GEORGETOWN UNIVERSITY

Bulletin.

1985-1986.

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Georgetown 1985-86

COLLEGE OF ARTS AND SCIENCES

ROYDEN B. DAVIS, S.J.	*Dean*
RICHARD H. SULLIVAN	*Associate Dean*
HUBERT J. CLOKE	*Assistant Dean*
ANNE D. SULLIVAN	*Assistant Dean*
CLAIRE Z. CAREY	*Assistant Dean*
ROBERT B. LAWTON, S.J.	*Assistant Dean*

HISTORY

The College of Arts and Sciences of Georgetown University, the oldest Catholic College in the United States, was founded in 1789 by John Carroll, Archbishop of Baltimore. A progressive citizen of his time, he firmly believed in the principles of the United States Constitution. He made it clear that the new college was to be open to students of every religious persuasion.

On March 1, 1815, President James Madison signed the act of Congress which chartered the College of Georgetown. In 1844 it was incorporated by another Congressional act. During the years of the Civil War, Georgetown students fought for the North and South. Later the colors blue and gray were adopted by the College to signify the reunited nation and the sons of Georgetown who had served on both sides in its civil war.

From its founding to the present day the graduates of Georgetown College have taken their places in the forefront of almost every human endeavor. They serve as educators, public servants and statesmen; they work in business, law, medicine, and research.

Today, proud of its tradition and heritage, Georgetown, through all its graduates, seeks to serve the communities and the world in which it lives.

OBJECTIVES

The College of Arts and Sciences exists to provide a liberal education for young men and women who will be called to intellectual, moral, and professional leadership, and to foster in them a life-long commitment to the quest for truth.

As a Jesuit College, it draws upon a dynamic tradition of education, characterized by an optimistic Christian humanism and committed to the assumption of responsibility and action. Accordingly, the College seeks to encourage the development of critical powers, respect for tradition and human reason, and an appreciation of life and all its endeavors. It promotes not only the intellectual disciplines but also the search for personal values and convictions that will enable its graduates, throughout their lives, to continue redefining and maturing their thought, and also to continue pursuing the integration of their activities, values, and relations with others.

In light of these aims, the College has developed a diversified academic program in which fundamental issues and ultimate values play an integral role. A high priority is placed on quality teaching and on developing a community of learning among its faculty, students, and administrators.

DEGREE REQUIREMENTS

Candidates for a degree in the College of Arts and Sciences must complete the following graduation requirements:

(1) Minimum of 120 semester hours.
(2) Minimum of 38 semester courses.
(3) *General Education* requirements of 12 semester courses:

Literature	2 courses
Math/Science	2 courses
Social Science (except biology, chemistry, and physics majors)	2 courses
History	2 courses
Theology	2 courses
Philosophy	2 courses

Mastery of a foreign language through the intermediate level

(4) Selection of a major field of concentration and completion of all requirements of the major as specified by the department.
(5) Comprehensive examination (or its equivalent) in the student's major field.
(6) A final cumulative academic average of 2.0 or better.

NOTE: For the purpose of computing the thirty-eight course minimum, a science lecture and accompanying lab is counted as one course. The lab need not be taken in the same semester as the lecture to be counted in this manner. A laboratory not related to a course or any course worth less than three credits will be computed as

half a course. An intensive language course for six to eight credits counts as one course.

GENERAL EDUCATION REQUIREMENTS

The general education requirements are ordinarily fulfilled in the student's freshman and sophomore years.

Out of the normal course load of ten courses in freshman year, the student may choose no more than two courses in any one discipline; this regulation holds for sophomore year also. In addition, the student may not take two courses in the same discipline in the same semester during the first two years.

Literature

The literature requirement is normally fulfilled by English. Freshmen take a placement test during Freshman Orientation. On the basis of the testing, some students may be advised to strengthen their writing skills by enrolling in Expository Writing. This course does not count towards fulfillment of the literature requirement. Most students select two courses from the large number of freshman offerings.

For native speakers of English, who possess exceptional language ability, the literature requirement may be fulfilled in a foreign language. For non-native speakers of English, the literature requirement must be fulfilled in English.

Social Science

All students except those majoring in Biology, Chemistry, or Physics, satisfy their Social Science requirement by taking two courses in one of the following fields: Government, Economics, Psychology or Sociology. Students majoring in Biology, Chemistry, and Physics do not have a Social Science requirement.

History

All students are required to complete the two semester course in *European Civilization* (144-003, 004). Those freshmen with a score of 4 or 5 on the Advanced Placement test in European History will be awarded six credits and will have fulfilled the requirement. Freshmen with a score of three on the Advanced Placement test in European History will receive no credit, and must fulfill the history requirement with either the 003, 004 course, or, preferably, with two semesters of history electives numbered 100 to 499. Students who have not taken the European history AP examination, but who have taken an academically rigorous high school course similar to History 003/004 should communicate before the opening of the Fall term with the Director of Undergraduate Studies about possible exemption from the course. They should present a transcript of their record and a full description or syllabus of the course which they have taken. Such students, if approved in advance by the Department of History, will be allowed to substitute an elective course offered by the department. Freshmen who receive Advanced Placement credit in American History must complete the two semesters of European Civilization. Students are advised that the History Department does not recognize the SAT Achievement Tests as evidence of a student's knowledge of European or American history.

Math/Science

The math/science requirement may be satisfied in any one of three ways: (1) a one-semester math course and a one-semester science course; (2) two one-semester science courses; (3) a full year sequence of Introductory Biology (123-003, 004), General Chemistry (123-003, 004), General Physics (181-003, 004), Calculus and Analytic Geometry (157-035, 036), or one semester of Calculus and Analytic Geometry (157-035) followed by a semester of Probability and Statistics (157-040).

Pre-Calculus (157-001) and Introduction to Computers and Programming I (152-071), do not count towards fulfillment of the math/science requirement.

Philosophy and Theology

Georgetown, with its commitment to the Jesuit tradition, believes that modern men and women should consider reflectively their relationship to the world, their fellow man, and God. All students take a year of Philosophy and a year of Theology.

In Philosophy, Introduction to Philosophy and a second course, in Ethics, are required. The Problem of God course or Introduction to Biblical Literature plus one elective are required for Theology.

Language

All students in the College must achieve proficiency in a language (ancient or modern) through the intermediate level. During freshman orientation placement exams are offered in most languages. Students who do not place above the intermediate level of a language on these placement exams fulfill the
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MAJOR CONCENTR

In the College of
following major fields
Bachelor of Arts degr
American Studies
Classics
Economics
English
Fine Arts
Government
History

The following majo
of Science degree:
Biology
Chemistry
Computer Science

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may elect a maximum

ment exams fulfill the requirement by completing courses in a classical or modern language through the intermediate level.

Please note the College does not grant credit for language study repeated at the same level of proficiency. Transfer students (including from within the University) should be certain to clear their choice of course level with the Dean's Office before enrollment. Intensive language study may make further language study unnecessary or place the student at an advanced level.

MAJOR CONCENTRATIONS

In the College of Arts and Sciences, the following major fields of concentration lead to a *Bachelor of Arts* degree:

American Studies	Interdisciplinary
Classics	Studies
Economics	Modern Languages
English	(French, German
Fine Arts	Spanish)
Government	Philosophy
History	Sociology
	Theology

The following major fields lead to a *Bachelor of Science* degree:

Biology	Mathematics
Chemistry	Physics
Computer Science	Psychology

At preregistration in the Spring before the end of the sophomore year, students following a Bachelor of Arts curriculum are obliged to declare formally their major field for the ensuing two years. Although every attempt will be made to honor the student's first choice of a major, admission to a particular major shall be by permission of the Department concerned and ultimately of the Dean. Students following a Bachelor of Science curriculum in Biology, Physics, Mathematics, or Chemistry normally elect their program prior to registration in the freshman year.

The major program includes the required courses as specified in the curriculum. The student must receive departmental approval for all courses in his major field. At the end of the senior year, each candidate for a degree must pass a comprehensive examination (or its equivalent) in his major field. This comprehensive may be written or oral, or both, depending on the department.

The major department may require the student to take a maximum of 12 courses, including basic courses in that major. The student, in turn, may elect a maximum of 14 courses in his major. It is expected that a science major in Junior and Senior years will elect one non-science course per semester.

Occasionally a student receives approval to pursue two majors. If the fields of study lead to different degrees (e.g. English and Biology), the student elects to graduate with *either* a Bachelor of Arts degree *or* a Bachelor of Science degree. Students are not permitted to major in more than two fields.

MINOR CONCENTRATIONS

Minor areas of concentration (minors) are permitted, but not required, in the College of Arts & Sciences. The following areas are available for minor concentrations:

Biology	Mathematics
Chemistry	Modern Languages
Classics	(French, German
Computer Science	Spanish)
Economics	Philosophy
English	Physics
Fine Arts	Psychology
Government	Sociology
History	Theology

Minor areas of concentration should be declared in Junior year. In order to complete requirements for a minor, the student must take the majority of credits in the minor field at Georgetown. Minor requirements are listed under departmental entries.

When a student has declared a double major, a minor is not permitted. Double minors are also not approved.

ACADEMIC ADVISING PROGRAM

The richness and multiplicity of the College's programs and course offerings may be a source of perplexity to students. The faculty advising program is designed to offer students help in making responsible choices about programs and courses and to ensure that students are aware of all the opportunities Georgetown offers in the undergraduate College curriculum.

Every freshman is assigned a faculty adviser when he or she enters the College. In the mathematics and science departments students have normally declared their major before admission and therefore advisers assigned in freshman year are usually retained until graduation. Upperclass science and mathematics majors also provide assistance to freshmen.

Freshmen in the humanities are assigned to advising "groups" consisting of a faculty member, one or two upper-classmen and approxi-

taking, in their junior or senior year of high school, the Advanced Placement Course and Examination in European History as administered by the Educational Testing Service. Students who have not taken the European history AP examination, but who have taken an academically rigorous high school course similar to History 003/004 should communicate before the opening of the Fall term with the Director of Undergraduate Studies about possible exemption from the course. They should present a transcript of their record, and a full description or syllabus of the course which they have taken. Such students, if approved in advance by the Department of History, will be allowed to substitute an elective course offered by the department.

History majors are required to complete History 003, 004 and at least eight semester courses in history electives (courses numbered 100 or above) chosen with the approval of the department. To help insure that there is both breadth and depth in a student's selection of courses, History Majors must take a minimum of two electives in at least three of the six fields (American, European, Russian, Latin American, Middle Eastern, and Asian) offered by the department. The total number of course hours required by the department (including History 003, 004) is 30; students so wishing, however, may take up to twelve additional hours of elective credit in history. History majors, as students in the College, are required to demonstrate foreign language proficiency (intermediate level).

All students interested in majoring in History must register with the Director of Undergraduate Studies in the department. Students should bring a copy of their transcript with them, as well as a Declaration of Major form. Both of these documents can be obtained from the College Dean's office. The Director of Undergraduate Studies will record the student's name on the official list of History Majors, (2) select an advisor with him or her, and sign the Declaration of Major form for the College.

The oral comprehensive examination is based upon 24 hours of elective courses and is administered near the end of the senior year.

Eighteen hours of History courses are required for a History minor.

History Honors. Admission to the History Honors Program should be requested through written application to the Director of Undergraduate Studies. Students who are accepted into this program will plan their studies with the Director.

Independent Study and Internships. Independent study through research and reading projects can be developed in consultation with a faculty member specializing in the area to be examined. Approval by the Director of Undergraduate Studies must be obtained. Internships in government, archives, libraries, museums, historical societies may be arranged through consultation with Professor Johnson and approval by the Director of Undergraduate Studies.

Required Courses
General education courses
2 Intermediate language
2 Modern History (144-003, 004)
8 History electives

MATHEMATICS

The Department of Mathematics offers both major and minor programs.

The Mathematics major normally takes Calculus and Analytic Geometry I and II (Math. 035-036), and Introduction to Computers and Programming (Computer Science 071-072) in the freshman year; Calculus and Analytic Geometry III and IV (Math. 037-038), and Fundamental Physics (Physics 015-016—the laboratory is recommended but not required) in the sophomore year; Linear Algebra (Math. 202), Abstract Algebra (Math. 203), and Advanced Calculus (Math. 231-232) in the junior and senior years. Also required are at least four semesters of 200 level electives in Mathematics.

For a minor in Mathematics, the student must complete the four-semester sequence of Calculus and Analytic Geometry, and two semesters of 200 level electives in Mathematics.

Prospective students are encouraged to qualify themselves for advanced placement by taking the Advanced Placement Examination in Mathematics. A student who scores either four or five on the Calculus BC examination may omit Math. 035-036 and take Math. 037-038 as a Freshman. In this case the student is awarded eight semester hours credit. A student who scores four or five on the Calculus AB examination may omit Math. 035 and is awarded four hours credit. A student scoring three on either examination is awarded three semester hours credit but may not omit Math. 035. Students who have not taken the Advanced Placement examination, but who believe that their preparation in high school is substantially equivalent to Math. 035-036, may petition the Department for advanced placement. In such cases the Department will administer an examination to determine if such placement is warranted. The examination will be administered during the registration period prior to the beginning of the Fall term. Further information may be obtained from the Mathematics Department or from the Office of the Dean of the College.

Required Courses
General education courses
2 Computer Science
2 Fundamental Physics
4 Calculus and Analytic Geometry
1 Linear Algebra
1 Modern Algebra
2 Advanced Calculus
4 Mathematics electives

MODERN LANGUAGES

In cooperation with the School of Languages and Linguistics, the College offers majors in French, German, and Spanish. In addition to a full year of the advanced level of the language, the major field consists of eight upper-division courses chosen with the approval of the Department, as indicated below.

Students must complete a comprehensive exam or essay in the Spring of senior year. The format of the comprehensive is set by the individual departments.

Students interested in a modern language major should also give thought to majoring in their chosen language in the School of Languages and Linguistics.

A minor in French, German, or Spanish in the College consists of eighteen credits: two courses each at the intermediate, advanced and upper-division level.

Required Courses
General Education courses

French
Normal sequence assuming Intermediate French taken during Freshman year.
Sophomore year: 203-204.
Junior year: 212 plus one of the following: 213, 215, 216, or 231; and 221-222.
Senior year: choice of four semester courses from among the department's upper division electives.
Qualified advanced undergraduates may take 500-series courses as electives with their adviser's approval.

German
8 courses beyond Advanced German:
213-214 Composition & Style
261-262 Survey of German Literature
2 area courses
2 electives (227, 234, 235, 236, or any literature course)

Spanish
2 Advanced Spanish
8 Spanish electives

PHILOSOPHY

All students in the College of Arts and Sciences are required to take two courses in Philosophy, one in freshman year and one in sophomore year. These required courses are Introduction to Philosophy and a 100 level Ethics course.

Those who elect Philosophy as a major are required to take an additional nine Philosophy courses at the 200 level or above. Majors are expected to work closely with the Department's Director of Undergraduate Studies in formulating their program. All majors are required to take at least three semester courses in the history of philosophy: one course in the History of Ancient Philosophy, one course in the History of Medieval Philosophy, and one course in the History of Modern Philosophy. Majors must choose a total of two courses from the following areas: (1) metaphysics and epistemology, (2) logic and the philosophy of science, (3) ethics and social and political philosophy. The two courses selected should be from different areas. The Department will inform the majors each year about which courses will satisfy the requirement.

In the Fall of their senior year, majors must take the Senior Seminar. The topic of the seminar is determined by the majors in consultation with the Undergraduate Director. By April 1st majors must hand in their senior thesis to their Director.

The Department permits interdisciplinary programs.

For a minor in Philosophy, a student is required to complete 18 credits: the two required courses plus four upper-division electives at the 200-level or above. Of these upper-division electives one should be a course in a period of the history of Philosophy, and one in a major area of Philosophy.

Required Courses
General education courses
9 Other philosophy courses distributed in the manner described above
1 Senior Seminar or a Comprehensive Examination

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MATHEMATICS 157

PROFESSORS:
Lagnese, Stokes

ASSOCIATE PROFESSORS:
Benke, Bobo, Datko, Sandefur, Teller, Vogt

ASSISTANT PROFESSORS:
Engler, Rosier (Chairman), Sullivan

VISITING ASSISTANT PROFESSOR:
Neubrander

001. Pre-Calculus (3)
This course is designed to assist students whose high school mathematics background is insufficient for the standard freshman mathematics courses. It is primarily intended as a preparation for Math. 003. Topics include: algebraic operations, factoring, exponents and logarithms, polynomials, rational functions, and the logarithmic and exponential functions. Graphing and word problems will be stressed. Does not fulfill Math/Science requirement for College students. Fall and Spring. STAFF

003. Short Course in Calculus (3)
This one semester course is intended to introduce the principal concepts of differential and integral calculus of functions of one variable. These concepts are presented in a straightforward, intuitive manner, with emphasis on the computational aspects of the calculus. Topics include: differentiation, integration, the logarithmic and exponential functions. Applications to curve sketching, optimization problems, and exponential growth and decay problems will be given. Prerequisite: Math. 001 or equivalent. Fall and Spring. STAFF

005. Introduction to Statistics (3)
This course provides an introduction to descriptive methods; an elementary development of probability theory including sample spaces, random variables and their distributions; the binomial, normal and related distributions; and an introduction to statistical inference including random sampling, estimation of parameters, tests of hypotheses and simple regression and correlation. Prerequisite: Math. 001 or equivalent. Fall and Spring. STAFF

006. Discrete Mathematics with Applications (3)
This course will develop the mathematical theory of recursion jointly with some of its applications. Recursion is the process of using knowledge of what is true at one point in time to predict what will be true at a later time. Applications will include the study of annuities, population growth, and the relationship between species of predators and prey. Some elementary probability will also be developed in the course and then be combined with the recursion theory to study problems in genetics and casino gambling. Prerequisite: Math 001 or equivalent. Fall and Spring. PROFESSOR SANDEFUR

035. Calculus and Analytic Geometry I (4)
This is the first part of the four-semester calculus sequence (Math. 035-038) for Mathematics and science majors. Topics include limits, derivatives, techniques of differentiation, applications of derivatives, the Riemann integral, some techniques of integration, the logarithmic, exponential, trigonometric, and inverse trigonometric functions and their properties. Prerequisite: Math. 001 or equivalent. Fall. STAFF

036. Calculus and Analytic Geometry II (4)
A continuation of Math. 035. Topics include analytic geometry, additional techniques of integration, applications of the definite integral, sequences and infinite series including power series, and improper integrals. Prerequisites: Math. 035 or equivalent. Spring. STAFF

037. Calculus and Analytic Geometry III (4)
This course is a continuation of Math. 036 and deals with multidimensional calculus. Topics include 3-dimensional analytic geometry; calculus of vector functions of a real variable; calculus of real functions of several variables including partial and directional derivatives, the chain rule, extremum problems with constraints, double and triple integrals; vector fields, line and surface integrals, Green's Theorem, the Divergence Theorem, and Stokes' Theorem. Fall. PROFESSOR BENKE

038. Calculus and Analytic Geometry IV (4)
This course treats elementary matrix theory and linear algebra, elementary differential equations, and applications of the former to the latter. Specific topics in matrix theory include matrix operations, systems of linear equations, determinants, and eigenvalues and eigenvectors of matrices. Topics in linear algebra include vector spaces, bases and dimensions, linear transformations and their matrix representations. Topics in differential equations include techniques for solving first order and linear second order differential equations, and certain linear systems of such equations. Spring. PROFESSOR BENKE

040. Probability and Statistics (4)
This is a probability and statistics course for students with a calculus background equivalent to Mathematics 035. Topics include sample spaces and probability functions, discrete and continuous random variables, probability distributions and densities (especially the Poisson, the binomial, and the normal), joint and marginal distributions, sampling statistics, point and interval estimates, and hypothesis testing. Prerequisite: Math. 035. Spring. STAFF

202. Linear Algebra (3)
Theory of vector spaces and linear transformations. Matrices and systems of linear equations. Determinants. The Cayley-Hamilton theorem. Eigenvalues and eigenvectors. Similarity and Jordan canonical form. Theory of inner product spaces including orthonormal sets, quadratic forms, normal linear operators, Hermitian and unitary operators. Selected additional

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topics as time permits. Prerequisite: Math. 038 or equivalent. Fall. PROFESSOR NEUBRANDER

203. Abstract Algebra I (3)
Basic algebraic structures and their homomorphisms: groups (including permutation groups, finitely-generated Abelian groups, Sylow theory) and rings (including unique factorization domains, polynomial rings). Prerequisite: Math. 202. Spring. PROFESSOR TELLER

211. Number Theory (3)
Basic properties of the integers: divisibility, primes, unique factorization. Congruences: the theorems of Wilson, Fermat, and Euler. Number theoretic multiplicative functions. Diophantine equations. Distribution of primes. Applications to computer science and modern cryptography. (Next offered Fall, 1986). STAFF

212. Numerical Analysis (3)
Development of methods for solving numerical problems on digital computers. Problems discussed include solution of systems of linear and nonlinear equations, interpolation, numerical integration, and solution of ordinary differential equations. Work will include solving practical problems using the computer. (Next offered Spring, 1987). STAFF

221. Discrete Mathematics (3)
This course will emphasize recursion and difference equations. Included will be topics in non-linear analysis and bifurcation theory with applications to problems in Biology, Economics, and Business. Following a brief introduction to probability, higher order systems of equations will be considered. These systems will be used to study predator-prey populations, genetics, and strange attractors. Knowledge of computer programming will be helpful, but not essential. Prerequisite: Math. 038 or consent of instructor. (Next offered Spring, 1987). PROFESSOR SANDEFUR

223. Combinatorics (3)
This course will begin with simple counting techniques using permutations and combinations. Then more sophisticated methods will be introduced using generating functions, recurrence relations, the principle of inclusion-exclusion, and Polya's enumeration formula. Applications will be given in such areas as Computer Science, Operations Research, and card game probabilities. Fall. PROFESSOR SANDEFUR

224. Graph Theory (3)
This course covers the basic concepts of graph theory and their applications. Included are such classical topics as Euler and Hamilton circuits, the traveling salesman problem, and graph coloring, as well as topics of current interest in applications such as planar graphs, network flows, and trees. Applications will be given in such areas as Chemistry, Ecology, Operations Research, and puzzles and games. (Not offered 1985–86) PROFESSOR SANDEFUR

226. Topology (3)
Basic concepts of point set topology. Topics include sets and functions, metric spaces, topological spaces, separation axioms, convergence, continuity, completeness, compactness, and connectedness. Spring. PROFESSOR ROSIER

231. Advanced Calculus I (3)
The basics of point set topology will be developed including the Bolzano-Weierstrass theorem and the Heine-Borel theorem. These tools will be used to study continuity, differentiation and integration in n-dimensions. The highlights include implicit function theorems, the fundamental theorem and a rigorous study of the Riemann integral. Fall. PROFESSOR VOGT

232. Advanced Calculus II (3)
This course will continue the study of integration begun in Math. 231. In particular Green's theorem, the divergence theorem, and Stokes' theorem will be proved. Convergence and uniform convergence of series will be studied with special attention given to power series. Spring. PROFESSOR VOGT

233. Mathematical Statistics I (3)
This course will cover the probability theory required for a serious study of statistics. Topics include: random variables; the binomial, Poisson, exponential, normal, and related distributions; multivariate distributions; expectations and moments; stochastic independence; joint and conditional distributions; the laws of large numbers; and the Central Limit Theorem. Fall. PROFESSOR ENGLER

234. Mathematical Statistics II (3)
This course is a continuation of Math 233 and concentrates on statistics. Topics include: sampling theory; descriptive statistics (tables, graphs, median, mean, percentiles, standard deviation, correlation); statistical inference (classical and Bayesian): hypothesis testing and confidence intervals; point estimators; linear regression and analysis of variance; robust and distribution free methods. Spring. PROFESSOR ENGLER

236. Introduction to Complex Variables and Applications (3)
Complex numbers. Analytic functions including exponential, logarithmic and trigonometric functions of a complex variable. Geometric and mapping properties of analytic functions. Contour integration, Cauchy's theorem, the Cauchy integral formula. Power series representations. Residues and poles, with applications to the evaluation of integrals. Conformal mapping and applications as time permits. (Next offered Spring, 1987). STAFF

251. Ordinary Differential Equations (3)
Review of first and second order linear differential equations; the study of higher order linear equations, additional techniques for dealing with linear equations, including series solutions and the Laplace transform

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method. The remainder of the course will involve the treatment of nonlinear equations using phase plane analysis. Applications of differential equations will be discussed throughout the course. Fall.

PROFESSOR LAGNESE

252. Partial Differential Equations (3)
Topics will include: first order equations including Lagrange's method of studying quasi-linear equations, characteristic curves and their role in solving initial value problems; linear second order equations including formal methods of solving them; classification second order systems and their reduction to normal form; the derivation and use of Green's formula for solving second order equations; boundary value problems for the Laplace equation and for Poisson's equation; the study of initial value and boundary value problems for the wave equation and the heat equation, particularly the technique of separation of variables. Spring.

PROFESSOR LAGNESE

MILITARY SCIENCE 160—

U.S. ARMY ROTC PROGRAM

DIRECTOR:
LTC. R. J. Graham

STAFF:
Maj. Hansen, Maj. Herron, Maj. Coppernoll, Capt. Bradfield, Capt. Sprague, Capt. Stott, Capt. Taylor, SGM Demesme, SFC Caron, SSg. Pair, SSg. Oliver, Ms. Merritt.

HISTORY

Georgetown University's service ethic to the nation has included the training of military officers since the early nineteenth century. It became formalized in 1852 when the Reverend James Clark, a West Point graduate, arrived at Georgetown to expand the existing officer training program in the deepening shadows of the impending Civil War. During this episode in American history, University graduates served on both the Union and Confederate sides. Subsequently, during the latter half of the nineteenth century, officer training at the Nation's oldest Roman Catholic university dwindled considerably, reflecting the relative lack of external threat as the country moved to fulfill its manifest destiny. However, the eruption of war between the US and Germany in April 1917, was quickly followed by the organization of a Cadet Corps by University officials, and in February 1918, the War Department officially established the Reserve Officers Training Corps at Georgetown University. Since that time, over 4,000 men and women have been commissioned from the Georgetown University ROTC Program. Today, Georgetown University ROTC graduates continue to serve with pride in the truest tradition of the Georgetown heritage and in the interest of our nation's security.

PURPOSE AND APPROACH

The Georgetown University ROTC Program consists of structured study in the field of military science. Its primary objective is to prepare those students with leadership potential to serve as commissioned officers in the US Army as part of the Active Force, National Guard, or Army Reserve. In accomplishing this objective, the citizen-soldier relationship, which is ingrained as part of the American heritage, is fostered in a collegiate environment. In the classroom and during practical exercises, students are challenged to demonstrate the leadership abilities that they will be called upon to exhibit as leaders and managers of human and material resources immediately upon graduation.