlation, estimation, testing of hypotheses. *Mathematics* 45 *must be taken concurrently or have been taken previously. After Mathematics* 41a, *and* 22 *or* 25, *or by permission.*

Mathematics 43a *and* 44b, *Analytic Methods.* Omitted 1964–65.]

Mathematics 45 (*Statistics* 45), *Laboratory in Statistics.* Consult Mr. Anscombe. (19)

1. T, 11.10–1.
2. W, 1.45–3.35.
3. W, 3.45–5.35.

The principles of statistics are illustrated by numerical analysis of data, carried out by the students on electric desk calculators. *Mathematics* 41a *must be taken concurrently with the first term of Mathematics* 45.

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Mathematics 46a, *Elements of the Theory of Differential Equations.* Consult Mr. Berg. (19)

1. M, W, F, 12.10.
2. T, Th, S, 9.10.

A study of ordinary differential equations, concerned with formal methods of solution, series solutions, approximate solutions, existence and uniqueness theorems, and systems of linear differential equations. *After Mathematics* 20 *and* 22 *or* 25, *or the equivalent, except that Mathematics* 22a *may be taken concurrently.*

Mathematics 46b, *Elements of the Theory of Differential Equations.* Consult Mr. Berg. (10)

T, Th, S, 11.10.

The content and prerequisites are identical with those of Mathematics 46a.

Mathematics 48b, *Topics in Advanced Calculus.* Consult Mr. Berg. (19)

1. M, W, F, 12.10. 2. T, Th, S, 9.10.

Special functions, Fourier series, and boundary value problems, introductions to the calculus of variations and to integral equations. *After Mathematics* 20 *and* 22 *or* 25, *or the equivalent; preferably after Mathematics* 46.

Mathematics 52a, *Theory of Numbers.* Consult Mr. Ore. (3)

M, W, F, 10.10.

An introductory course in the theory of numbers. *After Mathematics* 20 *or the equivalent.*

Mathematics 54b, *Probability.* Mr. Ore. (3)

M, W, F, 10.10.

The basic laws of probability, with various applications; the law of large numbers, normal and other laws of probability. *After Mathematics* 20 *or the equivalent.*

[*Mathematics* 56b, *Linear Algebra.* Omitted 1964–65.]

Mathematics 58a, *An Introduction to Modern Algebra.* Consult Mr. Tamagawa. (6)

M, W, F, 1.45.

Abstract groups and permutation groups. Abstract fields and polynomials. Splitting fields and Galois groups for polynomials, with applications to solvability of equations by radicals and the classical construction problems. Separation and approximation of roots of polynomials with real and complex coefficients. *After Mathematics* 20 *and* 22 *or* 25, *or the equivalent.*

[*Mathematics* 60a, *Synthetic Projective Geometry.* Omitted 1964–65.]

Mathematics 62b, *Advanced Analytic Geometry.* Consult Mr. Veldkamp. (6)

M, W, F, 1.45.

Analytic models for affine and projective geometries; their geometrical properties and geometrical transformations. *After Mathematics* 58a, *or the equivalent.*

Mathematics 64a, *General Topology.* Consult Mr. Massey. (4)

M, W, F, 11.10.

Fundamental topological properties of Euclidean space; an introduction to the postulational approach to abstract topological spaces. *After Mathematics* 25 *or* 30, *or the equivalent.*

Mathematics 65b, *Combinatorial Topology.* Consult Mr. Massey. (4)

M, W, F, 11.10.

An introduction to combinatorial topology with particular reference to two-dimensional manifolds. *After Mathematics* 64a *and* 58a, *or the equivalent.*

[*Mathematics* 66b, *Differential Geometry.* Omitted 1964–65.]

[*Mathematics* 90, *Senior Mathematical Seminar.* Omitted 1964–65.]

Students in the Intensive and master's programs are referred to the following graduate courses:

Mathematics 100, *Modern Algebra.* Consult Mr. Seligman.

Mathematics 107a, *Theory of Fields.* Consult Mr. Jacobson.

Mathematics 121a, *Measure and Integration.* Consult Mr. Kakutani.

Mathematics 122a, *Functions of a Complex Variable* I. Consult Mr. Aaboe.

Mathematics 124b, *Functions of a Complex Variable* II. Consult Mr. Aaboe.

Mathematics 126b, *Fourier Series and Fourier Integrals.* Consult Mr. Hahn.

Mathematics 127a, *Hilbert Spaces and Banach Spaces.* Consult Mr. Hahn.

Mathematics 144, *Topology* I. Consult Mr. Szczarba.

Mathematics 164 (*Statistics* 164), *Mathematical Methods in Statistics.* Consult Mr. James.

Admission to these, or to any other graduate courses, requires permission of the instructors concerned.

MECHANICAL ENGINEERING

(*See under Engineering and Applied Science.*)

METALLURGY AND SOLID STATE SCIENCE

(*See under Engineering and Applied Science.*)

MILITARY SCIENCE

(*See under Reserve Officers Training Corps.*)

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