4041 Sports Writing and Production (3) Prereq.: MC 2010 and 3101, or MC 3102 and 2700. Majors only. 2 hrs. lecture; 2 hrs. lab. Developing, writing, and producing sports stories for both print and broadcast media.
4081 Opinion Journalism (3) Prereq.: MC 2010 and 3101. Analysis of various forms of journalistic writing that involve subjective judgments, interpretive reporting, news analysis, essays, editorials and columns, critical reviews, and interviews.
4250 Public Affairs Reporting (3) Prereq.: MC 3101 and 3102 or permission of instructor. Majors only. 2 hrs. lecture; 2 hrs. lab. Using public records to document fraud, abuse, or interpersonal conflict.
4260 Long-Format Video Production (3) Prereq.: MC 3102. Majors only. 2 hrs. lecture; 2 hrs. lab. Strategies in producing video programs to inform mass electronic media audiences.
4270 News Production for the Internet (3) Prereq.: Majors only. Open to undergraduate and graduate students approved by the Mansion School. 1 hr. lecture; 3 hrs. lab. Advanced reporting for an electronic publication, using converging media technology to create content for a news web site.
4500 Advanced Journalism (3) Prereq.: MC 3101, 3102, and either 3103 or 3104 or permission of instructor. Majors only. 1 hr. lecture; 3 hrs. lab. Techniques of newspaper editing, with an emphasis on the use of advanced computer techniques; production of laboratory newspaper; techniques of producing all aspects of a television news program, including video editing and producing a newscast and on-set news performance.
7101 News Workers and Their Organizations (3) The impact of media on organizations during the production and processing of news; examination of the influence of public affairs research on communicators and their organizations.

POLITICAL COMMUNICATION
3504 Introduction to Political Communication (3) Prereq.: Majors and minors only. Introduction to theory and practice of political communication; role of media in political campaigns, government relations, and public opinion; implications for media, politicians, and the public.
3505 Media and Policy Processes (3) Prereq.: MC 3504. Majors only. Examination of the impact of the media on American politics through their interactions with political actors and involvement in the policymaking process; use of strategic political communication in government, and the media's role in spotlighting policy problems and suggesting policy solutions.
3506 Media, Politics, and the Public (3) Prereq.: Majors and minors only. Examination of political campaigns involving American media; the media client and messenger; developing media messages for political campaigns.
4520 Advanced Seminar in Political Communication (3) Prereq.: MC 3504 and MC 3505 or consent of instructor. Majors and minors only. Lectures, discussions and research on topics relevant to all aspects of political communication. Includes discussion of theoretical foundations, empirical effects, and normative and ethical implications of political communication processes in democratic governance.
4900 Propaganda and Mass Communication (3) Theory, development, and impact of propaganda as a controversial mass communication strategy for influencing public opinion. 7004 The News Media and Governance (3) News media influence on political processes, outcomes, and processes in American politics; public policy towards the news, strategic political communication, and influences of public officials and other political actors on the framing and structure of content.
7036 Seminar in Media and Public Affairs Theory (3) Advanced study in the application of mass communication theory to public affairs and public policy cases, problems, and issues.

PUBLIC RELATIONS
3000 Principles of Public Relations (3) Mass communication techniques applied to theories and principles of the public relations function.
4001 Public Relations Writing (3) V Prereq.: MC 2525, 3010. Majors only. 2 hrs. lecture; 2 hrs. lab. Developing and writing news releases, speeches, audio-visual scripts, feature stories, and other public relations communications.
4004 Case History Writing (3) Y Prereq.: MC 3010. Majors only. Theoretical concepts of public relations practice applied to solution of strategic business, institutional, and political problems.
4005 Public Relations Campaigns (3) V Prereq.: MC 3018, 4001, and 4004. Majors only. 2 hrs. lecture; 2 hrs. lab. Developing and evaluating public relations campaigns; hands-on experience in designing and producing print and audio-visual materials for campaigns; emphasis on use of planning and evaluation techniques.
7006 Public Relations Strategies and Tactics (3) Formal and informal models, tasks, and techniques used to formulate and complete management activities of public relations and to function ethically in social systems.
7007 Public Relations Administration (3) Principles of public relations management and application of project research techniques; strategies of campaign setting; planning, organization, staff, knowledge, and control.
7008 Public Relations Programming and Production (3) Prereq.: MC 4111 or equivalent writing proficiency. 2 hrs. lecture; 2 hrs. lab. Writing public relations messages for print and broadcast media. Graphic design; and layout of messages.
7013 Public Affairs Advertising Campaigns (3) The application of theoretical theory and process to public affairs campaigns; emphasis on strategy development in the context of political or issues-oriented campaigns.
7209 Public Communication Strategies (3) The role mediated communication plays in defining/influencing/altering relationships among various stakeholders in public affairs campaigns. Discussion of mass communication strategies used to formulate and execute public affairs programs.
7210 Public Communication Administration (3) Principles of public affairs, issues management, and political communication; application of research techniques in communication campaigns; strategies of campaign setting; planning, organizing, staffing, leading, and controlling communication campaigns in corporate and governmental relations.

MATHEMATICS • MATH
General education courses are marked with stars (★).
No student may receive more than nine semester hours of credit in mathematics courses numbered below 1550, with the exception of students who are pursuing the elementary education degree and following the 12 credit in mathematics courses numbered below 1550, and complete management activities of public relations and to function ethically in social systems.
Mathematics • MATH
1002 Preparation for College Mathematics II (3) Prereq.: MATH 1001 or placement by department. 3 hrs. lecture. For students not prepared to take MATH 1009, 1015, or 1021. Not for credit if can be added to the degree program of any student taking this course. No student who has received credit for a mathematics course numbered 1500 or above may register in a mathematics course numbered below 1550, unless by special permission by the Department of Mathematics.
1502 Analytic Geometry and Calculus II (3) Prereq.: MATH 1550 or placement by department. 3 hrs. lecture. Continuation of MATH 1501. Same as MATH 1552 with special honors emphasis.
1503 Analytic Geometry and Calculus III (3) Prereq.: MATH 1552 or placement by department. Continuation of MATH 1551. Same as MATH 1553 with special honors emphasis.
1413 Calculus with Business and Economic Applications (3) F,S Prereq.: MATH 1021 or equivalent. Credit will be given for only one of the following: MATH 1411, 1412, 1550. Differentiation and integration of algebraic, logarithmic, and exponential functions; applications to business and economics, such as maximum-minimum problems, marginal analysis, and exponential growth models.
1435 Mathematics for Business Analysis (3) Prereq.: MATH 1411 or equivalent. Credit will be given for only one of the following: MATH 1431, 1441, 1550. Differential and integral calculus of algebraic, logarithmic, and exponential functions; applications to business and economics, such as maximum-minimum problems, marginal analysis, and exponential growth models.
1411 Calculus with Application to Technology (3) F,S Prereq.: MATH 1021 and 1022; or 1023; or consent of department. Credit will be given for only one of the following: MATH 1411, 1441, 1550. Differentiation and integration of algebraic and trigonometric functions; application to technology.
1580 Analytic Geometry and Calculus I (5) F,S Prereq.: MATH 1022 or 1023; or consent of department. An honors course. MATH 1551 is available. Credit will be given for only one of the following: MATH 1431, 1441, 1550. Analytic geometry, limits, derivatives, integrals.
1510 Analytic Geometry and Calculus II (4) F,S Prereq.: MATH 1550. An honors course. MATH 1553 is available. Credit will be given for only one of the following: MATH 1552 or course and either MATH 1553 or MATH 1554 or MATH 1635. Techniques of integration, parameter equations, polar coordinates, infinite series, Taylor's and Maclaurin's series, introduction to differential equations and partial derivatives.
1580 Analytic Geometry and Calculus II (4) F,S Prereq.: MATH 1552 with special honors emphasis for qualified students. Credit will not be given for both this course and MATH 1510 or 1513.
1554 Calculus II for Life Sciences (4) F,S
Prereq.: MATH 1552. Credit will not be given for this course and either MATH 2085 or 2086. Credit will not satisfy the mathematics requirement for higher level Math courses. Designed for biological science majors. Techniques of integration, including partial fractions, improper integrals, application of integrals, polar coordinates, conics, sequences and series, including convergence tests, Taylor polynomials and series, and an introduction to Taylor's Theorem. Credit will not be given for this course and either MATH 1553 or 1557 or 2057 or 2058. Selected topics may include mathematical modeling, including partial differential equations, least squares regression, Lagrange multipliers, double integrals; vectors in two and three dimensions.

2030 Discrete Dynamical Systems (3) F,S
Prereq.: MATH 1552 or permission of the department. Dynamical systems with discrete time and in one spatial dimension; hyperbolicity; quadratic maps; chaos; structural stability; bifurcation theory; and higher dimensional systems.
434 Special Functions (3) V Prereq. : either MATH 2057 and 2090, or MATH 2057, 2065 or 2070 and 2085. Sturm-Liouville problems, orthogonal functions including Fourier series, recurrence relations and generating functions, Bernoulli, Euler, Beta and Gamma functions, Chebyshev polynomials, and other topics.

4470 Error-Correcting Codes (3) V Prereq. : MATH 2085 or 2090. Algebraic structure of linear codes, vector spaces over finite fields, basic properties of codes, examples of important codes and decoding schemes, bounds on sizes and rates. Generalization of the single-digit error-detecting, double-digit error-detecting, and single-digit error-correcting codes, and other topics.

7400 History of Mathematics (3) V Prereq. : MATH 2040, 2057, 2085 or consent of department. Survey of the course should be a firm sense of what constitutes a proof. This course will have substantial mathematical content; topics such as early Greek mathematics, from Euclid to Archimedes; algebra and number theory from Diophantus to the present; the calculus of Newton and Leibniz; the renewed emphasis on rigor and axiomatic foundations in the 19th and 20th centuries; interactions of mathematics with technology and the natural sciences; biographies of significant mathematicians.

4997 Vertically Integrated Research (3) F, S May be taken for a maximum of 24 hours with consent of instructor. This course is intended to provide opportunities for students to learn about mathematical research and to engage in mathematical research in a vertically integrated learning and research community. Undergraduate students, graduate students, postdoctoral researchers and faculty may work together as a unit to create new mathematics. Possible formats include group reading and exposition, group research projects, and written and oral presentations. Undergraduate students may have a research paper or experience to write an honors thesis as part of this course.

4998 Senior Seminar for Mathematics Majors (3) S Prereq. : enrollment within two semesters of the completion of requirements for a mathematics major; for undergraduate credit only; under guidance of professor teaching the course, student will undertake several independent reading projects and write expository papers; oral presentations will follow preparation of written papers.

4999 Selected Readings in Mathematics (1-3) Prereq. : consent of department. May be taken for a max. of 9 sem. hrs. credit.

6300 Topics in Mathematics for Secondary Teachers (1-3) V Prereq. : 6 sem. hrs. of mathematics at or above the level of 2040 or equivalent. May be taken for a max. of 6 sem. hrs. credit when topics vary. May be taken by M.N.S. students in mathematics with department approval. Areas of current interest to teachers of secondary school mathematics.

6301 Implementing the NCTM Standards (1-3) May be taken for a max. of 9 sem. hrs. of credit when topics vary. Enrollment is restricted to participants in the teacher-training and grant-supported programs. Topics for mathematics teachers (K-5) to be selected from those in the Principles and Standards of School Mathematics of the National Council of Teachers of Mathematics.

6302 Implementing the NCTM Standards II (3) May be taken for a max. of 9 sem. hrs. of credit when topics vary. Enrollment is restricted to participants in the teacher-training and grant-supported programs. Topics for mathematics teachers (6-8) to be selected from those in the Principals and Standards of School Mathematics of the National Council of Teachers of Mathematics.

7001 Communicating Mathematics I (1) Prereq. : consent of department. Practical training in the teaching of undergraduate mathematics; how to write mathematics for publication; other issues relating to mathematical exposition.

7002 Communicating Mathematics II (1) Prereq. : consent of department. Practical training in the written and oral presentation of mathematical papers; the teaching of mathematics and the uses of technology in the mathematics classroom.

7200 Geometric and Abstract Algebra (3) Prereq. : MATH 2085 or equivalent. Linear algebra, rings, fields, finite fields, groups, subgroups, quotient groups, isomorphism theorems. Algebras, number theory from Diophantus to the present; the calculus of Newton and Leibniz; the renewed emphasis on rigor and axiomatic foundations in the 19th and 20th centuries; interactions of mathematics with technology and the natural sciences; biographies of significant mathematicians.

7201, 7211 Algebra I, II (3,3) 7210 offered S; 7211 offered F Prereq. : MATH 7200 or equivalent. Groups: Sylow Theorems, finite abelian groups; rings and modules: exact sequences, projective modules; fields: algebraic, transcendental, normal, separable field extensions; Galois theory. Noetherian and Dedekind domains, topics from commutative rings.

7280 Seminar in Commutative Algebra (1-3) V Prereq. : consent of department. May be repeated for credit with consent of department. Advanced topics such as commutative rings, homological algebra, algebraic curves, or algebraic geometry. Additional topics such as algebraic number theory, algebraic geometry, quadric forms, or algebraic K-theory.

7311 Real Analysis I (3) Prereq. : MATH 4032 or equivalent. Advanced topics such as convergence, uniform convergence, bounded variation and absolute continuity, differentiation, Minkowski-Holder inequalities, Riemann-Stieltjes integrals.


7520 Ordinary Differential Equations (3) Prereq. : MATH 2085 and 4031, or equivalent. Existence and uniqueness theorems for initial value problem; methods, linear equations, systems of equations, stability theory; other topics such as boundary value problems.

7252 Numerical Analysis and Applications (3) Prereq. : MATH 4005 or equivalent. Finite difference methods; finite element methods; iterative methods; methods of parallel computing; applications to the sciences and engineering.

7290 Seminar in Algebra and Number Theory (1-3) V Prereq. : consent of department. May be repeated for credit with consent of department. Advanced topics such as algebraic number theory, group theory, algebraic geometry, and general topology.

7520 Algebraic Topology (3) S Prereq. : MATH 7200 and 7510, or equivalent. Basic laws of topology, homology, cohomology, and homotopy theory.

7550 Differential Geometry and Topology (3) V Prereq. : MATH 7200 and 7210 or equivalent. Basic notions of general topology, vector fields, vector bundles, transversality, Riemannian geometry, other topics.

7570 Seminar in Geometry and Algebraic Topology (1-3) V Prereq. : consent of department. Advanced topics such as topological groups, topological semigroups, or topological lattices.

7590 Seminar in Geometry and Algebraic Topology (1-3) V Prereq. : consent of department. May be repeated for credit with consent of department. Advanced topics such as topological groups, topological semigroups, or topological lattices.


MECHANICAL ENGINEERING • ME

2212 Introduction to Mechanical Engineering Design (2) Prereq. : ENG 1000, ME 2101, ME 2210, or ME 2215, or consent of department. May be taken for a max. of 1 hr. credit; 2 hrs. lab. Art and science of Mechanical Engineering design; reverse engineering; design methodologies; computeraided design; professional ethics; professional development.

2334 Thermodynamics (4) Prereq. : Grade of "C" or better in PHYS 2102. Credit will not be given for both this course and ME 2233. Classification and study of engineering materials, their structure, properties, and behavior; typical metals and alloys, plastic and ceramic materials; phase equilibria and manipulation of properties and behavior by adjustment of composition and processing variables; responses of engineering materials to stress and environmental variables; emphasis on Mechanical Engineering applications such as fracture and heat treatment processes.

2723 Materials of Engineering for Mechanical Engineers (3) Prereq. : Consent of instructor. Corequisite: PHYS 2102. Credit will not be given for both ME 2723 and ME 2733. Classification and study of engineering materials, their structure, properties, and behavior; typical metals and alloys, plastic and ceramic materials; phase equilibria and manipulation of properties and behavior by adjustment of composition and processing variables; responses of engineering materials to stress and environmental variables.

3133 Dynamics (3) S, Su Prereq. : Grade of "C" or better in PHYS 2102 and ME 1550; or MATH 2731, or registration in CHEM 1212 or PHYS 2108. 2 hrs. lecture; 2 hrs. recitation. Vascular treatment of kinematics and kinetics of particles and rigid bodies; force, mass, acceleration; impulse and momentum; work and energy.

3134 System Dynamics and Modeling (3) Prereq. : consent of instructor. Corequisite: MATH 2721, or consent of instructor. Corequisite: MATH 2731. Credit will not be given for both ME 3134 and PHYS 2102. A minimum of 6 weeks of full-time employment by an industry participating in the summer program. Selected engineering problems in an industrial environment.

3333 Thermodynamics (3) Prereq. : PHYS 2101 and MATH 1532, or equivalent. Not open to mechanical engineering majors. Credit will not be given for both ME 2723 and ME 2733. Classification and study of engineering materials, their structure, properties, and behavior; typical metals and alloys, plastic and ceramic materials; phase equilibria and manipulation of properties and behavior by adjustment of composition and processing variables; responses of engineering materials to stress and environmental variables.

3545 Materials Science Engineering (1,3,3) Su Prereq. : Grade of "C" or better in PHYS 2102 and MATH 2731. Credit will not be given for both ME 3545 and PHYS 2102. A minimum of 6 weeks of full-time employment by an industry participating in the summer program. Selected engineering problems in an industrial environment.

3570 Engineering Computation (1) Prereq. : consent of instructor. Corequisite: MATH 2731, or consent of instructor. Corequisite: MATH 2731. Credit will not be given for both ME 3570 and PHYS 2102. A minimum of 6 weeks of full-time employment by an industry participating in the summer program. Selected engineering problems in an industrial environment.

3575 Engineering Computation (1) Prereq. : consent of instructor. Corequisite: MATH 2731, or consent of instructor. Corequisite: MATH 2731. Credit will not be given for both ME 3575 and PHYS 2102. A minimum of 6 weeks of full-time employment by an industry participating in the summer program. Selected engineering problems in an industrial environment.