881*. Subatomic Physics
Fall. 3(0-0)
P: PHY 481
Application of conservation laws and physical principles to basic quantum mechanical problems in MeV energy range and femtometer size range. Application to nuclear da.
QA: PHY 881
P: PHY 881

891*. Elementary Particle Physics
Fall. 3(0-0)
P: PHY 833
Nonabelian gauge theory; spontaneously broken gauge theory, electroweak interaction, QCD, W and Z boson coupling to quarks and leptons, charm, top and bottom quarks, particle generations.
QA: PHY 881
P: PHY 881, PHY 852

899*. Master's Thesis Research
Fall, Spring, Summer. 1 to 6 credits. May reenroll for a maximum of 24 credits.
R: Open only to graduate students in Physics.
QA: PHY 999

972A*. Topics in Advanced Matter Physics (MTC)
Fall. 3(0-0)
P: PHY 831, PHY 852
Advanced topics in many-body problems, disordered solids, superfluidity and superconductivity magnetism.
QA: PHY 941
P: PHY 871

972B*. Topics in Advanced Matter Physics: Many-Body Problems
Fall. 3(0-0)
P: PHY 871
Advanced topics in many-body problems, disordered solids, superfluidity and superconductivity magnetism.
QA: PHY 941
P: PHY 871

972C*. Topics in Advanced Matter Physics: Superfluidity and Superconductivity
Fall. 3(0-0)
P: PHY 831, PHY 852
Advanced topics in many-body problems, disordered solids, superfluidity and superconductivity magnetism.
QA: PHY 941
P: PHY 871

972D*. Topics in Advanced Matter Physics: Magnetism
Fall. 3(0-0)
P: PHY 831, PHY 852
Advanced topics in many-body problems, disordered solids, superfluidity and superconductivity magnetism.
QA: PHY 941
P: PHY 871

972E*. Topics in Advanced Matter Physics: Quantum Chromodynamics
Fall. 3(0-0)
P: PHY 831, PHY 852
Advanced topics in many-body problems, disordered solids, superfluidity and superconductivity magnetism.
QA: PHY 941
P: PHY 871

980*. Advanced Reading in Physics
Fall, Spring, Summer. 1 to 3 credits. May reenroll for a maximum of 4 credits.
R: Permission of department.
QA: PHY 984

982*. Topics in Nuclear Physics (MTC)
Spring. 3(0-0)
P: PHY 881, PHY 852
A special topics course in nuclear physics.
QA: PHY 999
P: PHY 851

982A*. Topics in Nuclear Physics: Heavy Ion Reactions
Spring. 3(0-0)
P: PHY 881, PHY 831
Scattering, particle transfer, resonance reactions, fission, time-dependent Hartree-Fock, Vlasov equation, nuclear transport equations, particle production, nuclear liquid-gas phase transition, quark-gluon plasma.
QA: PHY 881
P: PHY 851

982B*. Topics in Nuclear Physics: Nuclear Structure
Spring. 3(0-0)
P: PHY 881, PHY 852
Special topics course in nuclear structure, nuclear forces, nuclear matter, nuclear structure models, and few-nucleon systems.
QA: PHY 881
P: PHY 851

992*. Quantum Chromodynamics (MTC)
Spring. 3(0-0)
P: PHY 881, PHY 852
Current topics in quantum chromodynamics, hadron-hadron interactions, interaction of hadrons with leptons.
QA: PHY 927
P: PHY 928

992A*. Quantum Chromodynamics: Hadron Interactions
Spring. 3(0-0)
P: PHY 881, PHY 852
Current topics in quantum chromodynamics, hadron-hadron interactions, interaction of hadrons with leptons.
QA: PHY 927
P: PHY 928

992B*. Quantum Chromodynamics: Lepton-Hadron Interactions
Spring. 3(0-0)
P: PHY 881, PHY 852
Current topics in quantum chromodynamics, hadron-hadron interactions, interaction of hadrons with leptons.
QA: PHY 927
P: PHY 928

999*. Doctoral Dissertation Research
Fall, Spring, Summer. 0(0)
May reenroll for a maximum of 96 credits.
R: Physics
QA: PHY 999

PSYCHOLOGY

250*. Introductory Psychology
Fall, Spring. 4(4-0)
Function, regulation and integration of organs and organ systems of higher animals emphasizing human physiology.

337*. Physiology and Hygiene of the Eye
Fall of odd-numbered years, Summer of even-numbered years. 3(3-0)
R: Not open to Physiology majors.
Basic anatomy, physiology, and hygiene of the visual system: normal and abnormal visual function, methods of correction, and educational implications.
QA: PHY 333

419*. Computational Problem Solving in Psychology
Fall, Spring. 3(0-0)
P: PSY 412
Quantitative analysis of physiological data: mathematical models, curve-fitting, data analysis and interpretation. Problem solving involving exponential and logistic growth, cerebral blood flow, convective cooling, oxygen consumption, thermoregulation.
QA: PSY 410
P: PSY 411

431*. Human Physiology I
Fall. 3(3-0)
P: BS 111, CEM 142
Neural function including autonomic nervous system, physiological control systems, endocrinology, reproduction, and digestive function.
QA: BS 210
P: BS 431

432*. Human Physiology II
Spring. 3(3-0)
P: PSY 431
Continuation of PSY 431. Function and regulation of the cardiovascular, respiratory, and renal systems. Control of tissue blood flow, blood pressure, blood gases, body fluid volume and electrolytes.
QA: PSY 431
P: PSY 432

440*. Topics in Cell Physiology
Fall, Spring. 3(0-0)
P: PSY 432
R: Open only to Physiology majors.
Critical discussion and evaluation of a selected problem of mammalian cell physiology including cell biology, molecular biology of the cell.
QA: PSY 431
P: PSY 432

441*. Topics in Endocrinology
Fall, Spring. 3(0-0)
P: PSY 432
R: Open only to Physiology majors.
Selected topic on the role of hormones in the regulation of growth, metabolism, differentiation.
QA: PSY 431
P: PSY 432

442*. Topics in Cardiovascular Physiology
Fall. 2(0)
P: PSY 432
R: Open only to Physiology majors.
Selected topic in blood flow physiology.
QA: PSY 431
P: PSY 432

443*. Topics in Respiratory Physiology
Fall of odd-numbered years. 2(0)
P: PSY 432
R: Open only to Physiology majors.
Selected topic in the physiology of gas exchange and lung mechanics.
QA: PSY 431
P: PSY 432

444*. Topics in Renal Physiology
Spring of even-numbered years. 2(0)
P: PSY 432
R: Open only to Physiology majors.
Selected topic in the function of the kidney, regulation of salt and water balance.
QA: PSY 431
P: PSY 432

445*. Topics in Environmental Physiology
Spring of odd-numbered years. 2(0)
P: PSY 432
R: Open only to Physiology majors.
Selected topic in environmental physiology with an emphasis on thermoregulation.
QA: PSY 431
P: PSY 432

446*. Topics in Visual Physiology
Fall of even-numbered years. 2(2)
P: PSY 432
R: Open only to Physiology majors.
Selected topic in the functioning of the visual system in health and disease.
QA: PSY 431
P: PSY 432
Introduction to Comparative Politics
| Fall, Spring, Summer. 3(0-0) | R: NONE NONE NONE
| Comparative analysis of political systems in first, second, and third-world countries. Alternative methods for comparative cross-cultural analyses of political systems.

Introduction to International Relations
| Fall, Spring, Summer. 3(0-0) | R: NONE NONE NONE

Introduction to Political Philosophy
| Fall, Spring, Summer. 3(0-0) | R: NONE NONE NONE
| Basic questions of political philosophy as considered from ancient to modern times. Focus on the origins, defenses, and radical critiques of modern liberal democracy.

Introduction to Political Science
| Fall, Spring, Summer. 4(4-0) | R: NONE NONE NONE
| The science of politics: theory construction, model building, empirical testing, and inductive inference. Examples from American, international and comparative politics.

Introduction to Methods of Political Analysis
| Fall, Spring, Summer. 4(4-0) | R: NONE NONE NONE
| NONE
| Philosophy of social science. Principles of research design, measurement, hypotheses, theory, methods, and association, cross-tabulations, and regression analysis.

American State Government
| Spring. 3(0-0) | R: NONE NONE NONE
| NONE

Public Bureaucracy in the Policy Process
| Fall, Spring. 3(3-0) | R: NONE NONE NONE
| NONE
| Role of public bureaucracy in the U.S. Theories of administrative behavior and the impact of hierarchy on policymaking. Relationships with the president, Congress, interest groups, and the public. Administrative functions, responsiveness, and ethics.

Public Policy Analysis
| Fall, Spring. 3(3-0) | R: NONE NONE NONE
| NONE
| Political and economic concepts for evaluating the consequences of government decision making. Issues of problem identification, policy adoption, and implementation affecting program evaluation.

The American Judicial Process
| Fall, Spring. 3(3-0) | R: NONE NONE NONE
| NONE
| Analysis of the structure and functions of judicial system and organization. Administration, and policy of the judicial bureaucracy. Roles of judges, juries, counselors, and interest groups in adjudication process.