Human Development and Family Studies (HDFS)

Head of Department: Professor Ronald Sabatelli
Office: Room 106, Family Studies Building

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

1060. Close Relationships Across the Lifespan (180) Three credits.
Theory and research on topics in the close relationship literature including attraction, relationship development and maintenance, friendship and social support, love, sexuality, intimacy, power, communication, conflict, dissolution and divorce, and bereavement. CA 2.

1070. Individual and Family Development (190) Three credits.
Human development throughout the life span, with emphasis upon the family as a primary context. CA 2.

1095. Special Topics Lecture (195) Credits, prerequisites, and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.


2004W. Research Methods in Human Development and Family Studies (205W) Four credits. Prerequisite or corequisite: HDFS 1070, which may be taken concurrently; ENGL 1010 or 1011 or 2011; open only to HDFS majors; open to sophomores or higher. Not open for credit to students who have completed HDFS 290. Overview of research methods with emphasis on (1) the social context in which research occurs and is used, and (2) strengths and limitations of social science research methods. Includes topics such as hypothesis formation, measurement of social variables, research ethics, data collection techniques, and interpreting results.

2100. Human Development: Infancy Through Adolescence (202) Three credits. Prerequisite: Open to sophomores or higher.
Individual development and behavior from prenatal period through adolescence; impact of peers, school, other social agencies, and especially the family.

2200. Human Development: Adulthood and Aging (204) Three credits. Prerequisite: Open to sophomores or higher.
Individual development and behavior from young adulthood through later life with special attention given to family and social influences. Physical, cognitive, social and personality changes, role transitions, and interpersonal and intergenerational relationships.

2300. Family Interaction Processes (273) Three credits. Prerequisite: Open to sophomores or higher.
Family interaction: communication processes, bonding behaviors, management of conflict and aggression, negotiation of family crisis.

3042. Baseball and Society: Politics, Economics, Race and Gender (Also offered as AFRA 3042 and WGSS 3042.) Three credits. Prerequisite: Open to juniors or higher.
Baseball in historical, political, sociological, and economic contexts. Topics may include: impact on individuals and families; racial discrimination and integration; labor relations; urbanization; roles of women; treatment of gay athletes; and implications of performance-enhancing drugs.

3080. Supervised Field Experience (288) Three or six credits. May be repeated up to a maximum of six credits. Prerequisites: GPA of 2.5 in HDFS courses; 15 credits of 2000-level or above HDFS courses and consent of the Director of Undergraduate Studies. Students who do not meet all of these requirements may take the course with the consent of the fieldwork coordinator and of the seminar instructor. Weekly seminar required. Practicum by arrangement.
Supervised participation in settings where purposes and functions are related to the development and welfare of individuals and families.

3083. Foreign Study (294) Credits and hours by arrangement. Prerequisite: Consent of Director of Undergraduate Studies required, preferably prior to student’s departure. With a change in content, this course may be repeated for credit. A minimum of six credits can be used to meet major requirements.
Special topics taken in a foreign study program.

3087. Honors Proseminar (291) Two credits. Class meets once a week for two hours. Prerequisite: Open only with consent of instructor to students in the Honors Program. May be repeated for credit.
Overview of the Human Development and Family Studies Honors Programs and the opportunities available through University Honors. Includes presentations by Family Studies faculty members and discussions with faculty regarding research. Provides direction to students planning honors theses.

3090. Fieldwork in Community Settings (289) Three credits. Prerequisites: HDFS 3080; GPA of 2.5 in HDFS courses; 15 credits of 2000-level or above HDFS courses and consent of the Director of Undergraduate Studies. Cannot be repeated for credit. Cannot be used toward meeting major requirements in HDFS nor towards meeting GPA requirements in HDFS. Weekly seminar required. Practicum by arrangement.
Supervised participation in settings where purposes and functions are related to the development and welfare of individuals and families.

3092. Research Practicum in Human Development and Family Studies (292) Credits and hours by arrangement. Prerequisite: GPA of 2.5 in HDFS courses and consent of instructor. May be taken more than one semester.
Supervised experience conducting research in human development and family studies.

3095. Special Topics (305) Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites, required preparation, and recommended preparation vary.

3098. Selected Topics in Human Development and Family Studies (298) Variable credits. With a change in content this course may be repeated for credit.

3101. Infant and Toddler Development (231) Three credits. Prerequisite: HDFS 2100 or PSYC 2400; open to juniors or higher. Prerequisite or corequisite: HDFS 204W or NURS 3215 or PSYC 2100 or SOCI 3201.
Study of children from birth to three years from an integrated human development perspective; biological and social contextual influences.

3102. Early and Middle Childhood Development (232) Three credits. Prerequisite: HDFS 2100 or PSYC 2400; open to juniors or higher. Prerequisite or corequisite: HDFS 204W or NURS 3215 or PSYC 2100 or SOCI 3201.
Study of children ages 3-8 years from an integrated human development perspective that focuses on the interdependence of physical growth and cognitive, emotional, and social development.

3103. Adolescent Development (284) Three credits. Prerequisite: HDFS 2100 or PSYC 2400; open to juniors or higher. Prerequisite or corequisite: HDFS 204W or NURS 3215 or PSYC 2100 or SOCI 3201.
Theoretical approaches to adolescence; contextual research findings regarding adolescent development, with an emphasis on evaluating the match between these findings and the lived experience of adolescents; interventions designed to help adolescents meet the challenges of contemporary life.

3110. Social and Community Influence on Children in the United States (210) Three credits. Prerequisite: HDFS 2100 or PSYC 2400; open to juniors or higher.
Based on an ecological/contextual perspective students investigate the impact on child development of community characteristics and social groups and organizations on the development of children in the United States. Possible topics include: family, peers, schools, media, economic status, health care, social services, and the legal system. For each topic, focus is on factors related to promoting resilience.

3120. Introduction to Programs for Young Children (220) Three credits. Prerequisite: Open to juniors or higher; open only with instructor consent. Must be taken concurrently with HDFS 3180 or 3183.
Components of early care and education programs. Guided observations are integrated with lecture material. Designed for students who intend to work with infants and young children.

3122. Integrated Curriculum Methods and Materials for Infants and Toddlers (222) Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: Open to juniors or higher; open only with instructor consent.
Integration of child development theory with best teaching practices for developmentally appropriate learning for children from birth to three years in specific domains including arts, sensory motor, social/emotional, and physical development.

3123. Integrated Curriculum Methods and Materials for Preschool and Kindergarten (223) Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: Open to juniors or higher; open only with instructor consent.
Integration of child development theory with best teaching practices for developmentally appropriate learning for children from preschool through kindergarten in specific domains including cognitive development, mathematical and scientific thinking, social studies, and personal/social development.

3125. Emergent Literacy and Language Arts in Early Childhood Education (226) Three credits. Prerequisite: HDFS 2100 or PSYC 2400; and HDFS 3122 or 3123; open to juniors or higher.
Developmentally and individually appropriate integrated curriculum methods and materials in emergent literacy and language arts for children birth to eight.
3257. Professional Development and Advocacy in Early Childhood
Three credits. Prerequisite: HDFS 3120. Consent of the instructor is required. Not open to students who have completed HDFS 3126.

Historical, philosophical, psychological, and contemporary influences on the field. Comprehensive services, the workforce, quality, funding, and child outcomes. Focus on each student’s professional development and on advocacy for change.

3180. Programs for Young Children: Introductory Laboratory
(221) One credit. One 2-hour laboratory by arrangement. Prerequisite: Open only to students concurrently enrolled in HDFS 3120; and only with instructor consent.

Guided observation and participation in a program for young children.

3181. Observing Infant and Toddler Development
(235) One credit. Weekly seminar. Lab by arrangement. Prerequisite or corequisite: HDFS 3101. Not open to students who have passed HDFS 3182.

Observation of children ages 8 weeks to two years in early care and education programs.

3182. Observing Early Childhood Development
(236) One credit. Weekly seminar. Lab by arrangement. Prerequisite or corequisite: HDFS 3101. Not open to students who have passed HDFS 3181.

Observing young children in early care and education settings.

3183. Early Childhood Development and Education: Supervised Fieldwork Practicum
(224) Four credits. Prerequisite: HDFS 3120 and 3180 and HDFS 3101 and 3181 or HDFS 3102 and 3182; completion of or concurrent enrollment in HDFS 3122 or HDFS 3123; open to juniors or higher; open only with instructor consent. Weekly seminar. Practicum by arrangement.

Supervised participation with typically developing and special needs children within the Child Development Lab classrooms. Topics include understanding informed observation and how relationships and play guide early learning and development.

3240. Aging in American Society
(248) (Also offered as SOCI 3459.) Three credits. Prerequisite: Open to juniors or higher.

Social gerontology: the role and status of older people in a changing society.

3240W. Aging in American Society
(248W) (Also offered as SOCI 3459W.) Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

3249. Gender and Aging
(250) Three credits. Prerequisite: Open to juniors or higher.

Aging process as it impacts on men and women; historical and cross-cultural perspectives, changing family roles, including grandparenthood and widowhood, and implications of changing gender roles for self-actualization of older persons.

3250. Disabilities: A Lifespan Perspective
Three credits. Prerequisite: HDFS 1070; open to juniors or higher.

Introduction to disabilities, approaching the topic from historical, developmental-lifespan, individual, and family perspectives. Topics include social constructions, models, definitions, and types of disabilities, disability rights, public policy, and philosophies and systems of education and support for individuals and families.

3251. Biotechnology, Disability and the Family
Three credits. Prerequisite: Open to juniors or higher. Consent of instructor is required.

Politics and ethics of treating and/or preventing disabilities in reproduction and across the lifespan. Family/caregiver experiences analyzed through disability studies, medical sociology, science and technology studies, and bioethics.

3252. Death, Dying, and Bereavement
(252) Three credits. Prerequisite: Open to juniors or higher.

Cultural context of death, personal meaning of death at different stages in life cycle, and the effect of death upon survivors.

3261. Men and Masculinity: A Social Psychological Perspective
(259) Three credits. Prerequisite: Open to juniors or higher.

Men’s gender role socialization over the life span; men’s developmental issues, gender role, conflicts, and interpersonal dynamics with women. Theory, research, and personal exploration are integrated. CA 4.

3266. Latinos: Sexuality and Gender
(268) (Also offered as LLAS 3251.) Three credits. Prerequisite: Open to juniors or higher.

Critical discussion of issues involving gender and sexuality among Latinos, with particular attention to race, class, ethnicity, and acculturation.

3277. Issues in Human Sexuality
(277) Three credits. Prerequisite: Open to juniors or higher.

Contemporary issues concerning human sexuality; impact upon individuals and family units.

3310. Parent-Child Relations in Cross-Cultural Perspective
(245) (Also offered as ANTH 3303.) Three credits. Prerequisite: Open to juniors or higher.

Theory and research on major dimensions of parenting in the U.S.A. and cross-culturally: parental warmth, control and punishment.

3311. Parenthood and Parenting
(287) Three credits. Prerequisite: HDFS 2100 or PSYC 2400 and HDFS 1070 or HDFS 2020; open to juniors or higher.

Parent behavior and the dynamics of parenthood; interpersonal, familial, and societal roles of parents and variables influencing these roles across the lifespan.

3319. Risk and Resilience in Individuals and Families
(275) Three credits. Prerequisite: HDFS 2100; open to juniors or higher.

Challenges, stresses, and crises experienced by individuals and families; protective factors and resilience; coping strategies; prevention and intervention.

3340. Individual and Family Interventions
(266) Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: HDFS 2300.

An introduction to individual, couple, family, and group intervention. Topics include counseling theories, developmentally appropriate interventions, and methods for addressing diversity. Intervention strategies used in a variety of human services settings are examined.

3341. Family and Consumer Sciences: Developing Curriculum for Adolescents
(241) Three credits. Prerequisite: HDFS 2100 and HDFS 3103; open to students in Human Development and Family Studies, others with permission. Course may be repeated up to three times with change in content/topic for a total of 9 credits.

Theory, research and practicum related to instruction of adolescents using developmentally appropriate practices. Curriculum development, methodology, and assessment of students in selected content areas (i.e. interior design, clothing and textiles, quantity food production) for the preparation of teachers of Family and Consumer Sciences.

3342. Family Resource Management
(283) Three credits. Prerequisite: Open to juniors or higher.

Decision-making process of families concerning the utilization of financial, personal, environmental and social resources.

3343. Family Life Education
Three credits. Prerequisite: Open to juniors or higher.

Theory and practice of family life education including program development, implementation, evaluation, and professional ethics.

3420. Abuse and Violence in Families
(269) Three credits. Prerequisite: HDFS 2300; open to juniors or higher.

Historical, psychological, sociological and legal issues relating to abuse and family violence across the lifespan, including child maltreatment and elder abuse. Introduction to methods for prevention and remediation.

3421. Low Income Families
(270) Three credits. Prerequisite: Open to juniors or higher.

Impact of poverty and related problems on development of the child in the context of the family. Family structure, childrearing patterns, early educational and community programs.

3423. History of the Family
(279) (Also offered as HIST 3203.) Three credits. Prerequisite: Open to juniors or higher.

Pre-industrial and industrial family life in Western societies from the Middle Ages, with emphasis on the changes in demography, family size and structure, family economy, social expectations, sex roles, sexuality, and affective bonds.

3430. The Family-School Partnership
(240) Three credits. Prerequisite: HDFS 1070 or HDFS 2100 or PSYC 2400; open to juniors or higher.

The role of families in the education process. The effective family-school-community partnership in educating children: Communications and the implications of culture, socio-economics, family form, family dynamics, family supports, and public policy.

3431. Families and Work
(272) Three credits. Prerequisite: Open to juniors or higher.

Interaction of the world of work with family structure; social psychological dynamics that enhance or impede working families’ lives.

3432. Consumer Rights and Responsibilities
Three credits. Prerequisite: Open to juniors or higher.

The rights and responsibilities of consumers with emphasis on the consumer decisions of individuals, households, and families throughout the lifespan.

3442. Latino Health and Health Care
(267) (Also offered as LLAS 3250.) Three credits. Prerequisite: Open to juniors or higher.

Overview of health and health care issues among Latinos in the United States. Particular attention is paid to cultural and social factors associated with health and well being (e.g. migration, acculturation, SES).

3473. Asian-Pacific American Families
(Also offered as AASI 3473.) Three credits.

Overview of social, cultural, educational, demographic and economic characteristics of Asian-Pacific American families. Examination and critique of values, customs, traditions and beliefs that distinguish...
families of this heterogeneous ethnic population.

3510. Planning and Managing Human Service Programs (276) Three credits. Prerequisite: Open to juniors or higher.

Planning techniques: needs assessment, data collection and analysis, budgeting, and evaluation. Management skills: decision making, management theory and organizational behavior, personnel motivation, accountability, and financial management.

3520. Legal Aspects of Family Life (264) Three credits. Prerequisite: Open to juniors or higher.

Overview of historical roots and key aspects of family law. The case method is used to analyze the causes and effects of contemporary trends. Topics include: the regulation of marriage, separation, and divorce; procreation and abortion; adoption; child custody and support; and, end-of-life issues.

3530. Public Policy and the Family (274) Three credits. Prerequisite: Open to juniors or higher.

Analysis of government programs and policies impacting the family: child care, aging, family law, mental health, family violence, income maintenance, and family impact analysis.

3540. Child Welfare, Law and Social Policy (285) Three credits. Prerequisite: HDFS 2100 or PSYC 2400; and HDFS 204W or PSYC 2100; open to juniors or higher.

Examines the methods through which empirical social science research can affect law and public policy affecting children and families.

3550. Comparative Family Policy (281) Three credits. Prerequisite: Open to juniors or higher.

Comparative analysis of government programs and policies impacting families in the United States and other countries. Health and welfare policies, family planning, child care, teen pregnancy, and care of the aged.

4004. Senior Seminar in Research Methods (295) Three credits. Prerequisite: HDFS 204W, 12 credits of 2000-level or above HDFS courses; open only to Human Development and Family Studies Majors; open only with consent of instructor.

Students will work as a research team to conduct a research project through all of its phases, from formulating a research question to final presentation of findings.

4007W. Professional Communication in Human Development and Family Studies (293W) Three credits. Prerequisite: HDFS 204W and an additional 12 credits completed in 2000-level or above HDFS courses; ENGL 1010 or 1011 or 2011; open only to HDFS majors.

Development of advanced written and oral communication skills required for professional careers and graduate studies. Emphasis is placed on appropriate presentation and writing styles for the diverse audiences and purposes encountered in research and practice.

4097. Honors Thesis Preparation Seminar (296W) Three to six credits. Hours by arrangement. Prerequisite: ENGL 1010 or 1011 or 2011; open only with consent of instructor to students in the Honors Program; students must have a thesis advisor and have an approved thesis topic.

Individual study with student’s honors thesis supervisor for the purpose of writing the honors thesis.

(297) One credit. Class meets once a week for one hour. Prerequisite: HDFS 3087; open only with consent of instructor to students in the Honors Program. May be repeated for credit.

Prepares students to tackle the honors thesis by covering the basics of the thesis process. Course content will focus on strategies to make the thesis manageable, organizational and writing skills, and discussion of seminar members’ thesis projects and progress. In this seminar, students form a community of scholars to discuss and support each other’s work.

4099. Independent Study for Undergraduates (299) Credits and hours by arrangement. Prerequisite: HDFS 2004W; open only with consent of instructor. May be taken more than once.

Students, working with a faculty supervisor, develop plans for an independent research project or review paper, execute the project, and complete a report.

4181W. Early Childhood Development and Education: Supervised Teaching Practicum (285) Three credits. Prerequisite: HDFS 2100, 3101, 3102, 3120, 3122, 3123, 3183, and either 3181 or 3182; ENGL 1010 or 1011 or 2011; GPA of 2.7 in HDFS courses, and instructor consent.

Supervised teaching experience within the Child Development Labs or approved early education center. Development of advanced written and oral communication skills required for early childhood educators with emphasis on appropriate presentation and writing skills for diverse audiences.

4182. Administration and Leadership in Early Childhood Programs: Practicum (228) Variable credits. Two class periods and laboratory by arrangement. Prerequisite: HDFS 4181W, GPA of 2.5 in HDFS courses, open to juniors or higher; instructor consent.

Continuation of HDFS 4181W. Experience in early childhood program implementation, administration, staff supervising, policy making, and curriculum planning.

4255. Living with Chronic or Life-threatening Illness (255) Three credits. Prerequisite: Open only to juniors or higher.

Chronic and/or life-threatening illness from diagnosis through long term management. Psychological, interpersonal, family, and ethical aspects of the chronic illness experience across the life span, in contexts of culture and health policy.

Human Rights (HRTS)

Director: Associate Professor Emma Gilligan
Office: 152 Human Rights Institute, Dodd Research Center

1007. Introduction to Human Rights (125) (Also offered as POLS 1007.) Three credits.

Exploration of central human rights institutions, selected human rights themes and political controversies, and key political challenges of contemporary human rights advocacy. CA 2. CA 4-INT.

2170W. Bioethics and Human Rights in Cross-Cultural Perspective (170W) (Also offered as PHIL 2170W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores or higher.

Philosophical examination of the ethical and human rights implications of recent advances in the life and biomedical sciences from multiple religious and cultural perspectives. CA 1.

2263. Women and Violence (263) (Formerly offered as HRTS 3263.) (Also offered as WGS 2263.) Three credits. Prerequisite: Open to sophomores or higher. Recommended preparation: Any 1000-level WGS 2200 course.

Discussion of violence against women in the U.S. and globally, including close examination of various forms of interpersonal and structural violence as well as the social, political and personal meanings of violence.


An introduction to the study and understanding of Aboriginal ways of life and thought. An exploration of the complexity of contemporary indigenous social orders and land rights issues. CA 4-INT.

3028W. Indigenous Rights and Aboriginal Australia (Also offered as ANTH 3028W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. Recommended preparation: ANTH 2000. CA 4-INT.

3042. The Theory of Human Rights (205) (Also offered as POLS 3042.) Three credits. Prerequisite: Open to juniors or higher. Hiskes

Various theories of human rights, both historical and contemporary. Conceptual arguments both in favor and critical of the theory and practice of human rights will be considered, with literature taken primarily from philosophy and political theory.

3139. Theatre and Human Rights (Also offered as DRAM 3139.) Three credits each semester. Two class periods.

Provides a critical study of theatre production as political discourse in global areas of conflict and how that discourse defines, or is defined by, human rights issues.

3149. Human Rights Through Film Three credits.

Human rights-related issues explored via the cinematic medium. Both the substantive content and the technical aspects of the films will be analyzed through a combination of lecture, viewing, and group discussion.

To be reported to the Senate:

3149W. Human Rights Through Film Prerequisite: ENGL 1010 or 1011 or 2011. Open only to juniors or higher.

3153W. Human Rights in Democratizing Countries (280W) (Also offered as ANTH 3153W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open only with consent of instructor.

Human rights, political violence, political and legal anthropology, prosecutions of human rights offenders, truth and memory, reconciliation, international justice. CA 4-INT.

3201. The History of Human Rights (253) (Also offered as HIST 3201.) Three credits. Recommended preparation: Any 1000-level HIST course.

Case studies in the emergence and evolution of human rights as experience and concept.

3202. International Human Rights (226) (Also offered as HIST 3202.) Three credits. Prerequisite: Open to juniors or higher.

Historical and theoretical survey of the evolution of human rights since 1945.

3207. Genocide after the Second World War (Also offered as HIST 3207.) Three credits. Recommended preparation: Any 1000-level WGS 2200 course.

Discussion of violence against women in the U.S. and globally, including close examination of various forms of interpersonal and structural violence as well as the social, political and personal meanings of violence.
mended preparation: HIST/HRTS 3201. Gilligan
Origins of the 1948 Genocide Convention. Several case studies of genocide post WWII: Cambodia, Rwanda, the former Yugoslavia, and Darfur. Causes and underlying dynamics of genocide with an emphasis on the international response. Critical evaluation of military, political, and non-governmental measures to prevent genocidal acts.

3212. Comparative Perspectives on Human Rights
(258) (Also offered as POLS 3212.) Three credits. Prerequisite: Open to juniors or higher.
Cultural difference and human rights in areas of legal equality, women’s rights, political violence, criminal justice, religious pluralism, global security, and race relations.

3219. Topics in Philosophy and Human Rights
(219) (Also offered as PHIL 3219.) Three credits. Prerequisite: One 3-credit course in Philosophy or instructor consent; open to juniors or higher. With a change in content, may be repeated for credit.
What are human rights? Why are they important? Topics may include the philosophical precursors of human rights, the nature and justification of human rights, or contemporary issues bearing on human rights.

3220. Philosophical Foundations of Human Rights
(220) (Also offered as PHIL 3220.) Three credits. Prerequisite: At least one of PHIL 1101, 1102, 1103, 1104, 1105, 1106, or 1107.
Ontology and epistemology of human rights investigated through contemporary and/or historical texts. CA 1.

3221. Latinos/as and Human Rights
(220) (Also offered as HIST 3575 and LLAS 3221.) Three credits. Prerequisite: Open to juniors or higher. Silvestrini
Latinos/a issues related to human, civil and cultural rights, and gender differences.

3256. Politics and Human Rights in Global Supply Chains
(Also offered as POLS 3256.) Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: POLS 1202 and 1402 and POLS/HRTS 3212. Political and human rights implications of regulating contemporary global supply chains: official regulatory frameworks; non-regulatory approaches to rule-making (such as voluntary corporate codes of conduct and industry standards); social responses to the dilemmas of “ethical” sourcing of goods and services.

3256W. Politics and Human Rights in Global Supply Chains
(Also offered as POLS 3256W.) Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. Recommended preparation: POLS 1202 and 1402 and POLS/HRTS 3212.

3299. Independent Study
(299) Credits and hours by arrangement. Prerequisite: Instructor consent. With a change in content may be repeated for credit.
Supervised reading and writing on a subject of special interest to the student.

3418. International Organizations and Law
(225) (Also offered as POLS 3418.) Three credits. Prerequisite: Open to juniors or higher.
The role of intergovernmental and nongovernmental organizations and international law in world affairs with special attention to contemporary issues.

3421. Class, Power, and Inequality
(268) (Also offered as SOCI 3421.) Three credits. Prerequisite: Open to juniors or higher. Bernstein, Glasberg, Villeneuve, Wallace
Inequality and its consequences in contemporary societies.

3428. The Politics of Torture
(Also offered as POLS 3428.) Three credits. Prerequisite: Open to juniors or higher.
Examination of the usage of torture by state and non-state actors. Questions include, “Why is torture perpetrated?” “What domestic and international legal frameworks and issues related to the use of torture?” “How effective are existing legal prohibitions and remedies?” “Who tortures?” and “How does torture affect transitional justice?”

3429. Sociological Perspectives on Poverty
(249) (Also offered as SOCI 3429.) Three credits. Prerequisite: Open to juniors or higher. Cazeneuve, Villeneuve
Poverty in the U.S. and abroad, its roots, and strategies to deal with it.

3430. Evaluating Human Rights Practices of Countries
(Also offered as POLS 3430.) Three credits. Prerequisite: Open to juniors or higher.
Examination of the ways in which governments, businesses, NGOs, IGOs, and scholars assess which human rights are being respected by governments of the world. Hands-on experience in rating the level of government respect for human rights in countries around the world.

3475. Economic Development and Human Rights
Three credits.
Microeconomics of economic development and human rights. Impacts of human capital, health, education, on well-being and poverty.

3505. White Racism
(236) (Also offered as AFRA 3505 and SOCI 3505.) Three credits. Prerequisite: Open to juniors or higher. Cazeneuve
The origin, nature, and consequences of white racism as a central and enduring social principle around which the United States and other modern societies are structured and evolved. CA 4.

3563. African American History to 1865
(238) (Also offered as HIST 3563 and AFRA 3563.) Three credits. Prerequisite: Open to juniors or higher. Campbell, Ogbar
History of African-American people to 1865, from their West African roots, to their presence in colonial America, through enslavement and emancipation. Adaptation and resistance to their conditions in North America. Contributions by black people to the development of the United States.

3571. Sociological Perspectives on Asian American Women
(221) (Also offered as ASIA 3221 and SOCI 3221.) Three credits. Prerequisite: Open to juniors or higher. Purkayastha
An overview of social structures, inter-group relations, and women’s rights, focusing on the experience of Asian American women. CA 4.

3573. Asian Indian Women: Activism and Social Change in India and the United States
(222) (Also offered as ASIA 3222 and SOCI 3222.) Three credits. Prerequisites: SOCI 1001, 1251 or 1501; open to juniors or higher.
How gender, class and ethnicity/race structure everyday lives of Asian Indian women in both India and the United States.

3619. Topics in Literature and Human Rights
(241) (Also offered as ENGL 3619.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher. May be repeated for credit with a change of topic.
Study of literature from various historical periods and nationalities concerned with defining, exploring, and critiquing the idea of universal human rights.

3631. Literature, Culture, and Humanitarianism
(Also offered as ENGL 3631.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores and higher.
Relationships between literature and culture and humanitarian movements, from the eighteenth century to the present.

3801. Political Sociology
(269) (Also offered as SOCI 3801.) Three credits. Prerequisite: Open to juniors or higher. Glasberg
Social analysis of power, democracy and voting, society and the state, and political economy.

3807. Constitutional Rights and Liberties
(256) (Also offered as POLS 3807.) Three credits. Prerequisite: Open to juniors or higher.
The role of the Supreme Court in interpreting the Bill of Rights. Topics include freedoms of speech and religion, criminal due process, and equal protection.

3825. African Americans and Social Protest
(235) (Also offered as AFRA 3825 and SOCI 3825.) Three credits. Prerequisite: Open to juniors or higher. Cazeneuve
Social and economic-justice movements, from the beginning of the Civil Rights movement to the present.

3831. Human Rights in the United States
(215) (Also offered as SOCI 3831.) Three credits. Prerequisite: Open to juniors or higher.
Sociological analyses of human rights issues in the United States, including economic, racial, and gender justice; prisoner’s rights and capital punishment; the role of the United States in international human rights agreements and treaties; and struggles on behalf of human rights.

3835. Refugees and Humanitarianism
(Also offered as SOCI 3835.) Three credits. Social and political challenges of living as a refugee and working in humanitarian settings with a focus on refugee camps, institutional development of the United Nations High Commissioner for Refugees, and alternative approaches to refuge.

3835W. Refugees and Humanitarianism
(Also offered as SOCI 3835W.) Three credits. Prerequisites: ENGL 1010 or 1011 or 2011. Suggested preparation: HRTS/POLS 1007.

3837. Sociology of Global Human Rights
(Also offered as SOCI 3837.) Three credits. Comparative approach to the study of human rights in the United States and elsewhere around the world from a sociological perspective.

4291. Service Learning Seminar/Internship
Three credits. Class hours by arrangement. Prerequi-
site: Open only with instructor consent.
Combination of internship work within the larger human rights community with regular classroom meetings for reflection on the application of human rights concepts and practices. Includes the production of a written/mediaportfolio of semester’s work.

499W. Senior Thesis
Three credits. Class hours by arrangement. Prerequisite: ENGL 1010 or 1011 or 2011; open only with instructor consent.
Research and writing of major project exploring a topic with human rights, with close supervision and production of multiple written drafts.

India Studies (INDS)

Director: Professor Elizabeth Hanson
Office: Monteith Building

3210. Ancient and Classical Indian Literature in Translation
(210) Three credits.
Literary achievements of Indian civilization from the ancient and classical periods. Attention given to major genres and their development in both secular and religious texts.

3293. Foreign Study
(293) Credits and hours by arrangement. May be taken for a maximum of 15 credits. Prerequisite: Consent of Coordinator of India Studies required prior to departure. Special topics taken in a foreign study program.

3295. Special Topics
(295) Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites, required preparation, and recommended preparation vary.

3298. Variable Topics
(295) Credits and hours by arrangement. With a change of content, may be repeated for credit.

3299. Independent Study
(299) Credits and hours by arrangement. Prerequisite: Instructor consent. With a change in content, may be repeated for credit. Supervised reading and writing on a subject of special interest to the student.

3375. Indian Art and Popular Culture: Independence to the Present
(Also offered as ART 3375 and AASI 3375.) Three credits. Prerequisite: Open to juniors or higher. Myers An interdisciplinary studio art course introducing modern, contemporary, folk, and popular art from India and the South Asian Diaspora. CA 4-INT.

4296. Senior Thesis
(296) Three credits. Hours by arrangement. Prerequisite: Open only with instructor consent. Research and writing of thesis.

Informational Science and Knowledge Management (ISKM)

Interim Director: Peter Diploc
Department Office: Room 333B, John W. Rowe Center

3100. Introduction to Information Technology
(210) (Formerly offered as GS 210.) Three credits.
An overview of information technologies including fundamentals of the Internet, service protocols, web development and deployment, and fundamentals of networking.

3100W. Introduction to Information Technology
(210W) Prerequisite: ENGL 1010 or 1011 or 2011.

3110. Introduction to UNIX/Linux
(215) (Formerly offered as GS 209.) Three credits. Prerequisite: Basic computing skills required. Online access required.
A technical overview of UNIX to build knowledge and understanding through hands-on experiences. Includes basic commands and system structures; system tools; output redirection; command line text editing, e-mail and system calls; file system basics; and basic shell scripting. Preparation for versatile use of any UNIX system and serves as a foundation for numerous UNIX certification programs.

3112. Introduction to System Administration with UNIX/Linux
(226) (Formerly offered as GS 212.) Three credits. Prerequisite: ISKM 3110 or instructor consent. Basic computing skills and an understanding of the UNIX/Linux operating environments required. Online access required.
Expands the use of a UNIX system from that of the user to the administrator. Topics covered will include installation, file system structure, data transfer, backup and recovery, user and process administration, system security features, system startup and shutdown, performance monitoring and troubleshooting techniques. Since it is impossible to cover all aspects of system administration in depth, the focus of this course is on developing a mindset that acts as a springboard to developing your skills.

3120. Web Applications I: Client Side Scripting
(217) (Formerly offered as GS 225.) Three credits. The structure and function of client side scripting languages such as JavaScript. Covers programming concepts from the beginning. Topics include: application development methodologies, variables and arrays, program flow control, functions, and objects. Web-specific topics include: JavaScript objects, events, forms, regular expressions, cookies, and platform and browser capability.

3220. Web Application Development with PERL/PHP
(218) (Formerly offered as GS 213.) Three credits. Prerequisite: Basic computing skills required. Unix skills course required; can be taken concurrently. Participation in cooperative assignments the student will gain appreciation for the process of web application development. Includes the design and implementation of simpler programs and the group development of advanced web applications.

3222. Introduction to Object Oriented Programming with Java
(219) (Formerly offered as GS 211.) Three credits. Fundamentals of the Java language with applied object-oriented techniques. Topics covered: classes and methods, application and applet modes, and graphical interfaces.

3240. Web Authoring and Content Management I
(220) (Formerly offered as GS 223.) Three credits. DePalma Introduction to creation and management of web content. Discusses information architecture and markup languages as a means to design, relate, and compose documents for the web. Technical topics covered include: Hypertext markup language and XHTML.

3241. Web Authoring and Content Management II
(222) (Formerly offered as GS 224.) Three credits. Prerequisite: ISKM 3240 or instructor consent. DePalma Continuation web authoring and management, focusing on security and commerce. Topics examined from consumer, infrastructure, and content-provider perspectives. Topics include: cryptography, digital identification, privacy, physical security, certificates, content filtering, and intellectual property.

3260. Web Graphics and Layout
(224) (Formerly offered as GS 226.) Three credits. Prerequisite: ISKM 3100, 3240 or department head or instructor consent. DePalma Examination and use of the techniques and tools used to create functional and attractive web content. Topics include: image selection and editing, typography, designing navigational elements, animation and multimedia.

4120. Database Systems for the Web
(230) (Formerly offered as GS 230.) Four credits. Prerequisite: ISKM 3240 or instructor consent. DePalma Data system administrations, data system-design, and data delivery for the web. Topics include UML, tag sets, client-side and server-side scripting, SQL queries, security issues.

4130. Web Server Administration
(231) (Formerly offered as GS 231.) Three credits. Prerequisite: ISKM 3112 or instructor consent. DePalma Provides in-depth knowledge of web services administration. Initial system configuration; web server installation; web server configuration; administering the web server, web users and hosting accounts; automating user account management; security issues, and troubleshooting.

4140. Web Metrics and Analysis
(232) (Formerly offered as GS 232.) Three credits. Prerequisite: STAT 1100 or equivalent experience and ISKM 4120. DePalma A thorough examination of key performance indicators and monitoring strategies for the web.

4155. Special Topics
(295) Variable credits. With a change in content, may be repeated for credit.

4199. Independent Study
(299) Credits and hours by arrangement. Prerequisite: Instructor consent. With a change in content, may be repeated for credit.

4998. Variable Topics
Three credits. With a change of topic, may be repeated for credit. Prerequisites and recommended preparation may vary.

Interdepartmental (INTD)

University Interdisciplinary Courses Committee
Chair: Professor Hedley Freake
Individualized and Interdisciplinary Studies
Program: 4th Floor, John W. Rowe Center for Undergraduate Education

The INTD designation is used for interdisciplinary courses sponsored by 2 or more academic departments based in the schools and colleges.

1500. Alcohol and Drugs on Campus: Exploring the College Culture
(150) Three credits. Interdisciplinary examination of alcohol and other drug issues as matters of social concern for college students, the institution, the campus community and society. Discussions of controversial issues and service learning skills. CA 2.

1985. Special Topics
(195) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit with a change in topic.

Students taking this course will be assigned a final grade of S (satisfactory) or (U) unsatisfactory.
1993. International Study
(212) Three credits. Hours by arrangement. May be repeated for credit (to a maximum of 17). Course work undertaken within approved Study Abroad programs.

1995. Special Topics
(196) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit with a change in topic.

1999. Independent Study
(197) Credits and hours by arrangement. Prerequisite: Open only to freshmen and sophomores with consent of instructor. May be repeated for credit with a change in topic.

2245. Introduction to Diversity Studies in American Culture
(241) Three credits. Prerequisite: Open to sophomores or higher.

An interdisciplinary introduction to comparative multicultural studies in the United States. Topics may include: African American, Asian American, Latino/a, and Native American cultures, gender, feminism, religious and sexual identities, and disability studies. CA 4.

3222. Linkage through Language
(222) One credit. Prerequisite: Language skills equivalent to two to four semesters of college course work in a single foreign language (may be completed concurrently). May be repeated for credit, with a change in content. Sponsored by the Literatures, Cultures and Languages Department in collaboration with the department offering the companion course.

Supplements a three-credit course in a particular discipline by studying selected foreign language texts related to the topic of its companion course. Practice in oral and written expression.

3260. The Bible
(294) Three credits, which may be counted toward the related field requirement in History, Philosophy, or English.

The literary, historical, and philosophical content, circumstances and problems of the Old and New Testaments. CA 1.

3584. Seminar in Urban Problems
(211) Three credits. Hours by arrangement. Prerequisite: Open to juniors and higher; open only with consent of the Director of the Urban Semester Program. Must be taken concurrently with INTD 3590 and 3594. Discussions based upon assigned readings and led by faculty and invited speakers from outside and within the University. CA 4.

3590. Urban Field Studies
(210) Nine credits. Hours by arrangement. Prerequisite: Open to juniors and higher; open only with consent of the Director of the Urban Semester Program. Must be taken concurrently with INTD 3590 and 3594.

Field experience supervised by the director and an examining committee consisting of the director and two or more faculty members from two departments in the College of Liberal Arts and Sciences.

3594. Urban Semester Field Work Seminar
(212) Three credits. Hours by arrangement. Prerequisite: Open to juniors and higher; open only with consent of the Director of the Urban Semester Program. Must be taken concurrently with INTD 3590 and 3594.

Students make analytic presentations of their field experiences, relating these to the pertinent available literature. Particular issues are discussed with experts invited from inside and outside the University.

3594W. Urban Semester Field Work Seminar
(212W) Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors and higher; open only with consent of the Director of the Urban Semester Program. Must be taken concurrently with INTD 3590 and 3594.

3985. Special Topics
(298) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. With a change in content, may be repeated for credit. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

3993. International Study
(293) Credits and hours by arrangement. May be repeated for credit (to a maximum of 17). Course work undertaken within approved Study Abroad programs.

3995. Special Topics
(299) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. With a change in topic, may be repeated for credit.

3999. Independent Study
(299) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit.

Italian Literary and Cultural Studies (ILCS)

Head of Department: Associate Professor Rosa Chinchilla
Department Office: Room 207, Oak Hall
Consult the Literatures, Cultures and Languages Departmental listing in this Catalog for requirements for Majors in Italian Literary and Cultural Studies.

Consult the Departmental Handbook for courses offered in the appropriate semesters and further description of these courses.

Note: All courses noted as taught in English cannot be used to satisfy the foreign language requirement.

1101. The Italian Renaissance
(101) Three credits. Knowledge of Italian is not required. Taught in English. May not be used to meet the foreign language requirement.

A survey of Italian Renaissance civilization, with emphasis on literature and intellectual life. CA 1.

1145-1146. Elementary Italian I and II
(145-146) Four credits each semester. Four class periods and one 1-hour laboratory practice. Not open for credit to students who have had three or more years of Italian in high school. Students who wish to continue in Italian but feel ill prepared should contact the head of the Literatures, Cultures and Languages Department.


1147-1148. Intermediate Italian I and II
(147-148) Four credits each semester. Four class periods and one 1-hour laboratory practice. Prerequisite: ILCS 1146 or equivalent.


1149. Cinema and Society in Contemporary Italy
(149) Three credits. Three class periods and one 2-hour laboratory period. Films in Italian with English subtitles.

A critical analysis of contemporary Italian society seen through the media of film and literature. Taught in English. CA 1. CA 4-INT.

1158. Italian American Experience in Literature and Film
(158) Three credits. Three class periods and one 2-hour laboratory period.

Focuses on the Italian American experience as represented in a variety of fields, including literature and cinema. Taught in English. CA 1. CA 4.

1160. Culture of Fascist Italy
(160) Three credits.

The way Italian literary and cinematic culture justified, survived, and fought the terrors of the Fascist totalitarian regime. Taught in English. CA 1. CA 4-INT.

1170. Introducing Italy through Its Regions
(170) Three credits. Taught in English. May not be used to meet the foreign language requirement. May be repeated for credit with a change of subject material for a maximum of nine credits.

The diverse culture of Italy, studied through analysis of sociological, literary, artistic, and cinematic works from and about a single one of the different Italian regions and that region’s cultural centers, such as Rome, Naples, Florence, Palermo, or Venice. CA 1.

1175-1178. Intensive Italian I - IV
(175-178) Eight credits per semester. Two hours a day, four days a week, plus a two-hour laboratory practice. Prerequisite: Open only with consent of the instructor. Not open for credit to students who have passed ILCS 1145 through ILCS 1148.

Intensive coverage of two years of Italian in two semesters. Intensive Italian 1175-1176 (Fall) covers the same material as ILCS 1145-1146; Intensive Italian 1177-1178 (Spring) covers the same material as ILCS 1147-1148.

1193. Foreign Study
(193) Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally before the student’s departure. May be repeated for credit.

Special topics taken in a foreign study program.

3227. Italy Today
(237) Three credits. Prerequisite: ILCS 1148.

A survey of contemporary Italian political, social, economic and cultural life.

3238. Italian Civilization in the Renaissance
(238) Three credits. Prerequisite: ILCS 1148 or equivalent.

A survey of social, cultural and artistic trends in Italy during the Renaissance.

3239. Italian Composition and Conversation I
(239) Three credits. Prerequisite: ILCS 1148 or equivalent.

Practice in written and oral composition. Syntax study.

3240. Italian Composition and Conversation II
(240) Three credits. Prerequisite: ILCS 3239 or equivalent.

Further practice in written and oral composition. Treatment of the finer points in syntax.

3243. Main Currents of Italian Literature Through the Renaissance
(243) Three credits. Prerequisite: ILCS 1148 or equivalent.

The history of Italian literature through the Renaissance is traced through its main developments. Acquaints the student with the principal authors, literary schools and trends.

3244. Main Currents of Italian Literature After the Renaissance
(244) Three credits. Prerequisite: ILCS 1148 or equivalent.

The history of Italian literature after the Renaissance is traced through its main developments. The aim of the course is to acquaint the student with the principal authors, literary schools and trends.
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3245. Italian Literature and the City
Three credits. Prerequisite: ILCS 1148 or equivalent. Bouchard
Survey of Italian literature through the changing images of Italian cities.

3246. Italian Women Writers
Three credits. Prerequisite: ILCS 1148 or equivalent. Bouchard
Survey of Italy’s women writers from the early modern period to the present. Developments of Italian feminism and gender issues.

3247. Jewish Literature and Film in 20th Century Italy
Three credits. Prerequisite: ILCS 1148 or equivalent. It’s literary and cinematic representations of Jews in the 20th Century. Jewish identity under Fascism, during World War II, and beyond. Taught in Italian.

3250. Italian Theatre of the Eighteenth Century
(250) Three credits. Prerequisite: ILCS 3237 or 3239 or 3243 or equivalent.
Readings from Metastasio, Goldoni, and Alfieri.

3251-3252. Machiavelli, Michelangelo and Renaissance Literature
Three credits each semester. Prerequisite: ILCS 3237 or 3239 or 3243 or equivalent.
Selected readings from the works of Poliziano, Leonardo da Vinci, Lorenzo de Medici, Michelangelo, Ariosto, Machiavelli, Castiglione, Tasso, and others.

3253. Dante and His Time
(253) Three credits. Prerequisite: ILCS 3237 or 3239 or 3243 or equivalent.
Selected readings from Dante, Petrarch, Compagni, Villani.

3254. Boccaccio and His Time
(254) Three credits. Prerequisite: ILCS 3237 or 3239 or 3243 or equivalent.
Readings from Boccaccio and others with special attention to the problems of social and sexual ethics.

3255W. Dante’s Divine Comedy in English Translation
(255W) Three credits. Prerequisite: ENGL 1010 or 1011 or 1011. Masciandaro
Dante’s poem as a unique synthesis of Medieval culture. Emphasizes its integration of ethics, political thought, and theology with poetic imagination. Taught in English. CA 1.

3256. The Literature of the Italian Renaissance
(256) Three credits. Not open to students who have passed ILCS 3253-3252.
A survey, in English, of the major literary and philosophical currents of the Italian Renaissance. Selections from Boccaccio, Petrarch, Pico della Mirandola, Machiavelli, Castiglione, and others. Taught in English.

3258. Cinematic Representations of Italian Americans
(258) Three credits. Three class periods and one 2-hour laboratory period.
Cinematic representations of Italian Americans in the works of major directors from the silent era to the present. Construction of and attempts to dislodge negative stereotypes of Italian American male and female immigrants. Taught in English. CA 1. CA 4.

3258W. Cinematic Representations of Italian Americans
(258W) Prerequisite: ENGL 1010 or 1011 or 2011. Taught in English. CA 1. CA 4.

3259. Topics in Italian Cinema
(259) Three credits. One 3-hour class period and one 2-hour laboratory. Prerequisite: ILCS 1148.

Major topics in modern and contemporary Italian cinema. Taught in Italian.

3260W. Italian Cinema
(260W) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. Two class periods and one 2-hour laboratory period. Films in Italian with English subtitles. Bouchard
Italian cinema from the silent era to the present. Its genres, such as epic film, melodrama, comedy “Italian-style,” “Spaghetti-Westerns,” and political cinema. Cinema as a reflection on and comment upon the social and political contexts of Italian history from pre-fascist Italy to modernization and beyond. Taught in English. CA 1. CA 4-INT.

3261. Twentieth-Century Italian Literature
(261) Three credits. Recommended preparation: ILCS 3237 or 3239 or 3240. Bouchard
Major trends in twentieth-century Italian literature. Taught in English.

3262. Nineteenth-Century Italian Literature
(262) Three credits. Recommended preparation: ILCS 3237 or 3239 or 3240 or 3243 or instructor consent. Bouchard
Nineteenth-century Italian drama, poetry, and narrative from the Napoleonic period to the years immediately following the conquest of Rome in 1870.

3270. Business Italian
(270) Three credits. Prerequisite: ILCS 1148 or instructor consent.
Introduction to Italian business culture. Written and oral practice in the language of business Italian.

3293. Foreign Study
(293) Credits and hours by arrangement. Prerequisite: Consent of Department Head required, normally granted prior to the student’s departure. May count toward the major with consent of the advisor. May be repeated for credit.
Special topics taken in a foreign study program.

3295. Special Topics
(295) Credits and hours by arrangement. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

3299. Independent Study
(299) Credits and hours by arrangement. Prerequisite: Open only with consent of Director. With a change in content, may be repeated for credit.

3299. Capstone in Italian Studies
(299) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. With a change in content, may be repeated for credit.

4279. Capstone in Italian Studies
(4279) Credits and hours by arrangement. Prerequisite: Open only with consent of the advisor. May be repeated for credit.

Head of Department: Associate Professor Rosa Chinchilla
Department Office: Room 207, Oak Hall

1101-1102. Elementary Levels I and II
(101-102)
1103-1104. Intermediate Levels I and II
(103-104)
1101 and 1103 are offered in the first semester, and 1102 and 1104 in the second. Please refer to the Critical Languages course descriptions in this publication. Consult the Program Director in Oak Hall 207 or at rosa.chinchilla@uconn.edu for more information.

3293. Foreign Study
Credits and hours by arrangement. Prerequisite: Consent of Director required, normally to be granted prior to the student’s departure. May count toward the major with consent of the advisor. May be repeated for credit.
Special topics taken in a foreign study program.

3295. Special Topics
Credits and hours by arrangement. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

3299. Independent Study
Credits and hours by arrangement. Prerequisite: Open only with consent of Director. With a change in content, may be repeated for credit.

Japanese (JAPN)

Head of Department: Professor Maureen Croteau
Department Office: Room 422, Arjona Building

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

1002. The Press in America
(102) Three credits.
The development of American print journalism from 18th century print shops to 21st century corporations; how journalists and their work have evolved and influenced American life.

2000W. Newswriting I
(2000W) Three credits. One 75-minute lecture and one 2-hour laboratory plus field work. Prerequisite: ENGL 1010 or 1011 or 2011.
Defining news; exercising news judgment in a diverse society; employing principles of Associated Press style; writing basic news stories. Laboratory offers intensive newswriting exercises.

2001W. Newswriting II
(2011) Three credits. One 75-minute lecture and one 2-hour laboratory plus field work. Prerequisite: JOUR 2000W; ENGL 1010 or 1011 or 2011.
Live reporting using the university and the surrounding community as a laboratory. Emphasis on fact gathering, interviewing, diversity of sources, news judgment and deadline writing. A fee of $10 is charged for this course.

Senate approval required:

2003. Literary Journalism’s Literary Tradition
(203) Three credits. Prerequisite: JOUR 1002 or 2000W. May be taken concurrently with JOUR 2000W.
Critical survey embracing the diverse voices of literary journalism from the 17th century through the 21st.

Senate approval required:

2111. Journalism Portfolio I: Multimedia Skills
One credit. Prerequisite: JOUR 2000W. Open to Journalism majors, others with permission.
Introduction to online and multimedia skills used by journalists; emphasis on ethical practices. Students provided portfolio space on a department-maintained site.

3000W. Public Affairs Reporting
Three credits. Prerequisite: JOUR 2001W; ENGL 1010 or 1011 or 2011; open to juniors or higher.
In-depth reporting on state and local government-municipal agencies, boards, commissions, courts, public safety, schools. Field trips required.

3002. Journalism Ethics
(202) Three credits. Prerequisite: JOUR 1002.
Discussion of such contemporary problems as privacy, good taste, community standards, effectiveness of the press and responsibility of the press.

3005. Introduction to Online Journalism
Three credits. Prerequisite: JOUR 2000W.
Application of newswriting techniques to online journalism including assembling and producing interactive news stories.

3012W. Feature Writing
(212W) Three credits. Prerequisite: JOUR 2001W; ENGL 1010 or 1011 or 2011.
Emphasis on finding, developing and writing feature stories. Outside stories will be assigned weekly.

3013W. Magazine Journalism
(213W) Three credits. Prerequisite: JOUR 2001W; ENGL 1010 or 1011 or 2011.
Survey of magazine journalism examining different forms of periodicals and their operation, from mission to final product. Students research, report and write for various publications.

3019. Daily Campus Critique
(219) One credit. One class period. Prerequisite: Open only with consent of instructor. May be repeated only once for credit.
A weekly critique of the content of the student daily from news stories, through editorials to advertising copy and printing.

3020. Journalism Law
(220) Three credits. Prerequisite: Open to juniors or higher.
Typical subjects: libel, slander, invasion of privacy, obscenity, legal problems of newspapers, protecting the political process, protecting state secrets, protecting the public welfare.

3030. Copy Editing I
(230) Three credits. Prerequisite: JOUR 2000W.
Editing for grammar, style and content, headline writing, introduction to basic news design concepts.

3031. Online and Print News Design
(231C) Three credits. Prerequisite: JOUR 3030.
Copy and photo selection, copy fitting, photo editing layout and production for print and online publications.

3033. Opinion Writing
(233) One credit. One 2-hour lab-lecture period. Prerequisite: JOUR 2001W.
Writing for the editorial and op-ed pages.

3040. Newswriting for Radio and Television
(240) Three credits. Two 75-minute lab-lecture sessions plus a field trip. Prerequisite: JOUR 2000W.
Application of newswriting techniques to the broadcast media.

3041. Reporting and Editing TV News
(241) Three credits. Prerequisite: JOUR 3040.
This is an advanced broadcast journalism class that teaches students how to gather, edit and deliver accurate, newsworthy information for television newscasts. Students develop the skills needed to report news and organize newscasts through actual experience in and out of class.

3045. Specialized Journalism
(245) Three credits. Prerequisite: JOUR 2000W.
Introduction to specialized fields such as business, science, education, arts, sports, and entertainment reporting. Students will examine some of the best work in the fields and will consider ethical issues and other problems.

3045W. Specialized Journalism
(245W) Three credits. Prerequisite: JOUR 2000W; ENGL 1010 or 1011 or 2011.

3046. Environmental Journalism
(245W) Three credits. Prerequisite: JOUR 2000W or consent of the instructor; open to juniors or higher.
Explores specialized coverage of environmental issues by journalists, emphasizing news reporting with the opportunity to produce print, visual and multimedia news reports.

3050. Professional Seminar
(250) Three credits. Three hours. Prerequisite: JOUR 2000W, which may be taken concurrently. (Also available for one credit. Two hours. No prerequisite.) May be repeated once for a maximum total of four credits.
Journalists discuss the economic, technological, sociological and ethical issues that challenge their profession.

3056. Visual Journalism
Three credits. Prerequisite: JOUR 2000W. Open to Juniors or higher. Examines current trends in visual digital journalism; develops skills in phot joournalism, multimedia and video storytelling. Instructor approved digital camera required.

3087. Honors Thesis Preparation Seminar
One credit. Prerequisite: JOUR 2000W, 2001W and at least three other journalism credits at the 2000-level or above; open only by instructor consent.
Honors students choose topics for their theses or projects, develop research proposals and apply for funding if needed. Students work as a community of scholars to discuss and support each other’s work. Usually taken the semester before JOUR 3097, Honors Thesis.

3093. Foreign Study
(293) Credits and hours by arrangement. Prerequisite: Consent of Department Head required before the student’s departure. May count toward the major with consent of the advisor. May be repeated for credit with permission of Department Head. Coteau

3095. Special Topics
(298) Credits and hours by arrangement. Prerequisites and recommended preparation vary; open to juniors or higher. With a change in content, may be repeated for credit.

3097. Honors Thesis
(294) Three credits. Hours by arrangement. Prerequisite: JOUR 2000W, 2001W and at least six additional journalism credits at the 2000-level or above; open only with consent of instructor.
Students in the Honors Program undertake in-depth research and writing under the guidance of a faculty member. Majors must consult with the departmental Honors Advisor and develop a research proposal in the semester before taking the course.

3098. Variable Topics
(295) Three credits. Prerequisites and recommended preparation vary; open to juniors or higher. With a change in topic, may be repeated for credit.

3111. Journalism Portfolio II: Content Development
One credit. Prerequisite: JOUR 2111.
Development of online and multimedia skills used by journalists; emphasis on ethical practices. Students will contribute journalism content completed in other courses and develop new content to build a professional portfolio provided on a department-maintained site.

4016. Publication Practice
(216) One to three credits. Hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit.
Students and faculty work together to research, write, edit and produce a publication.

4035. Investigative Reporting
(235C) Three credits. Prerequisite: JOUR 2001W.
Using the Internet, databases, and other computer resources to research and report on the actions of courts, businesses, public agencies, and governments. Consideration of ethical questions.

4091. Supervised Field Internship
(297) One to three credits. Hours by arrangement. Prerequisite: JOUR 2000W, 2001W and 3002; open only with consent of Department Head.
Students research, report and write for newspapers, news departments of radio and television stations, and online publications under supervision of professionals.

4099. Independent Study
(299) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit.
Open to qualified students who present suitable projects for independent work in journalism.

4111. Journalism Portfolio III: Professional Presentation
One credit. Prerequisite: JOUR 3111.
Completion of student journalism portfolios that include examples of journalistic endeavors in print, still and video photography, audio and multimedia packages.

Kinesiology (KINS)

Interim Head of Department: Professor Lawrence Armstrong
Department Office: Room 205, Sports Center
For major requirements, see the Neag School of Education section of this Catalog.
All KINS 2000-level or above courses are open to majors in the Kinesiology Department only or by instructor consent.

1160. Courses in Lifetime Sports Program
(160) (Formerly offered as EKIN 1160.) One credit.
Open to all University students. This course may be repeated with change of activity and/or skill level; not to exceed 3 credits towards graduation of combined KINS 1160 and AH 1200 credits. Students in the Department of Kinesiology must complete this plan of study, may take up to six different activities for six credits toward graduation.
A variety of lifetime sports and skills are offered. The teaching of each activity will be geared to individual, dual, and team activities. Students who have physical disabilities in the least restrictive environment possible. Participants requiring accommodations should contact the Program Coordinator.

2100. Introduction to Athletic Training I
(161) (Formerly offered as EKIN 2100.) First semester.
First seven weeks. One credit. Prerequisite: Open only to Pre-Athletic Training students who are sophomores or higher. Howard
A survey class to explore general considerations
of recognizing and treating athletic injuries. This section covers training and conditioning, nutrition, environment, and legal issues.  

2110. Introduction to Athletic Training II
(162) (Formerly offered as EKIN 2110.) First semester. Second semester. One credit. Prerequisite: Open only to Pre-Athletic Training students who are sophomores or higher. Howard
A survey class to explore general considerations of recognizing and treating athletic injuries. This section covers tissue healing, rehabilitation, modalities, taping, and bandaging.

3091. Internship
(290) (Formerly offered as EKIN 3091.) Variable credits. Prerequisite: In accordance with departmental policy, students will have completed all academic coursework in their concentration excluding Athletic Training prior to undertaking the internship; open only to students in Kinesiology programs. May be repeated for credit.
Field service or experiences in cooperating agencies.

3098. Variable Topics
(298) (Formerly offered as EKIN 3098.) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit with a change in content.

3099. Independent Study for Undergraduates
(299) (Formerly offered as EKIN 3099.) Credits and hours by arrangement. Prerequisite: Open only to seniors with consent of Department Head or Instructor. May be repeated for credit with a change in content.
Laboratory or library research to expand understanding of a specialized topic in sport, leisure, or exercise sciences.

3099W. Independent Study for Undergraduates
(299W) (Formerly offered as EKIN 3099W.) Prerequisite: Open only to seniors with consent of the Department Head or Instructor; ENGL 1010 or 1011 or 2011.

3100. Prevention and Care of Athletic Injuries
(264) (Formerly offered as EKIN 3100.) Three credits. Prerequisite: Open only to students in Kinesiology programs. Mazerolle
An introductory class to explore general considerations of preventing, recognizing, and treating athletic injuries.

3101. Documenting Outcomes in Athletic Training
(Formerly offered as EKIN 3101.) One credit. Prerequisite: Open only to Athletic Training majors; must be concurrently enrolled in KINS 3130.
Allows students to gain skill competence in the area of medical writing.

3102. Therapeutic Interventions I
(Formerly offered as EKIN 3102.) Four credits. Prerequisite: Open only to Athletic Training majors. Provides students with an integrated approach to treatment of athletic injuries. Evidence based course provides fundamental concepts as well as application of the skills and knowledge learned.

3103. Therapeutic Interventions II
(Formerly offered as EKIN 3103.) Four credits. Prerequisite: Open only to Athletic Training majors. Provides students with an integrated approach to treatment of athletic injuries. Evidence based course provides fundamental concepts as well as application of the skills and knowledge learned.

3104. Orthopedic Assessment of the Spine
(Formerly offered as EKIN 3104.) Two credits. Prerequisite: Open only to Athletic Training majors. Covers anatomy, evaluation, differential diagnosis, and management of injuries related to the spine, thorax, and core.

3110. Athletic Training Clinical Rotation I
(221) (Formerly offered as EKIN 3110.) Two credits. Prerequisite: Open only to Athletic Training majors. Graham, Mazerolle
Provides students majoring in athletic training hands-on experience dealing with athletic injuries.

3111. Athletic Training Clinical Rotation II
(222) (Formerly offered as EKIN 3111.) Two credits. Prerequisite: Open only to Athletic Training majors. Graham, Mazerolle
Provides students majoring in athletic training hands-on experience dealing with athletic injuries.

3112. Athletic Training Clinical Rotation III
(223) (Formerly offered as EKIN 3112.) Two credits. Prerequisite: Open only to Athletic Training majors. Graham, Mazerolle
Provides students majoring in athletic training hands-on experience dealing with athletic injuries.

3113. Athletic Training Clinical Rotation IV
(224) (Formerly offered as EKIN 3113.) Three credits. Prerequisite: Open only to Athletic Training majors. Graham, Mazerolle
Provides students majoring in athletic training hands-on experience dealing with athletic injuries.

3114. Athletic Training Clinical Rotation V
(225) (Formerly offered as EKIN 3114.) Three credits. Prerequisite: Open only to Athletic Training majors. Graham, Mazerolle
Provides students majoring in athletic training hands-on experience dealing with athletic injuries.

3115. Sports Medicine Experiences
(270) (Formerly offered as EKIN 3115.) One credit. Repeatable for 4 credits. Prerequisite: Open only to Athletic Training majors. Graham
Experiences in a variety of sports medicine settings that will serve to broaden an athletic-training student’s awareness of medical coverage of athletic events and other medical personnel involved in athletic health care.

3120. Functional Anatomy for Athletic Trainers
(246) (Formerly offered as EKIN 3120.) Three credits. Prerequisite: Open only to Athletic Training majors. Mazerolle
Provides students majoring in athletic training in-depth knowledge of anatomy related to athletic injuries.

3122. Gross Anatomy Laboratory for Athletic Trainers
(Formerly offered as EKIN 3122.) One credit. Will be taught concurrently with KINS 3120. Di Stefano, Elliot, Mazerolle
Develops knowledge of structural and functional anatomy. Includes a comprehensive study of the internal and surface anatomy of the human body with emphasis on body tissues, systems approach to anatomy, the head, neck, face, the upper extremity, thorax, abdomen, vertebral column, deep back, pelvis, and lower extremity. The relationships of muscular, skeletal, neural, and vascular structures will be discussed and demonstrated in human prosected material in a regional approach. Anatomical relationships to normal movement will be included. Labs will include the study of human prosected material, skeletons, and joint models.

3125. Taping and Bracing Laboratory
(250) (Formerly offered as EKIN 3125.) Two credits. Prerequisite: Open only to Athletic Training majors who are sophomores or higher. Lopez
Provides an overview of the general concepts and principles related to dealing with specific athletic injuries.

3130. Evaluation of the Extremities
(260) (Formerly offered as EKIN 3130.) Three credits. Prerequisite: Open only to Athletic Training majors who are sophomores or higher. Casa
Techniques and procedures used to evaluate injuries to the extremities. Includes history, observation, palpation, special tests, manual muscle testing, blood flow, nerve function, and other injury specific skills.

3140. Emergency Procedures in Athletic Training
(292) (Formerly offered as EKIN 3140.) Three credits. Prerequisite: Open only to Athletic Training majors. Casa
Evaluation and treatment skills for athletic injuries to the head, face, neck, trunk, spine, thorax, and abdomen. Acute first-aid considerations in life-threatening situations will also be covered in-depth.

3150. Assessment Laboratory
(252) (Formerly offered as EKIN 3150.) Two credits. Prerequisite: Open only to Athletic Training majors. Mazerolle
Provides an assessment of athletic injuries experience that integrates the material in previous courses so as to serve as a capstone academic experience related to evaluation skills for athletic injuries.

3155. Athletic Training Administration
(254) (Formerly offered as EKIN 3155.) Three credits. Prerequisite: Open only to Athletic Training majors. Graham
Administrative/management concerns for the athletic trainer. Insurance, budgeting, counseling, facility design, hiring, record keeping, and other issues will be covered.

3155W. Athletic Training Administration
(254W) (Formerly offered as EKIN 3155W.) Prerequisite: Open only to Athletic Training majors; ENGL 1010 or 1011 or 2011.

3156. Professional Development for Athletic Trainers
(269) (Formerly offered as EKIN 3156.) Two credits. Prerequisite: Open only to Athletic Training majors. Graham
Covers concepts pertaining to professional development in athletic training including workshop development, ethics and ethical decision making, organizational structure, workplace culture, and other topics pertaining to the profession.

3160. Counseling in Sports Medicine
(276) (Formerly offered as EKIN 3160.) Three credits. Prerequisite: Open only to Athletic Training majors. Counseling
Counseling concerns for the athletic trainer. Theory, practical skills, assessment, referral and specific counseling issues in athletic health care.

3165W. Current Research and Issues in Athletic Training
(253W) (Formerly offered as EKIN 3165W.) Three credits. Prerequisite: Open only to Athletic Training majors; ENGL 1010 or 1011 or 2011. Casa
Acquaints students with recent research in the field, the components of conducting and publishing research in the field, and preparation for research at the graduate level. Important issues relevant to the athletic training profession will be discussed.

3170. Health and Medicine
(255) (Formerly offered as EKIN 3170.) Three credits. Prerequisite: Open only to Athletic Training majors. Graham
Knowledge, skills, and values that a health professional must possess to recognize, treat, and refer,
when appropriate, the general medical conditions and disabilities of athletes and others involved in physical activity.

3177. Pathophysiology and Pharmacology for Athletic Trainers
(249) (Formerly offered as EKIN 3177.) Three credits.
Prerequisite: Open only to Athletic Training majors. McDermott
Focuses on the pathophysiology and pharmacology as it relates to athletic injuries. Specifically, the injury and repair process of skin, muscle, bone, ligaments, tendons, and cartilage. The pharmacology of therapeutic medications and performance enhancing substances will be covered.

3200. Sport Administration II
(207) (Formerly offered as EKIN 3200.) Three credits.
Prerequisite: Open only to students in Kinesiology programs.
Foci on the many administrative roles the coach undertakes to involve the community in his/her sports program. The role of support groups; sport organizations; leagues and conferences; camps and clinics; local community relations; along with the relevance of youth, amateur and professional competition; are considered in depth by professors, coaches and guest speakers.

3210. Sport Administration I
(206) (Formerly offered as EKIN 3210.) Three credits.
Prerequisite: Open only to students in Kinesiology programs. Morrone
Focuses on the many administrative roles the coach assumes within the school when developing, maintaining and/or improving a sports program entrusted to him/her. The coach; the athlete; the program; facilities and equipment; academic and financial aid; scouting and recruiting; and, the media will be emphasized by professors, coaches and guest speakers.

3215. Theory of Coaching
(202) (Formerly offered as EKIN 3215.) Three credits.
Prerequisite: Open only to students in Kinesiology programs. Morrone
Focuses development of a coaching philosophy and the skills necessary to develop as a professional. Coaches, professors and guest speakers provide insight into the essential elements of coaching, including technical training, tactical awareness, physical fitness and psychological preparation.

3315. Issues in Sport
(286) (Formerly offered as EKIN 3315.) Three credits.
Prerequisite: Open only to students in Kinesiology programs.
The study of socio-cultural, economic, political, and other related issues in sport.

3320. Introduction to Sport and Exercise Psychology
(240) (Formerly offered as EKIN 3320.) Three credits.
Prerequisite: Open only to Kinesiology majors. Barton
Examines psychological theories and research related to sport and exercise behavior. Explores the study of how personality and situational variables affect motivation, anxiety, and aggression in sport. Additional topics to be examined include group processes in sport, performance enhancement and psychological development through sport.

3500. Exercise and Sport Science for Coaches
(210) (Formerly offered as EKIN 3500.) Four credits.
Prerequisite: Open only to students in Kinesiology programs. Volek
Provides fundamental physiological principles and their application to coaching competitive athletics.

3522. Biomechanics of Injury and Sport
(272) (Formerly offered as EKIN 3522.) Three credits.
Prerequisite: Open only to students in Kinesiology programs. Joseph
Quantitative and qualitative analyses of sport related injuries and movements during sport, including the study of linear and angular motion, force and torque, momentum, energy, and equilibrium.

3525. Fundamentals of Resistance Training
(265) (Formerly offered as EKIN 3525.) Four credits.
Prerequisite: Open only to students in Kinesiology programs. Kraemer
Coaching professionals must have the knowledge, skills, and understanding of the scientific principles on which to design individualized resistance training programs needed for optimal performance and injury prevention.

3530. Physiological Assessment of Competitive Athletes
(268) (Formerly offered as EKIN 3530.) Three credits.
Prerequisite: Open only to students in Kinesiology programs. Van Heest
Focuses on the development of assessment techniques of human physiology specific to competitive athletes. The course will include both laboratory and field methods to evaluate aerobic ability, anaerobic ability, flexibility, muscular strength and power and body composition. It requires a strong foundation in muscular skeletal anatomy and physiology. The course is designed to better prepare the student for development of scientifically sound coaching practices.

3530W. Physiological Assessment of Competitive Athletes
(268W) (Formerly offered as EKIN 3530W.) Prerequisite:
Open only to students in Kinesiology programs; ENG 1010 or 1011 or 201. Van Heest

3545. Resistance Training Exercise Techniques and Evaluation
(274) (Formerly offered as EKIN 3545.) Three credits.
Prerequisite: Open only to students in Kinesiology programs; others by consent of instructor. Kraemer
Strength and conditioning professionals must have the knowledge of proper resistance exercise techniques, safety spotting techniques, equipment care and maintenance, different types of resistance training equipment, and the evaluation of physical performance capabilities. The understanding of the proper teaching techniques, testing protocols, and evaluation methods is vital to a strength and conditioning program.

3610. Introduction to Honors Research
(295) (Formerly offered as EKIN 3610.) Three credits.
Prerequisite: Open only to Honors Students in Kinesiology programs.
The student will meet with KINS faculty members and attend laboratory/program staff meetings to survey the opportunities available for future Honors Thesis research.

3615. Honors Literature Review
(296) (Formerly offered as EKIN 3615.) Three credits.
Prerequisite: Open only to Honors Students in Kinesiology programs.
The student will identify specific Honors Thesis research questions and will write a library research paper that will serve as the thesis Literature Review.

3697W. Honors Thesis
(297W) (Formerly offered as EKIN 3697W.) Three credits.
Prerequisite: ENG 1010 or 1011 or 201; open only to Honors Students in Kinesiology programs.
The student will collect and interpret data and will write the Honors Thesis, completing work begun during KINS 3615.

4300. Advanced Sport Based Youth Development
(Formerly offered as EKIN 4300.) Three credits.
Prerequisite: KINS 3547.
Involves all class members in direct-action service and organizing activities in Hartford’s North End. Students, having met the prerequisite course requirement, will continue their involvement in off-campus travel to engage with community partners and neighborhood residents to provide sport based youth development programming to youth ages 5-18. Transportation is provided and it is suggested that students have at least one four hour block free per week to facilitate travel to Hartford and back.

4500. Physiological Systems in Human Performance
(248) (Formerly offered as EKIN 4500.) Three credits.
Prerequisite: PNB 2264-2265; open only to students in Kinesiology programs. Armstrong, Maresh, Van Heest, Volek
An organ systems approach to optimal human performance including metabolism, energy transfer, nerve transmission, muscle contraction, endocrine control, and cardiopulmonary physiology.

4510. Mechanisms and Adaptations in Sport and Exercise
(258) (Formerly offered as EKIN 4510.) Three credits.
Prerequisite: PNB 2264-2265; open only to students in Kinesiology programs. Armstrong, Maresh, Volek
An applied approach to the physiological mechanisms and adaptations influencing sport and exercise: optimal nutrition, body composition, exercise training, ergogenic aids, aging, cardiovascular health, and environmental factors.

4510W. Mechanisms and Adaptations in Sport and Exercise
(258W) (Formerly offered as EKIN 4510W.) Prerequisite:
PBN 2264-2265; ENG 1010 or 1011 or 201; open only to students in Kinesiology programs.

Korean (KORE)

Head of Department: Associate Professor Rosa Chinchilla
Department Office: Room 207, Oak Hall
1101-1102. Elementary Levels I and II
(101-102)
1103-1104. Intermedia Levels I and II
(103-114)
1101 and 1103 are offered in the first semester, and 1102 and 1104 in the second. Please refer to the Critical Languages course descriptions in this publication. Consult the Program Director in Oak Hall 207 or at rosa.chinchilla@uconn.edu for more information.

1193. Foreign Study
Credits and hours by arrangement. Prerequisite: Consent of Director required, normally to be granted prior to the student’s departure. May be repeated for credit. Special topics taken in a foreign study program.

3293. Foreign Study
Credits and hours by arrangement. Prerequisite: Consent of Director required, normally to be granted prior to the student’s departure. May count toward the major with consent of the advisor. May be repeated for credit. Special topics taken in a foreign study program.

3295. Special Topics
Credits and hours by arrangement. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.
Landscape Architecture (LAND)

Interim Head of Department: Professor Richard Schwab
Department Office: Room 119, W.B. Young Building
For major requirements, see the College of Agriculture, Health and Natural Resources section of this Catalog.

2110. Landscape Architecture: Graphics I
- Design Drawing (255) (Formerly offered as PLSC 255.) Four credits. Two class periods and two 2-hour studios. Prerequisite: Open only with consent of instructor. Miniutti

Knowledge and theory of graphic representation, exploration and development of design form. Introduction to basic design principles. Application of graphic and design theory through free-hand drawing in a studio environment. Abstraction and transformation of form emphasized.

2120. Landscape Architecture: Graphics II
- Design Communication (256) (Formerly offered as PLSC 256.) Four credits. Three class periods and three 1-hour studios. Prerequisite: Open to Landscape Architecture majors only. Miniutti

Knowledge and theory of visual perception and model making. Application of theory in the creation of various graphic products including plan, section, elevation, paraline and perspective drawings. Controlled free hand and computer methods in a studio environment.

2210. The Common (Shared) Landscape of the USA: Rights, Responsibilities and Values (275) (Formerly offered as PLSC 275.) Three credits. Three class periods. Prerequisite: Open to sophomores or higher. Miniutti

An introduction to the study of vernacular landscapes in the USA with an emphasis on the relationship between societal values and land use patterns. CA 1.

2220. Landscape Architecture: Theory II
- Design History (277) (Formerly offered as PLSC 277.) Three credits. Three class periods. Prerequisite: LAND 2210. ALEXOPOULOS

The development of designed landscapes is followed through time, emphasizing influences on current landscape architecture theory and practice.

2410. Landscape Architecture: Design I - Site Analysis (265) (Formerly offered as PLSC 265.) Five credits. Three class periods and three 2-hour studios. Prerequisite: LAND 2110 and 2210; open to Landscape Architecture majors only. Field trips are required. Westa

Knowledge and theory of site design and site analysis. Dimensional requirements and appropriate relationships of site elements and systems. Collection and analysis of site data including legal, physical and cultural factors. Application in a variety of site design projects.

3130. Landscape Architecture: Graphics III
- Computer Applications (241C) (Formerly offered as PLSC 241C.) Four credits. Three class periods and three 1-hour labs. Prerequisite: LAND 2120; open to Landscape Architecture majors only. Westa

Knowledge and theory of computer use in landscape architecture. Computer applications for data gathering, analysis and graphic communication. Application of knowledge and theory to a variety of site planning and design projects.

3230W. Environmental Planning and Landscape Design (290W) (Formerly offered as PLSC 290W.) Three credits. Two class periods and one discussion period. Prerequisite: ENGL 1010 or 1101 or 2011; open only with consent of instructor. Schwab

Theories, concepts and methods for sustainable design of the land to balance the needs for conservation and development. Topics include land use planning, ecological design, and cultural and natural landscape assessment at a variety of scales and settings.

3310. Landscape Architecture : Construction I - Site Engineering (281) (Formerly offered as PLSC 281.) Four credits. Two class periods and two 2-hour studios. Prerequisite: LAND 2120; open to Landscape Architecture majors only. ALEXOPOULOS

Theory and practice in manipulating landform in landscape architecture. Earthwork computation, drainage systems, sedimentation and erosion control, roadway design and low-impact design.

3320. Landscape Architecture: Construction II - Materials and Methods (280) (Formerly offered as PLSC 280.) Four credits. Two class periods and two 2-hour studios. Prerequisite: LAND 3310; open to Landscape Architecture majors only. Westa

Knowledge and theory of site construction. Characteristics and installation methods of materials including concrete, masonry, wood and metal. Application of knowledge and theory through development of construction drawings and related documents for site construction projects.

3330. Landscape Architecture: Construction III - Planting Design (268) (Formerly offered as PLSC 268 and as LAND 4330.) Four credits. Two class periods and two 2-hour studios. Prerequisite: LAND 3320; open to Landscape Architecture majors only. ALEXOPOULOS

Knowledge and theory of the role of plants as visual, spatial, ecological and cultural design elements. Analysis and creation of planting plans that support and develop design concepts and respond to physical site conditions. Application of knowledge and theory by developing planting plans, models and databases for a variety of project types in a studio environment.

3420. Landscape Architecture: Design II - Space, Form and Meaning (262) (Formerly offered as PLSC 262.) Five credits. Three class periods and three 2-hour studios. Prerequisite: LAND 2410; open to Landscape Architecture majors only. Miniutti

Knowledge and theory of spatial form in architecture, landscape architecture and urban design. Application of theory in the creation of 3-dimensional landscape models in a studio environment. Student attitudes about self-expression, environmental issues and social responsibility will be explored.

3430. Landscape Architecture: Design III - Program Development (266) (Formerly offered as PLSC 266.) Five credits. Three class periods and three 2-hour studios. Prerequisite: LAND 3420; open to Landscape Architecture majors only. Field trips are required. ALEXOPOULOS

Knowledge and theory of site design and planning with a focus on program analysis and development. Design of appropriate form and function through precedent study and research on user and client needs, development regulations and site context. Application of theory to a variety of project types and scales.

3510. European Urban Form and Materials Four credits. Three weeks. Daily lectures and field studios. Prerequisites: LAND 3430 and 3320; open to Landscape Architecture majors only. Weekend field trips. Westa

Study abroad course in Siracusa, Italy or other European location. The study of urban form and spatial dimensions and specific materials and methods of construction typical of highly valued urban areas of Europe.

4294. Landscape Architecture: Theory V - Seminar (293) (Formerly offered as PLSC 293.) One credit. Prerequisite: Open to Landscape Architecture majors only; open only with instructor consent. Course may be repeated for credit. ALEXOPOULOS

Current topics in landscape architecture.

4340. Landscape Architecture: Theory IV - Professional Practice (271) (Formerly offered as PLSC 271.) Three credits. Three class periods and two 2-hour studios. Prerequisite: LAND 2220; open to Landscape Architecture majors only. Westa

Business, legal and professional dimensions of landscape architecture. Modes of practice, licensure and ethics, and contract development and administration. Emphasis on portfolio development and licensure preparation.

4440. Landscape Architecture: Design IV - Community Planning (276) (Formerly offered as PLSC 276.) Five credits. Three class periods and three 2-hour studios. Prerequisite: LAND 3430; open to Landscape Architecture majors only. Field trips are required. Schwab

Knowledge and theory of design of large scale landscapes such as open space systems, village and town centers and residential subdivisions. Application of theory to a variety of projects including community outreach work.

4450. Landscape Architecture: Design V - Capstone (267) (Formerly offered as PLSC 267.) Five credits. Three class periods and three 2-hour studios. Prerequisite: LAND 4440; open to Landscape Architecture majors only. Field trips required. Miniutti

Knowledge and theory of site planning and design. Application of theory and skills from previous design courses to a single, comprehensive site planning and design project.

Latino and Latin American Studies (LLAS)

Director, El Instituto: Institute of Latina/o, Carribean and Latin American Studies: Associate Professor Mark Overmyer-Velázquez
Office: 2006 Hillside Road, Unit 1161

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

1009. Latino Literature, Culture, and Society
(Formerly offered as PRLS 1009.) (Also offered as SPAN 1009.) Three credits. Knowledge of Spanish is not required. Taught in English.

Critical approaches to Latinos/as and cultural representation, production, and agency, as impacted by globalization and local dynamics. Will engage the value and function of race, gender, and sexuality in
1099W. Latino Literature, Culture, and Society (Also offered as SPAN 1009.) Three credits. Prerequisite: SPAN 1010 or 1011 or 2011 or 3800. Knowledge of Spanish is not required. Taught in English. CA. 1. CA. 4.

1190. Introduction to Latin America and the Caribbean (Formerly offered as LAMS 1190.) (Also offered as HIST 1600.) Three credits. Multidisciplinary exploration of the historical development of such aspects of Latin America and the Caribbean as colonization and nation formation; geography and the environment; immigration and migration; race, ethnicity, and gender in society, politics, economy, and culture. CA. 1. CA. 4-INT.

1190W. Introduction to Latin America and the Caribbean (Formerly offered as LAMS 1190W.) Prerequisite: ENGL 1010 or 1011 or 2011. CA. 1. CA. 4-INT.

1193. Foreign Study (Formerly offered as LAMS 1193.) Credits and hours by arrangement. Prerequisite: Consent of Director of Latin American and Caribbean Studies required before departure. May be repeated for credit (to a maximum of 15). Course work undertaken within approved Study Abroad programs, usually focusing on the history, culture, and society of a particular Latin American or Caribbean country or countries.

1570. Migrant Workers in Connecticut (Formerly offered as LAMS 1570 and PRLS 1570.) (Also offered as HIST 1570.) Four credits. Prerequisite: Open only by instructor consent. Overmyer-Velázquez

Intercultural honors course on the life and work experiences of contemporary Latin American and Caribbean migrant workers with focus on Connecticut. Integrated service learning component. Field trips required. CA. 1. CA. 4.


2011W. Introduction to Latino-American Writing and Research Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to sophomores or higher. Recommended preparation: 1000-level introductory course on Latino or Latin American Studies.


2012. Latino Connecticut: Writing for the Community Four credits. Prerequisite: Open to sophomores or higher. Recommended preparation: LLAS 2011W. Students partner with Latino agencies to apply research, writing skills to community needs. Community theory, digital literacy, historical background of Connecticut Latinos, contemporary issues that impact the population. Service learning component.

3295. Special Topics in Latino and Latin American Studies (Formerly offered as LAMS 3995 and PRLS 3295.) With a change in topic, may be repeated for credit.


3211. Puerto Rican/Latino Studies Research (Formerly offered as PRLS 3211.) Three credits. Students design, execute and write original, library or archival-based research on Latino/a experience using documents, films, literary works, surveys, photographic and newspaper materials.

3220. History of Latinos/as in the United States (Formerly offered as PRLS 3220.) (Also offered as HIST 3674.) Three credits. Prerequisite: Open to juniors or higher.

Settlement and growth of Hispanic-origin populations in the United States today, from Spanish and Mexican settlement of western United States to the growth of Latino communities. Student oral history project. CA. 1. CA. 4.

3221. Latinos/as and Human Rights (Formerly offered as PRLS 3221.) (Also offered as HIST 3575 and HRTS 3221.) Three credits. Prerequisite: Open to juniors or higher.

Latino/a issues related to human, civil and cultural rights, and gender differences.

3230. Latina Narrative (Formerly offered as PRLS 3230.) (Also offered as WGSS 3258.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011 or instructor consent.

Feminist topics in contemporary Latina literature and cultural studies.

3231. Fictions of Latino Masculinity (Formerly offered as PRLS 3231.) (Also offered as WGSS 3259.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011 or instructor consent.

Topics in Latino literature and cultural studies with an emphasis on masculinity and male authors.

3232. Latina/o Literature (Formerly offered as PRLS 3232.) (Also offered as ENGL 3605.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011 or instructor consent; open to juniors or higher.

Extensive readings in Latina/o literature from the late nineteenth century to the present. CA. 4.

3233. Studies in Latina/o Literature (Formerly offered as PRLS 3233.) (Also offered as ENGL 3607.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011 or instructor consent; open to juniors or higher.

May be repeated for credit with a change of topic.

Advanced study of a theme, form, author, or movement in contemporary Latina/o literature.

3241. Latin American Minorities in the United States (Formerly offered as PRLS 3241.) (Also offered as ANTH 3041.) Three credits. Emphasis on groups of Mexican, Puerto Rican, and Cuban origin, including treatment and historical background, social stratification, informal social relations, perceptions, relations and the concept of Latino identity.

3250. Latino Health and Health Care (Formerly offered as PRLS 3250.) (Also offered as HDFS 3442.) Three credits. Prerequisite: Open to juniors or higher.

3251. Latinos: Sexuality and Gender (Formerly offered as PRLS 3251.) (Also offered as HDFS 3268.) Three credits. Prerequisite: Open to juniors or higher.

Critical discussion of issues involving gender and sexuality among Latinos, with particular attention to race, class, ethnicity, and acculturation.

3264. Latinas and Media (Formerly offered as PRLS 3264.) (Also offered as WGS 3260 and COMM 3321.) Three credits. Prerequisite: Open to juniors or higher.

The role of ethnicity and race in women’s lives. Special attention to communication research on ethnic and racial minority women. CA. 4.

3265. Literature of Puerto Rico and the Spanish Caribbean (Formerly offered as PRLS 3265.) (Also offered as SPAN 3265.) Three credits. Recommended preparation: SPAN 3178 or instructor consent.

Readings and discussions of major authors and works of the Spanish Caribbean with special emphasis on Puerto Rico.

3270. Latino Political Behavior (Formerly offered as PRLS 3270.) (Also offered as POLS 3662.) Three credits. Prerequisite: Open to juniors or higher.

Latino politics in the United States. Political histories of four different Latino populations: Mexican, Puerto Rican, Cuban, and Central American. Different forms of political expressions, ranging from electoral behavior to political art. CA. 4.

3271. Immigration and Transborder Politics (Formerly offered as PRLS 3271.) (Also offered as POLS 3834.) Three credits. Prerequisite: Open to juniors or higher.

U.S. immigration policy, trans-border politics, and the impact diasporas and ethnic lobbies have on U.S. foreign policy, with the emphasis on Latino diasporas.

3293. Foreign Study (Formerly offered as LAMS 3293.) Credits (to a maximum of 17) and hours by arrangement. Prerequisite: Consent of Director of Latin American and Caribbean Studies required before departure. May count toward the major with consent of advisor.

Special topics taken in a foreign study program.

3575. Cinema and Society in Latin America (Formerly offered as LAMS 3575.) Variable credit up to a maximum of three credits. Hours by arrangement. With a change in content, this course may be repeated once for credit.

Overview of history and health care issues among Latinos in the United States. Particular attention is paid to cultural and social factors associated with health and well being (eg. migration, acculturation, SES).

3579. Latin America (Formerly offered as LAMS 3579.) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor and director of the Center for Latin American and Caribbean Studies. This number covers courses in Latin American Studies taken at other Universities by special arrangement for University of Connecticut credit.

3607. Latin America in the Colonial Period (Formerly offered as LAMS 3607.) (Also offered as HIST 3607.) Three credits. Prerequisite: Open to sophomores or higher.

Pre-Columbian Civilization in America, the epoch of conquest and settlement, together with a study of the Ibero-Indian cultural synthesis which forms the basis...
of modern Latin American civilization.

3609. Latin America in the National Period
(Formerly offered as LAMS 3609.) Three credits. Prerequisite: Open to sophomores or higher.
Representative countries in North, Central, and South America and the Caribbean together with the historic development of inter-American relations and contemporary Latin American problems. CA 1. CA 4-INT.

3619. History of the Caribbean
(Also offered as AFRA and HIST 3619.) Three credits. Topics may include: encounter experience; slavery and freedom; colonialism/anti-colonialism; citizenship and nation building; political economy, cultures and movements; and migration/immigration from historical perspective.

3622. History of Gender and Sexuality in Latin America and the Caribbean
(Also offered as AFRA, HIST, and WGSS 3622.) Three credits. Topics may include empire and colonialism/anti-colonialism; slavery, the state, and the culture; political practices and institutions; feminisms and masculinities; law and public policies; immigration; forms of labor and political mobilization; sex and reproduction; and human rights from historical perspective.

Pending GEOC and Senate Approval:

3635. Mexico in the Nineteenth and Twentieth Centuries: History of Modern Mexico
(Formerly offered as LAMS 3635.) (Also offered as HIST 3635.) Three credits. Recommended preparation: HIST 3607, Overmyer-Velazquez.
The emergence of modern Mexico from independence to the present with emphasis on the Revolution of 1910. CA 1. CA 4-INT.

Pending Senate approval:

3660W. History of Migration in Las Americas
(Formerly offered as LAMS 3660W and PRLS 3660W.) (Also offered as HIST 3660W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011—open to juniors or higher, instructor consent. Recommended preparation: LLAS 3210, LLAS 1190, ANTH 3042, Spanish useful, but not required. Overmyer-Velazquez.
Applies broad chronological and spatial analyses of origins of migration in the Americas to the experiences of people of Latin American origin in Connecticut. Addresses a range of topics from the initial settlement of the Americas to 21st century migrations. CA 1.

3667. Puerto Rican Politics and Culture
(Formerly offered as PRLS 3667.) (Also offered as POLS 3667.) Three credits. Prerequisite: Open to juniors or higher.
Legal and political history of the relationship between Puerto Rico and the United States with an emphasis on the question of United States empire and the politics of cultural resistance.

3875. Asian Diasporas in the Americas
(Also offered as AASI 3875 and HIST 3875.) Three credits. Prerequisite: Open to sophomores or higher. Recommended preparation: HIST 3607, 3609, 3610, 3635, 3660W, or 3674. Not open to students who have passed HIST 3995 Asian Diasporas in the Americas. Transnational history of migration and settlement of Chinese, Japanese, Korean, and South Asian diasporas across South, Central, and North America and the Caribbean, colonial through national period. Emphasis on political economy, racial formations, and constructions of national identity.

3998. Variable Topics in Latino and Latin American Studies
(Formerly offered as LAMS 3998 and PRLS 3928.) Three credits. Prerequisites and recommended preparation vary. With a change in topic, may be repeated for credit.

3999. Independent Study in Latino and Latin American Studies
(Formerly offered as LAMS 3999 and PRLS 3929.) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit.

4212. Field Internship in Latino Studies
(Formerly offered as PRLS 4212.) One to three credits; may be repeated for up to six credits.
Work in cultural community-oriented setting(s).

4320. Media and Special Audiences
(Formerly offered as PRLS 4320.) (Also offered as COMM 4320.) Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: COMM 1000, 1300.
Media content and audience responses. Ethnic, racial, and gender issues in mainstream and ethnic media. Special audiences include Latina/os, African Americans, Asian Americans, Women, Gays, Lesbians.

4470. Soap Opera/Telenovela
(Formerly offered as PRLS 4470.) (Also offered as COMM 4470.) Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: COMM 1000, 3300.
Socio-cultural functions of soap operas/telenovelas as mediated serials constructed by commercial organizations and consumed by United States and global audiences.

4994W. Latin American Studies Research Seminar
(Formerly offered as LAMS 4994W.) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; and instructor consent.
Capstone course in which majors and minors in Latin American Studies design, execute and write up original, library-based research on Latin America. Some readings may be in Spanish or Portuguese.

Linguistics (LING)

Head of Department: Professor Jonathan Bobaljik
Department Office: Room 368, Oak Hall

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

1010. Language and Mind
(101) Three credits.
Discussion of nature-nurture debate with specific reference to language acquisition. Pros and cons of Chomsky’s Innateness Hypothesis. CA 1.

1020. Language and Environment
(102) Three credits.
Effects of geography, society, and politics on language use and variation (sociolinguistics). The geographical spread, growth and death of languages (language ecology). CA 2. CA 4-INT.

1030. The Diversity of Languages
(103) Three credits. Calabrese, van der Hulst
Overview of world languages and language families. Typological classifications of linguistic properties; what can we expect in the structure of a language? Unity and diversity of language systems. Mechanisms of language change and variation. CA 2. CA 4.

1793. Foreign Study
(193) Credits and hours by arrangement. Prerequisite: Consent of Department Head or advisor may be required prior to the student’s departure. May be repeated for credit.

Special topics taken in a foreign study program.

1795. Special Topics Lecture
(195) Credits, prerequisites, and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.

2010Q. The Science of Linguistics
(110Q) Three credits.
An introduction to the methods and major findings of linguistic research as applied to the sound systems of languages and the structure and meaning of words and sentences. CA 3.

2850. Introduction to Sociolinguistics of the Deaf Community
(150) Three credits.
Sociolinguistics, demographics of the Deaf community; study of Deaf subgroups with different sociolinguistic, linguistic and cultural backgrounds; sociolinguistic integration of community members with the larger population in their cultural/ethnic community. Knowledge of American Sign Language not required. CA 2. CA 4.

3000. Introduction to Computational Linguistics
Three credits. Recommended preparation: At least one course in linguistics or computer science.
Computational methods in linguistic analysis and natural language processing. Topics include the use of text corpora and other sources of linguistic data; morphological analysis, parsing and language modeling; applications in areas such as information retrieval and machine translation.

3110. Experimental Linguistics
(215C) Three credits. Prerequisite: PSYC 1100 and LING 2010Q; open to juniors or higher. Lillo-Martin, Snyder
Research methods and laboratory techniques for the study of language acquisition and/or sentence processing. Students design and conduct a study using a computer database of child speech.

3310Q. Phonology
(205Q) Three credits. Prerequisite: LING 2010Q; open to juniors or higher.
The analysis of sound patterns in language within a generative framework: distinctive features, segmental and prosodic analysis, word formation, the theory of markedness.

3410Q. Semantics
Three credits. Prerequisite: LING 2010Q; open to students who have completed LING 3510Q only with permission.
Analysis of the semantics of natural languages in a generative framework: truth conditions, compositionality, quantification.

3510Q. Syntax and Semantics
(206Q) Three credits. Prerequisite: LING 2010Q; open to juniors or higher.
The analysis of form and meaning in natural languages in a Chomskyan framework: surface structures, deep structures, transformational rules, and principles of semantic interpretation.

3511Q. Syntax
Three credits. Prerequisite: LING 2010Q; open to students who have completed LING 3510Q only with permission.
Analysis of the syntax of natural languages in a generative framework: phrase structure, movement, syntactic operations and dependencies.

3610W. Language and Culture
CATALOG section for details about how this program operates. Students not participating in the initiative may be able to register for the following classes: MGMT 1801.

1801. Contemporary Issues in the World of Management
(198) Hours and credits by arrangement. Prerequisite: Open to freshmen and sophomores; others with consent of instructor. May not be used to satisfy Junior-Senior level major requirements of the School of Business. May be repeated in different sections in combination with BADM 1801 for up to three credits.

Topics reflecting the complexities, challenges and excitement of today’s business world.

3101. Managerial and Interpersonal Behavior
(201) Three credits. Prerequisite or corequisite: ACCT 2001 or BADM 2710; ECON 1200 or both 1201 and 1202; ENGL 1010 or 1011 or 2011; MATH 1070Q and 1071Q or MATH 1131Q and 1070Q/1132Q or MATH 1125Q, 1126Q, and 1132Q/1070Q; STAT 1000Q or 1100Q; open to juniors or higher. Not open to students who have passed or are taking BADM 3740.

Topics covered include individual work motivation, interpersonal communications in organizations, team building and group processes, leadership, decision-making, and understanding and managing cultural diversity. Classes will emphasize interpersonal and leadership skill-building through the inclusion of exercises which rely on active participation of class members.

3115. Principles of Global Business
Three credits. Prerequisite: Open to juniors or higher. Not open to students who have passed or are taking MGMT 3225.

Provides an overview of international business and of the business firms and other institutions involved in it. The course examines both theory and applications in order to help students understand both fundamental concepts and management practices. Topics covered include the nature and characteristics of international business, theories of foreign trade and investment, national currencies and foreign exchange rates, cultural differences, government policies toward international business, and strategy and structure of multinational corporations. Offered only at the Hartford, Waterbury, and Stamford Regional Campus locations.

3225. International Business
(225) Three credits. Prerequisite: FNCE 3101; OPIM 3104; MGMT 3101; MKTG 3101; open to juniors or higher.

An introduction to the basic problems of the manager making decisions involving international trade, payments, and investment. Through extensive use of actual case studies, the special features of decision-making within the multinational enterprise integrating business operations among national economies are given particular attention. Lecturer, discussion, and case analyses.

3230. Thinking, Acting, and Managing Entrepreneurially
(230) Three credits. Prerequisite: ACCT 2001; ECON 1201 and 1202; ENGL 1010 or 1011 or 2011; MATH 1070Q and 1071Q or MATH 1131Q and 1070Q/1132Q or MATH 1125Q, 1126Q, and 1132Q/1070Q; STAT 1000Q or 1100Q; open to juniors or higher.

An exposure to the entrepreneurial process that is common and relevant in all business contexts – small, large, family, corporate, domestic, international, etc. – and equips them with the skills necessary to start and sustain this process.

3234. Opportunity Generation, Assessment, and Promotion
(234) Three credits. Prerequisite: ACCT 2101 or BADM 2710; FNCE 3101; BLAW 3175 or BADM 3720; OPIM 3103; MGMT 3101; open to juniors or higher. It is highly recommended that students take MGMT 3230 and MKTG 3101 prior to MGMT 3234.

A hands-on experience in opportunity development, exposing students to three distinct modules. The first, creativity and innovation, stimulates the flow of ideas. The second, feasibility analysis, runs these ideas through a comprehensive assessment framework. The third module, getting the first customer, focuses on the initial sales and marketing process needed to get the idea off the ground.

3235. Venture Planning, Management, and Growth
(235) Three credits. Prerequisite: ACCT 2101 or BADM 2710; FNCE 3101; BLAW 3175 or BADM 3720; OPIM 3103; MGMT 3101; MKTG 3101; open to juniors or higher. It is highly recommended that students take MGMT 3230 and 3234 prior to MGMT 3235.

An exposure to multiple facets of starting and managing new ventures in a very hands-on fashion. The course involves an integration of business skills that are required for preparing and pitching new business plans.

3239. Managing a Diverse Workforce
(239) Three credits. Prerequisite: Open to juniors or higher.

Examines issues related to managing an increasingly diverse workforce. Diversity in the workplace may result from differences in individual characteristics such as gender, race, ethnicity, national origin, and physical ability/disability. Diversity-related issues with management implications to be examined include personal identity, recruitment and selection, work group interactions, leadership, career development and advancement, sexual harassment, work and family, accommodation of people with disabilities, and organizational strategies for promoting equal opportunity and a positive attitude toward diversity among all employees.

3245. Managerial Behavior in Cross-Cultural Settings
(245) Three credits. Prerequisite: Open to juniors or higher.

The objective of this course is to introduce the student to the work values and behaviors of individuals in countries around the world. Some of the topics presented in the cross-cultural comparisons discussed in this course will include: approaches to motivation, communication, decision making, and negotiation. Particular emphasis will be placed on the developed and developing parts of the world that are major players in today’s global economy.

3250. Effective Management Presentations
(250) Three credits. Prerequisite: Open to juniors or higher.

Learn and practice communication skills required to deliver messages accurately, concisely, and convincingly, individually or in a team, in business scenarios. Overcome speech anxiety, identify audience and purpose, and work with visual aids to persuade, inform, and motivate.

4271. Venture Consulting
(291) Three credits. Hours by arrangement. Prerequisite: Senior standing.

Application of small business management concepts in a consulting project in an on-going small business in Connecticut. Students will be required to take examinations on course content and submit a report on the consulting project.

4891. Field Study Internship
(289) One to six credits. Hours by arrangement. Pre-
Management and Engineering for Manufacturing (MEM)

Co-Directors: School of Business: Associate Professor Robert Day

School of Engineering: Assistant Professor Diane Van Scoter

1151. Introduction to Management and Engineering for Manufacturing Program
(151) Three credits.
Introduction to the goals of engineering and management for manufacturing enterprises. Review of the history of technological development, including its effects on new products and processes. Written and oral communication skills will be developed.

Should this course be dropped? If so, Senate approval is required:

2210. Manufacturing Equipment Lab
(210) One credit. One and one-half hours of laboratory per week.
Introduction to machine shop equipment, metrology, general safety, and hands on experience in machining and fabrication of metals. Topics include: introduction to instrumentation; knee miller, engine lathe, drill press, grinder, and sander operation; welding; chipping; and grinding.

2211. Introduction to Manufacturing Systems
(211) Three credits. Prerequisite: STAT 1100Q.
Overview of manufacturing operations management and the systems used in controlling manufacturing enterprises including the concepts of global competition and manufacturing as a competitive weapon.

2212. Introduction to Manufacturing Systems Lab
One credit. One 3-hour lab per week. Prerequisite: MEM 2211, which may be taken concurrently. Open only to Management and Engineering for Manufacturing majors.
Introduction to the steps required for manufacturing. Students will move from a part sketch, to an engineering drawing, to a drawing using state-of-the-art CAD software. Students will build both a prototype and an improved final model of the part, which are required to be of different materials. One or more site visits are included as part of this laboratory, for students to gain exposure to operational manufacturing facilities.

3211. Principles of Engineering Management
Three credits. Prerequisite: Open to sophomores or higher; not open to students who have passed or are taking MGMT 4902. Restricted to regional campus business majors.
Capstone business policy course, providing an integrative view of managing the different functional elements and activities of the enterprise. Focuses in particular on strategy formulation and implementation, extending from analysis of the enterprise’s current situation, through determination of goals, objectives and direction, to establishment of plans and programs to bring these to fruition. Provides a broad perspective on how firms compete and position themselves in the external marketplace. Examines impact of technology and innovation on changing industry environments in which these activities take place. Course format includes extensive use of case studies and simulation exercises.

3212. Introduction to Products and Processes
(221) Three credits. Prerequisite: MEM 2211.
Overview of the factors affecting the design of products and the various processes used in their manufacture. An introduction to manufacturing processes and their capabilities and limitations. Value engineering, methods improvement and simplification techniques will be covered.

3231. Computers in Manufacturing
(231) Three credits. Prerequisite: MEM 2211, which may be taken concurrently.
The utilization of computers and information systems in manufacturing, with special emphasis placed on Computer Integrated Manufacturing (CIM). The study of actual CIM applications will be incorporated.

3281. Manufacturing Internship
(296) No credits. Hours by arrangement. Prerequisite: Consent of instructor and MEM program director. May be repeated. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Designed to educate students in the MEM program with the realities of the manufacturing environment and to provide them with the opportunity to exercise problem solving skills while fulfilling a need of the internship sponsor.

3299. Problems in Management and Engineering for Manufacturing
Semester and hours by arrangement. Prerequisite: Instructor consent. Credits by arrangement, not to exceed four. May be repeated for credit with a change in topic.
Designed primarily for students who wish to pursue or continue to pursue a special line of study or investigation.

4225. Advanced Products and Processes
(225) Three credits. Prerequisite: MEM 3221.
Introduction to advanced topics relevant to the design and manufacture of products. Special emphasis on the relationship between manufacturing processes and applications. Student projects.

4915W. Advanced Manufacturing Systems
(215W) Four credits. Two 3-hour laboratory periods. Prerequisite: ME 3221 and MEM 2211; ENGL 1010 or 1011 or 2011.
Capstone design course for the MEM Program. Design applications involving construction and analysis of manufacturing system models. Students submit write-ups for several small projects. One large project is completed by all students in the course, with a written report and oral presentation. Projects incorporate major concepts studied in prior courses.

Marine Sciences (MARN)

Department Head: Professor James Edison
Department Office: Marine Sciences, Avery Point

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

1001. The Sea Around Us
(135) Three credits. Ebbin
The relationship of humans with the marine environment. Exploitation of marine resources, development and use of the coastal zone, and the impact of technology and pollution on marine ecosystems. CA 3.

1002. Introduction to Oceanography
(170) Three credits. Dam/ Avery Point, Dierrsen/Storrs
Processes governing the geology, circulation, chemistry and biological productivity of the world’s oceans. Emphasis is placed on the interactions and interrelationships between physical, chemical, biological and geological processes that contribute to both the stability and the variability of the marine environment. CA 3.
1003. Introduction to Oceanography with Laboratory
(171) First semester (Avery Point). Second semester (Storrs). Four credits. Three hours lecture and one 3-hour laboratory per week. Recommended preparation: A background in secondary school physics, chemistry or biology. Not open to students who have passed MARN 1002. Land/Avery Point, Skoog/Storrs. Processes governing the geology, circulation, chemistry and biological productivity of the world's oceans. Emphasis on the interactions and interrelationships of physical, chemical, biological and geological processes that contribute to both the stability and the variability of the marine environment. Laboratory experiments, hands-on exercises, and field observations including required cruise on research vessel. A fee of $35 is charged for this course. CA 3-LAB.

1004. Oceanography Laboratory
(172) First semester (Avery Point). Second semester (Storrs). One credit. One 3-hour laboratory per week. Prerequisite: MARN 1002 or equivalent. Not open to students who have passed MARN 1003. Laboratory experiments, hands-on exercises, and field observations (including required cruise on research vessel) that teach fundamental oceanographic concepts emphasizing physical, chemical, and biological processes and their interaction in the marine environment. A fee of $35 is charged for this course.

1160. Introduction to Scientific Diving
Two credits. Approved medical questionnaire and liability waiver required. Godfrey
Introduction to scuba diving history, physics and physiology of diving, dive planning, open-circuit diving equipment, and marine environments. Open-water diving certification possible with successful completion of course. A fee of $75 is charged for this course.

Senate approval required:

(210) Second semester (Avery Point). Three credits. Prerequisite: MARN 1002 or 1003; MATH 1110Q or 1071Q or 1128Q; and any two of the following: BIOL 1107, 1108; CHEM 1127Q and 1128Q; and PHYS 1201Q, 1202Q, or 1401Q-1402Q. Fewings, McManus. Biological, chemical, physical, and geological structure and function of coastal systems; a worldwide survey with emphasis on important coastal habitats and processes.

2004. Introduction to Coastal Meteorology
Three credits. Recommended preparation: Introductory calculus and physics. Lombardo
Introduction to the structure, circulation, and thermodynamics processes within the Earth's atmosphere. Emphasis on weather phenomena impacting the coastlines, including sea breezes, coastal convection, waterspouts, and hurricanes.

3000. The Hydrosphere and Global Climate
(200) Three credits. Vlahos
Interactions of the physical and chemical components of the global water and energy cycles and how all apply to climate. The science behind climate change predictions reviewed and applied to case studies.

3001. Coastal Systems Science II
(211) First semester (Avery Point). Four credits. Three hours lecture and three hours laboratory. Prerequisite: MARN 2002; MATH 1110Q or 1071Q or 1128Q; and PHYS 1201Q or 1402Q. Fewings. Biological, chemical, physical and geological structure and function of coastal systems, with a special focus on field observations in three important coastal habitats: beaches and rocky shores, marshes, and estuaries.

3003Q. Environmental Reaction and Transport
(220Q) Four credits. Prerequisite: CHEM 1127 and one additional semester of CHEM, BIOL or PHYS; one semester of calculus (MATH 1110, 1120, 1131, or 1151) or concurrent enrollment in Calculus (1110, 1111, 1151). Tobias
An introduction to the chemical/biological reactions and transport dynamics of environmental systems. Mass balances, elementary fluid mechanics and the coupled dynamics of lakes, rivers, oceans, groundwater and the atmosphere as biogeochemical systems.

3012. Marine Invertebrate Biology: Adaptations and Community Structure
(241) Three credits. Prerequisites: BIOL 1107 and 1108. Recommended preparation: MARN 1002 or 1003 or instructor consent. Ward
Comparative examination of major adaptations and functional responses of marine invertebrates to abiotic and biotic factors in the marine environment. Field trips required.

3014. Marine Biology
(294) (Also offered as EEB 3230.) First semester (Storrs) second semester, alternate years (Avery Point). Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: One year of college laboratory biology. Dierssen/Avery Point
The study of the kinds and distributions of marine organisms. Particular attention is paid to biotic features of the oceans, organism-habitat and relationships and general ecological concepts influencing marine populations and communities. Field trips are required. A fee of $10 is charged for this course.

3015. Molecular Approaches to Biological Oceanography
(265) Three credits. Two-hour lecture, three-hour lab. Recommended preparation: one of BIOL 1108, MARN 4010, MCB 3010. Lin
Principles and technology in nucleic acid purification and manipulation, DNA fingerprinting, gene cloning and sequencing, phylogenetic analysis, and detection of gene expression (mRNA and protein). Application examples in marine ecological studies.

3016. Marine Microbiology
(236) (Also offered as MCB 3636.) First semester (Avery Point) second semester (Storrs). Three credits. Two lecture-discussion class periods and one 2-hour laboratory period for which field trips may be substituted. Prerequisite: MCB 2610 or instructor consent. Visscher
A general survey of the taxonomy, physiology and ecology of marine microorganisms.

3017. Plankton Ecology
(267) Three credits. Two 50-minute lectures and one 3-hour lab/recitation period. Prerequisites: MATH 1060Q or 1131, PHYS 1201Q or 1401Q, CHEM 1127Q or 1128Q or equivalent, BIOL 1107 and 1108. Recommended preparation: MARN 1002. Consent of instructor for graduate students in lieu of requirements. Students who have taken both MARN 5014 and MARN 5016 may take this course for credit. Dam
Ecology of planktonic organisms (bacteria, protista and metazoa). The evolutionary ecology concept, methods of research, special features of aquatic habitats; adaptations to aquatic environments; population biology; predation, competition, life histories, community structure, and role of plankton in ecosystem metabolism.

3030. Coastal Pollution and Bioremediation
(282) Three credits. Two class periods, one 2-hour lab period. Required preparation: BIOL 1107, 1108 and CHEM 1127-1128 or instructor consent. Visscher
Overview of processes and compounds leading to pollution in the nearshore marine environment. The impact of pollution on the marine foodweb and its response is emphasized. Alleviation of pollution through metabolism of organisms, including bacteria, seagrasses, and salt marshes.

3060. Coastal Circulation and Sediment Transport
(230) Second semester (Avery Point). Three credits. Prerequisite: MARN 2002 and 3001; MATH 1110 or 1120 or 1131 or 1151. O'Donnell
Circulation and mixing in estuaries and the inner continental shelf, including surface gravity waves, tides, and buoyancy and wind-driven circulation. Coastal sediments, geomorphology, and processes of sedimentation, erosion and bioturbation. Required field trips.

3061. Environmental Fluid Dynamics
(235) Three credits. Recommended preparation: PHYS 1202 or 1402 or 1502 or 1602; and MATH 2130 (may be taken concurrently). O'Donnell
Introduction to fluid dynamics with applications to coastal waters, estuaries, rivers, lakes, and ground water flows. Topics include waves, tides turbulence, mixing, drag, lift, effects on organisms, and wind driven circulation.

3230. Beaches and Coasts
(203) (Also offered as GSCI 3230.) First semester, alternate even years (Avery Point). Three credits. Prerequisite: MARN 1002 or 1003 or GSCI 1050 or 1051 or consent of instructor. Lewis
Introduction to the processes that form and modify coasts and beaches, including tectonic setting, sediment supply, coastal composition, energy regimes and sea level change; tools and techniques utilized in marine geologic mapping and reconstruction of submerged coastal features; field trips to selected coastal features.

3505. Remote Sensing of Marine Geography
(Also offered as GEOG 3505.) Three credits. Recommended preparation: GEOG 2300 or MARN 1002. Dierssen
Introduction to remote sensing applications in oceans and seas. Applications include image analysis of sea surface temperature, winds, altimetry, sea ice, chlorophyll, primary productivity, and bathymetry.

3801W. Coastal Studies Seminar
(255W) Second semester (Avery Point). Two credits. Prerequisite: MARN 2002 and 3001 or instructor consent. ENGIL 1010 or 1011 or 2011. Vaudrey
Scientific analysis of coastal zone issues and their interdisciplinary implications. Written analysis and discussion of primary literature.

3811. Seminar on Marine Mammals
(240) Joint program with Mystic MarineLife Aquarium. Three credits. One 3-hour class period; one field trip. Offered at Mystic MarineLife Aquarium. Prerequisite: one year college laboratory biology and permission of instructor.
Instructs from different areas of expertise discuss topics such as the natural history, evolution, anatomy, physiology, husbandry, and conservation of marine mammals. Current research is emphasized. (Special registration and fee: Contact Mystic MarineLife Aquarium, Mystic, CT 06355. 860-572-5955.)

3899. Independent Study
(299) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit.

3995. Special Topics
May be repeated for credit with a change in topic.

4001. Measurement and Analysis in Coastal Ecosystems
(212C) First semester (Avery Point). Four credits. Two 1-hour lectures and two 3-hour laboratories. Required field trips. Prerequisite: Both MARN 2002 and 3001, or instructor consent. Granger, Koering
Examination of oceanographic processes in local coastal systems; collection and analyses of samples from field trips and lab experiments; data analysis using computers.

4002. Science and the Coastal Environment
(256) Second semester (Avery Point). Three credits. Prerequisite: MARN 2002, 3001, and 4001; or at least two (2) of the following: MARN 4030W, 4050, and 4060. Tobias, Trumbull
Specific cases of multiple impacts on environmental resources and coastal habitats. Current scientific understanding as a basis for sociopolitical decision-making (e.g., land-use impacts on coastal processes in relation to zoning regulation and water-quality criteria).

4010. Biological Oceanography
(260) Three credits. Prerequisite: CHEM 1128; MATH 1122 or 1132; PHYS 1202 or equivalent; BIOL 1107 and 1108; or instructor consent. Lin, Dam, Granger
Structure and function of marine food webs, from primary producers to top trophic levels; interaction of marine organisms with the environment; energy and mass flow in food webs; elemental cycling; coupling between pelagic and benthic environments.

4030W. Marine Biogeochemistry
(280W) Three credits. Prerequisite: CHEM 1128, MATH 1122 or 1132, PHYS 1202 or equivalents; ENGL 1010 or 1011 or 2011. Vlahos
Composition, origin and solution chemistry of sea water. Marine biogeochemical cycles of water, salt, carbon, nutrients, gases and trace elements. Effects of ocean circulation, biological cycles and crustal exchanges on the distribution and transfer of substances in the marine environment.

4050. Geological Oceanography
(275) Three credits. Prerequisite: One year of laboratory science in CHEM, GCST, MARN and/or PHYS or instructor consent.
Basic concepts in geological oceanography, plate tectonics and the role of ocean floor dynamics in the control of the Earth and ocean system.

4060. Physical Oceanography
(270) Three credits. Prerequisite: PHYS 1202, 1402, 1502 or 1602; MATH 1122 or 1132. Whitney
Overview of physical properties and dynamics influencing the oceans and coastal waters. Descriptions of global water property distributions, surface mixed layer, pycnocline, surface heat fluxes, and major ocean currents. Introduction to dynamics of ocean circulation, waves, tides, and coastal circulation.

4066. River Influences on the Marine Environment
Three credits. Recommended preparation: Calculus and general physics. Whitney
Influences of rivers on estuaries, coastal and open water properties, energy budgets and ecosystems including inputs of buoyant waters, sediments and pollutants and variability from storms, seasons, human alterations and climate change.

4160. Scientific Diving
Three credits. Recommended preparation: MARN 1160. Scuba certification and approved diving physical required. Grey
Physics and physiology of scuba diving, federal regulation, consensus standards, dive planning, dive accident management and emergency planning, scientific diving methods, diving modes. Scientific diver certification possible with successful completion of course plus CPR, First Aid and Emergency Oxygen certification. A fee of $75 is charged for this course.

4891. Internship in Marine Sciences
(297) Variable credits. Prerequisite: Consent of Instructor. Recommended preparation: Nine credits of MARN courses at the Junior - Senior level. With a change in topic, may be repeated for credit, not to exceed 3 credits. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory). An internship under the direction of MARN faculty. Placements stress application of academic training. A journal of activities is required. One credit may be earned for each 42 hours of pre-approved activities in a semester to a maximum of three credits.

4893. Foreign Study
(293) Credits and hours by arrangement. Prerequisite: Consent of Department Head required prior to the student’s departure for foreign site. May be repeated for credit.
Special topics in Marine Sciences taken in a foreign study program.

4895. Special Topics
(298) Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

4896W. Senior Research Thesis
(295W) Three credits. Hours by arrangement. Prerequisite: Three credits of MARN 3899, which may be taken concurrently; ENGL 1010 or 1011 or 2011; open only with consent of instructor. Recommended preparation: MARN 3801W. Not limited to honors students. Senior thesis reflecting independent research.

4898. Variable Topics
(296) Variable credits: one to three. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

Maritime Studies (MAST)

Program Coordinator: Associate Professor Nathanial Trumbull
Office: Avery Point Campus, Academic Building, First Floor
For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

1101. Introduction to Maritime Studies
(101) First semester (Avery Point). Three credits.
An introduction to the interdisciplinary study of maritime-related topics with an examination of the maritime physical environment and maritime cultures, history, literature, and industries.

1200. Introduction to Maritime Culture
Three credits.
A study of history and literature to understand the international maritime culture that links peoples, nations, economies, environments, and cultural aesthetics. CA I.

2100W. Ports of Passage
(Formerly offered as MAST 1660W) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.
A selection of readings concerning ports around the world. Interdisciplinary readings will explore the cultural and historical significance of the port as a setting of philosophical and commercial exchange. CA A-INT.

Senate approval required:

2210. History of the Ocean
(Also offered as HIST 2210) Three credits. Open to sophomores. Not open for credit to students who have passed HIST 3995 when taught as Cultural History of the Ocean.
Cultural, environmental, and geopolitical history of the ocean from prehistory to the present. Examines the impact of migration, industrialization, modernization, and globalization on the relationships between people and oceans. CA 1.

2467. Economics of the Oceans
(Also offered as ECON 2467) Three credits. Prerequisite: ECON 1200 or 1201.
Economies of industries that use and manage ocean resources. Applications of industrial organization, law and economics, natural resource theory, and environmental economics.

2995. Special Topics Lecture
(195) Credits, prerequisites, and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.

3531. Maritime Archaeology of the Americas
(Also offered as ANTH 5331 and HIST 3209) Three credits. Recommended preparation: ANTH 1500, ANTH 2501, ANTH 2510 or HIST 3544.
Archaeological and historical sources to examine the development of seafaring practices, exploration, waterborne trade and economic systems, naval warfare and shipbuilding in the Americas from the fifteenth to the beginning of the twentieth century.

3532. Archaeology of the Age of Sail
(Also offered as ANTH 3532 and HIST 3210) Three credits. Recommended preparation: ANTH 1500, ANTH 2501, or 2510.
Overview of archaeological and historical sources on the development of seafaring and navigation, exploration, waterborne trade and economic systems, colonialism and empire building, naval warfare and shipbuilding in Europe from the fifteenth to the beginning of the twentieth century.

3544. Atlantic Voyages
(Also offered as HIST 3544) Three credits. Prerequisite: Open to juniors or higher.
Seafaring and society since the age of Columbus. Emphasis on the Anglo-American experience.

3832. Maritime Law
(Also offered as POLS 3832) Three credits. Prerequisite: Open to juniors or higher.
International and domestic legal concepts concerning jurisdiction in a maritime setting.

3991. Supervised Internship in Maritime Studies
(290) Credits, not to exceed 3, and hours by arrangement. Prerequisite: completion of 9 credits of Maritime Studies core courses, and consent of the program coordinator. May be repeated for credit with change in content and program coordinator’s consent.
Internship with institutions, businesses, or agencies engaged in areas directly related to Maritime Studies. Maritime Studies faculty supervisor, student, and field supervisor of host organization will jointly define a specific project to advance student’s educational program as well as mission of the host institution. Grades will be based on performance of the learning contract and a final academic product.

3995. Special Topics
(298) Credits and hours by arrangement. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

3998. Variable Topics
(295) Three credits. Prerequisites and recommended
preparation vary. With a change in topic, may be repeated for credit.

**499W. Maritime Studies Capstone Seminar**
(297W) Second semester (Avery Point). Three credits. Prerequisite: MAST 1101, MARN 1001; open only to Maritime Studies majors; ENGL 1010 or 1011 or 2011. Topical themes related to diverse aspects of society and commerce in coastal and oceanic zones, such as African Americans and the maritime experience; politics and economics of fisheries; or cultural perspectives of Long Island Sound.

**4999. Independent Study**
(299) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit with a change in subject matter.

**Marketing (MKTG)**

*Head of Department: Professor Robin Coulter*
*Department Office: Room 349, School of Business*

For major requirements, see the School of Business section of this Catalog. The School of Business requires students at the Storrs campus to participate in the Mobile Computing Initiative before registering for the courses listed below. See the School of Business Catalog section for details about how the program operates.

**3101. Introduction to Marketing Management**
(201) Three credits. Prerequisite: ACCT 2001; ECON 1200 or both 1201 and 1202; ENGL 1010 or 1011 or 2011; MATH 1070Q and 1071Q or MATH 1131Q and 1070Q/1132Q or MATH 1125Q, 1126Q, and 1132Q/1070Q; STAT 1000 or 1100; open to juniors or higher. Not open to students who have passed or are taking BADM 3750.

An introduction to the marketing system, its foundations and institutions. Students are exposed to product, promotion, price, distribution decision areas, strategic alliances, relationship marketing, and total marketing quality.

**3208. Consumer Behavior**
(208) Three credits. Prerequisite: MKTG 3101; open to juniors or higher. Not open for credit to students who have passed, or are currently enrolled in, MKTG 3209.

The analysis of consumer decision processes as they relate to marketing management decision areas. Several models of consumer behavior are studied as are the psychological phenomena of learning, motivation, and attitude development, and the sociological influences of social class, reference groups and culture.

**3260. Marketing Research**
(280) Three credits. Prerequisite: MKTG 3101; open to juniors or higher.

Covers strategies and techniques for obtaining and using market information from consumer and business-to-business markets. Emphasis on translating managerial problems into research questions, designing research, selecting alternate research methods, and analyzing and interpreting market research data. Students gain hands on, computer based experience in analyzing market data.

**3362. Marketing Planning and Strategy**
(282) Three credits. Prerequisite: MKTG 3101, 3208, 3260, and senior class standing.

Provides students with a systems approach to strategic market analysis and planning, particularly related to product design, branding, customer management, pricing, promotion, and distribution decisions in the context of a competitive global market. Students will learn the components of and develop a marketing plan.

**3370. Global Marketing Strategy**
(270) Three credits. Prerequisite: MKTG 3101 or BADM 3750. Not open to students who have passed or are currently enrolled in BADM 3370.

A study of the marketing concepts and analytical processes used in the development of programs in international markets. The course emphasizes comparative differences in markets, marketing functions, and political considerations. It includes the analysis of the implications of product, pricing, promotion, and distribution decisions in the context of limited resources and political considerations. It includes the application of a systems approach to the evaluation of opportunity and to the solution of major global marketing problems. Emphasis is placed on the analysis and synthesis of marketing programs to determine the appropriate marketing mix for various international business enterprises.

**3452. Professional Selling**
(252) Three credits. Prerequisite: MKTG 3101 or BADM 3750; open to juniors or higher. Not open to students who have passed or are currently enrolled in BADM 3752.

Focuses on the tactical and strategic aspects of the professional selling process with particular emphasis upon managing the complex sale. Topics include account entry strategies, effective investigative techniques, objection prevention, the client decision process, negotiation skills, and account development strategies, and the use of technology to manage a portfolio of sales opportunities. Learning tools will include: participant interaction, role plays, work groups, and case studies.

**3454. Sales Management and Leadership**
(254) Three credits. Prerequisite: MKTG 3101 or BADM 3750; open to juniors or higher. Not open to students who have passed or are currently enrolled in BADM 4754.

Provides students with concepts and skills to understand and engage in sales force management, and to develop strong sales leadership abilities. Topics include strategic development of a sales force, sales teams, tactical development skills, and the integration with the rest of the organization to fulfill customer needs. Learning tools will include: participant interaction, role plays, work groups, and case studies.

**3625. Integrated Marketing Communications in the Digital Age**
(225) Three credits. Prerequisite: MKTG 3101 or BADM 3750; open to juniors or higher. Not open to students who have passed or are currently enrolled in COMM 4800 or BADM 3625.

Provides students with an understanding of the design, coordination, integration, and management of marketing communications. Students develop an integrated marketing communications campaign using traditional, social, and mobile media with an emphasis on the competitive and strategic value of communications in the marketplace.

**3661. Marketing and Digital Analytics**
(281) Three credits. Prerequisite: MKTG 3101 or BADM 3750; open to juniors or higher.

Provides students with basic and advanced analytical tools to address strategic marketing concerns, including topics such as consumer profiling and behavioral targeting, media buying, retail engagement, and search. Students gain hands on computer-based experience in analyzing data.

**3665. Digital Marketing**
(265) Three credits. Prerequisite: MKTG 3101 or BADM 3750; open to juniors or higher. Not open to students who have passed or are currently enrolled in BADM 3755.

Provides students with a framework and tools to develop integrated digital marketing strategies applied to segmentation, targeting, positioning, branding, and the marketing mix in pursuit of long-term marketing objectives.

**3753. Entrepreneurial Marketing**
Three credits. Prerequisite: MKTG 3101 or BADM 3750; open to juniors or higher. Not open to students who have passed or are currently enrolled in BADM 3750.

Focuses on the key marketing concepts and practices relevant to entrepreneurial ventures when introducing new products and services. It focuses on the assessment of market potential, marketing strategies and decisions in the context of limited resources and conditions of risk and market uncertainty, and the role of marketing in the commercialization process. Attention is given to product, pricing, promotion, and distribution decisions, and customer relationship management to co-create value with the customer.

**3757. Strategic Brand Management**
Three credits. Prerequisite: MKTG 3101 or BADM 3750; open to juniors or higher. Not open to students who have passed or are currently enrolled in BADM 3757.

Provides students an understanding of customer behavior in relation to marketing strategies in building, leveraging, and enhancing brand equity and formulating strategic brand decisions, such as positioning and designing brands, building and leveraging brand community, measuring brand assets and brand performance, managing global brands, providing brand stewardship, and managing brand extensions. The course provides concepts and perspectives relevant for any market offering (public/private, profit/nonprofit, commercial/noncommercial). Students will conduct a brand assessment project - a brand equity audit or brand marketing plan.

**4891. Professional Practice in Marketing**
(289) One to three credits. Hours by arrangement. Prerequisite: completion of Freshman - Sophomore level School of Business requirements and consent of instructor and Department Head; open to juniors or higher. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Provides students with an opportunity for supervised field work in relevant major areas within the Department. Students will work with one or more professionals in the field of marketing. Student performance will be evaluated on the basis of an appraisal by the field supervisor and a detailed written report submitted by the student.

**4893. Foreign Study**
(293) Credits and hours by arrangement, up to a maximum of six credits. Prerequisite: Open to juniors or higher; consent of Department Head required, prior to student's departure.

Special topics taken in a foreign study program.

**4895. Special Topics**
(298) Credits and hours by arrangement. Prerequisite: Announced separately for each offering; open to juniors or higher. With a change in content, may be repeated for credit.

Classroom course in special topics as announced in advance for each semester.

**4899. Independent Study**
(299) Credits by arrangement. Prerequisite: Not to exceed six in any semester. Prerequisite: Open to juniors or higher; open only with consent of instructor and Department Head.

Individual study of special topics as mutually arranged between student and instructor.

**4996. Independent Honors Research**
Three credits. Prerequisite: MKTG 3260; open to juniors or higher; open only to Marketing Department Honors Students with consent of the instructor.

Students are expected to develop their own plan...
for a research project, conduct the research, and write up this research, consulting periodically with a faculty member.

4997. Senior Thesis in Marketing
(296) Three credits. Hours by arrangement. Prerequisite: Open only to Marketing Department Honor Students with consent of instructor and Department Head; open to juniors or higher.

4997W. Senior Thesis in Marketing
Prerequisite: ENGL 1010 or 101L or 2110 or 211L; open only to Marketing Department Honor Students with consent of instructor and Department Head; open to juniors or higher.

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Materials Science and Engineering (MSE)

Head of Department: Professor S. Pamir Alpay
Department Office: Institute of Materials Science (IMS), Room 111

For major requirements, see the School of Engineering section of this Catalog.

(243) Three credits. Prerequisite: CHEM 1127Q or 1147Q. Not open to students who have passed MSE 2101.
Bonding in materials, the crystal structure of metals and ceramics, and defects in materials will be introduced. Basic principles of phase diagrams and phase transformations will be given with particular emphasis on microstructural evolution and the effect of microstructure on the mechanical properties of metals and alloys. Introductory level knowledge of mechanical properties, testing methods, strengthening mechanisms, and fracture mechanics will be provided.

2002. Introduction to Structure, Properties, and Processing of Materials II
(244) Three credits. Prerequisite: MSE 2001 or 2101. Structures, properties, and processing of ceramics; structure, properties and processing of polymers and composites; electrical, thermal, magnetic and optical properties of solids; and corrosion.

2053. Materials Characterization and Processing Laboratory
(284) One credit. Prerequisite: MSE 2002, which may be taken concurrently. One 3-hour laboratory period. Open only to students who have passed MSE 2101.
Relation of crystalline structure to chemical, physical, and mechanical properties of metals and alloys. Testing, heat treating, and engineering applications of ferrous and non-ferrous alloys.

2102. Materials Science & Engineering II
Three credits. Prerequisite: MSE 2001 or 2101. Not open to students who have passed MSE 2002.
Structure, properties, and processing of ceramics; structure, properties and processing of polymers and composites; electrical, thermal, magnetic and optical properties of solids; and corrosion.

3001. Applied Thermodynamics of Materials
(256) Four credits. Prerequisite: MSE 2001 or 2101.
Thermodynamic principles will be applied to the behavior and processing of materials. Topics covered will include thermodynamic properties, solution thermodynamics, phase equilibria, phase diagram prediction, gas-solid reactions and electrochemistry.

3002. Transport Phenomena in Materials Processing
(255) Four credits. Prerequisite: MSE 3003 and MATH 2110Q, both of which may be taken concurrently.
Mechanisms and quantitative treatment of mass, energy, and momentum transfer will be applied to design and analysis of materials processing. Increasingly complex and open-ended engineering design projects will be used to illustrate principles of diffusion; heat conduction, convection, and radiation, and fluid flow.

3003. Phase Transformation Kinetics and Applications
(265) Three credits. Prerequisite: MSE 2001 or 2101. Principles and applications of phase transformations to control microstructure and materials properties. In depth quantitative coverage will include vacancies, solid solutions, phase diagrams, diffusion, solidification of metals, nucleation and growth kinetics, and thermal treatments to control microstructure.

3004. Mechanical Behavior of Materials
(266) Three credits. Prerequisite: MSE 2001 or 2101. Elements of elastic plastic deformation of materials and the role of crystal structure. Strengthening and toughening mechanisms. Fracture; including fatigue, stress corrosion and creep rupture. Test methods.

3020. Failure Analysis
(207) Three credits. Prerequisite: MSE 2001 or 2101. Methods for determining the nature and cause of materials failure in structures and other mechanical devices. Analysis of case histories.

3029. Ceramic Materials
(229) Hours by arrangement. Three credits. Prerequisite: MSE 2002 and PHYS 1502. Kattamis
Microstructure of crystalline ceramics and glasses and role of thermodynamics and kinetics on its establishment. Effect of process variables on microstructure and ultimately on mechanical, chemical and physical properties.

3030. Introduction to Composite Materials

3032. Introduction to High Temperature Materials
(223) Three credits. Prerequisite: MSE 2001 or 2101. Plastic deformation of metals and other solid materials at elevated temperatures. Dislocation mechanisms; creep processes; oxidation. Strengthening mechanism, including ordering and precipitation hardening.

3034. Ferrous Alloys
Three credits. Offered in alternate years. Prerequisites: MSE 3001 and 3003, both of which may be taken concurrently; open to juniors or higher; instructor consent required.
Application of materials science and engineering principles to extraction, refining, processing, phase transformations, heat treatment, properties and applications of iron-based alloys. Alloys covered include: plain-carbon steels, alloy steels (micro-alloyed, high-speed, stainless) and cast irons.

3036. Non-Ferrous Alloys
Three credits. Offered in alternate years. Prerequisites: MSE 3001 and 3003, both of which may be taken concurrently; open to juniors or higher; instructor consent required.
Application of materials science and engineering principles to extraction, refining, processing, phase transformations, heat treatment, properties and applications of non-ferrous alloys. Materials covered include alloys of: aluminum, copper, magnesium, nickel, titanium, zinc and refractory metals.

3055. Materials Processing and Microstructures Laboratory
(286) One credit. One 3-hour laboratory period. Prerequisite: MSE 2053. Corequisite: MSE 3003. 
Illustrative processing, microstructural characterization and control. As-cast, wrought, and solutionized non-ferrous alloys, dendritic, non-dendritic, and eutectic microstructures. Heat-treated ferrous alloys. Composites. Powder metallurgy-processed, and weld microstructures. A fee of $50 is charged for this course.

3056. Mechanical Behavior Laboratory
(285) Two credits. Three hour laboratory. Prerequisite: MSE 3004, which may be taken concurrently. Characterization of mechanical properties of materials and fundamentals of materials deformation and fracture processes will be experienced through hands-on projects with tensile, rheological, cyclic, and high temperature testing; drawing; forging; extrusion; rolling; and hot pressing.

3156. Polymeric Materials
(Also offered as CHEG 3156.) Three credits. Recommended preparation: CHEM 2444. Not open for credit to students who have passed CHEM 3661.
Structure, properties, and chemistry of high polymers; solution and phase behavior; physical states; viscoelasticity and flow; production and polymer processing; design of polymers for specific applications.

3700. Biomaterials
Four credits. Prerequisite: MSE 2001 or MSE 2101. Not open to students who have passed BME 3700.
Introduction to a series of implant materials, including metals, ceramics, glass ceramics, polymers, and composites, including comparison with natural materials. Issues related to mechanical properties, biocompatibility, degradation of materials by biological systems, and biological response to artificial materials will be addressed. Particular attention will be given to the materials for the total hip prosthesis, dental restoration, and implantable medical devices.

4001. Electrical and Magnetic Properties of Materials
(267) Three credits. Prerequisite: PHYS 1502Q and MSE 2001; or MSE 2101.
Principles underlying electrical and magnetic behavior will be applied to the selection and design of materials. Topics covered will include: thermoelectricity, photoelectricity, conductors, semiconductors, superconductors, dielectrics, ferroelectrics, piezoelectricity, pyroelectricity, and magnetism. Device applications.

4003. Materials Characterization
(236) Three credits. Two class periods and, every other week, a 3-hour laboratory period. Laboratory sections in addition to those initially listed will be arranged. Prerequisite: MSE 2001 or 2101.
Principles and experimental methods of optical, electron, and x-ray examination of engineering materials. Emphasis on use of x-ray analysis, with introduction to electron microscopy, Auger spectroscopy, scanning electron microscopy, and microanalysis.
4003W. Materials Characterization
(236W) Prerequisite: MSE 2001 or 2101; ENGL 1010 or 1011 or 2011.

4004. Thermal/Mechanical Processing of Materials
(276) Three credits. Prerequisite: MSE 3004, may be taken concurrently.
Fundamental principles of materials processing and their quantitative application to process design will be illustrated for deformation processes: forging, rolling, drawing, extrusion, injection molding, powder compaction and sintering. A fee of $50 is charged for this course.

4005. Processing of Materials in the Liquid and Vapor State
(277) Three credits. Prerequisite: MSE 3001 and 3002.
Fundamental principles of materials processing and their quantitative application to process design will be illustrated for materials processes involving liquids and gasses: crystal growth, zone refining, shape casting, continuous casting, refining, welding, and vapor deposition.

4021. Materials Joining
(219) Three credits. Prerequisite: MSE 2001 or 2101.
Kattamis
Basic materials principles applied to fusion and solid phase welding, brazing and other joining processes. Effects of joining process and process variable values on microstructure, soundness and mechanical properties of as-processed joints. Treatment and properties of joints and joined assemblies. Joining defects and quality control.

4034. Corrosion and Materials Protection
(234) Three credits. Prerequisite: MSE 2001 or 2101.

4038. Alloy Casting Processes
(238) Three credits. Prerequisite: MSE 3002 and 3003, both of which may be taken concurrently.
Principles of alloy solidification are discussed and applied in the context of sand, investment, and die casting; continuous and direct chill casting; electroslag and vacuum arc remelting, crystal growth, rapid solidification, and laser coating.

4095. Special Topics in Materials Engineering
(298) Variable (1-3) credits. Prerequisite: Consent of instructor. With a change in topic this course may be repeated for credit.

4240. Nanomaterials Synthesis and Design
(260) Three credits. Prerequisite: MSE 2002.
Introduces synthesis and design of materials in the nanoscale. Typical synthesis strategies of low dimensional materials including nanoparticles, nanowires, nanotubes and hierarchically nanostructures are presented and discussed. The reasons behind growth mechanisms are interpreted and the nanoscale structure-properties relations are described. Design strategies of multifunctional nanomaterials will be addressed as well. Readings from modern scientific literature are assigned weekly for in-class discussions.

4241. Nanomaterials Characterization and Application
(261) Three credits. Prerequisite: MSE 2002.
Introduces materials characterization and applications at the nanoscale. Standard and advanced methods in Scanning Probe Microscopy, Electron Microscopy, and Focused Ion Beams are presented.

Self-Assembled and Lithographically defined structures are treated. Nanoscale particles, tubes, films, and structures are discussed. Applications for enhanced mechanical, electronic, magnetic, optical, and biological properties are described. Societal implications including performance, costs, environmental impacts, and health issues are addressed. Readings from modern scientific literature are assigned weekly for in-class discussions.

4701. Advanced Biomaterials
Three credits. Prerequisite: MSE 3700 or BME 3700. Not open to students who have passed BME 4701.
In-depth coverage of a series of biomaterials for various applications. Topics include calcium phosphates and composites for hard tissue replacement, drug delivery systems, tissue engineering and issues unique to the biomedical field.

4800. Materials for Advanced Fossil Energy Systems
Three credits. Prerequisite: MSE 3001 and MSE 3002, or can be taken concurrently.
Will familiarize students with the state of the art in fossil fuel power generation technologies ranging from conventional combusion to emerging technologies such as oxyfuel combustion; integrated coal gasification (IGCC) and fuel cell (IGFC) systems; and CO2 separation and sequestration.

4801. Materials for Alternative, Renewable Energy
Three credits. Prerequisite: MSE 3001 and MSE 3002, or can be taken concurrently.
Overview of energy conversion and storage systems - centralized and distributed generation to stationary and motive batteries; efficiency calculation and thermodynamics; electrochemistry - primary and secondary batteries; fuels - chemistry, processing, impurities; combustion, gasification and electrochemical systems; materials requirements; bulk and surface properties; metals, ceramics and superalloys; gas - metal interactions; gas - liquid - metal interactions; development trend - alloying principles, coatings, claddings; alloy processing and coating techniques.

4901W. Capstone Design Project I
Three credits. Prerequisite: MSE 3002 and 3004, which may be taken concurrently; ENGL 1010 or 1011 or 1012.
Seniors working in teams with faculty and industry mentors solve open-ended projects in design of materials, materials processes, and materials systems. Oral and written reports are required in each semester. For students with high academic standing the BSE and MS projects may overlap.

4902W. Capstone Design Project II
(288W) Seven hours practicum. Prerequisite: MSE 4901; ENGL 1010 or 1011 or 1012.
Seniors working in teams with faculty and industry mentors solve open-ended projects in design of materials, products, and processes. Oral and written reports are required in each semester. For students with high academic standing the BSE and MS projects may overlap.

4989. Introduction to Research
(299) Credits and hours by arrangement. Prerequisite: Consent of instructor. With a change in topic this course may be repeated for credit.
Methods of research and development. Laboratory investigation. Correlation and interpretation of experimental results. Writing of technical reports.

Mathematics (MATH)

Head of Department: Professor Evarist Giné-Masdéu
Department Office: Room 123, Mathematical Sciences Building

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

1011Q. Introductory College Algebra and Mathematical Modeling
(104Q) Three credits. Four class periods. Not open for credit to students who have passed a MATH Q course. Strongly recommended as preparation for Q courses for students whose high school algebra needs reinforcement.

Emphasizes two components necessary for success in 1000-level courses which employ mathematics. The first component consists of basic algebraic notions and their manipulations. The second component consists of the practice of solving multi-step problems from other disciplines, called mathematical modeling. The topics include: lines, systems of equations, polynomials, rational expressions, exponential and logarithmic functions. Students will engage in group projects in mathematical modeling.

1020Q. Problem Solving
(102Q) Three credits. Recommended preparation: MATH 1011 or the equivalent. Not eligible for course credit by examination. Not open for credit to students who have passed any mathematics course other than MATH 1010, 1011, 1030, 1040, 1050, 1060, or 1070.

An introduction to the techniques used by mathematicians to solve problems. Skills such as Externalization (pictures and charts), Visualization (associated mental images), Simplification, Trial and Error, and Lateral Thinking learned through the study of mathematical problems. Problems drawn from combinatorics, probability, optimization, cryptology, graph theory, and fractals. Students will be encouraged to work cooperatively and to think independently.

1030Q. Elementary Discrete Mathematics
(103Q) Three credits. Recommended preparation: MATH 1011 or the equivalent. Not open for credit to students who have passed any mathematics course other than MATH 1010, 1011Q, 1020, 1040, 1050, 1060 or 1070.

Topics chosen from discrete mathematics. May include counting and probability, sequences, graph theory, deductive reasoning, the axiomatic method and finite geometries, number systems, voting methods, apportionment methods, mathematics of finance, number theory.

1040Q. Elementary Mathematical Modeling
(107Q) Three credits. Recommended preparation: MATH 1011 or the equivalent. Not open to students who have passed any mathematics course other than MATH 1010, 1011, 1020, 1030, 1050, or 1070. This course and MATH 1060 cannot both be taken for credit. This course should not be considered as adequate preparation for MATH 1071, 1120, 1131, or 1151.

Use of algebraic and trigonometric functions with technology to analyze quantitative relationships and illustrate the role of mathematics in modern life; graphical numerical and symbolic methods. Most sections require a graphing calculator; some require work with a computer spreadsheet.

1050Q. Mathematical Modeling in the Environment
(108QC) Three credits. Recommended preparation: MATH 1011 or the equivalent. A solid background and good performance in high school algebra are highly recommended.

An interdisciplinary approach to environmental issues, such as: ground water contamination, air pollution, and hazardous materials handling.
Emphasis on mathematical models, social and ethical implications, and physical and chemical principles. Includes a stream simulation program for water and air pollution data; a computer modeling package to analyze hazardous materials emergencies; creative use of the internet and field research. CA 3.

1060Q. Precalculus (109Q) Three credits. Recommended preparation: MATH 1011 or the equivalent, and a qualifying score on the mathematics placement assessment. Not open for credit to students who have passed MATH 1120, 1125, or 1131. Students may not receive credit for this course and MATH 1040.

Preparation for calculus. Review of algebra. Functions and their applications; in particular, polynomials, rational functions, exponentials, logarithms, and trigonometric functions.

1070Q. Mathematics for Business and Economics (105Q) Three credits. Recommended preparation: MATH 1011 or the equivalent.

Linear equations and inequalities, exponents and logarithms, matrices and determinants, linear programming. Applications.

1071Q. Calculus for Business and Economics (106Q) Three credits. (One credit for students who have passed MATH 1121, 1131, or 1151.) Recommended preparation: MATH 1011 or the equivalent, and MATH 1070, and a qualifying score on the mathematics placement assessment. Not open for credit to students who have passed MATH 1110.

Derivatives and integrals of algebraic, exponential and logarithmic functions. Functions of several variables. Applications.

1110Q. A Survey of Calculus with Applications I (118Q) Three credits. Recommended preparation: MATH 1011 or the equivalent. Not open for credit to students who have passed MATH 1071, 1121, 1131, or 1151.

Derivatives and integrals of elementary functions including the exponential and logarithm functions; applications include optimization, marginal functions, exponential growth and decay, compound interest.

1125Q. Calculus Ia Three credits. Recommended preparation: some exposure to the content of MATH 1060 (Precalculus) or the equivalent. Students cannot receive credit for MATH 1125 and MATH 1120, 1131, or 1151. Students who have not passed the Calculus Placement Survey take this course rather than MATH 1131 or 1151.

Limits, derivatives, and extreme values of algebraic, trigonometric, exponential and logarithmic functions, with supporting algebraic topics. MATH 1125 covers the content of approximately the first half of MATH 1131.

1126Q. Calculus Ib Three credits. Prerequisite: MATH 1125. Recommended preparation: A grade of C- or better in MATH 1126 and MATH 1121, 1131, or 1151. Substitutes for MATH 1131 or 1151 as a requirement.

A continuation of the differential calculus of algebraic, trigonometric, exponential and logarithmic functions of MATH 1125 ending with antidifferentiation, the definite integral, some techniques and applications. MATH 1126 covers the content of approximately the second half of MATH 1131.

2100Q-2011Q. Fundamentals of Algebra and Geometry

(247Q-248Q) Three credits each semester. Prerequisite: PSYC 1100 and three credits of Mathematics. Open only to students enrolled in the Elementary Education program in the Neag School of Education or by consent of instructor. May not be counted in any of the major groups described in the Mathematics Departmental listing.

Development of the number system with applications to elementary number theory and analytic geometry. Intended only for elementary education majors in the Neag School of Education.

2110Q. Multivariable Calculus

(210Q) Four credits. Four class periods. Prerequisite: MATH 1132, or 1152 or a score of 4 or 5 on the Advanced Placement Calculus BC exam. Recommended preparation: A grade of C- or better in MATH 1132.

Not open for credit to students who have passed MATH 2130 or 2143.

1131Q. Calculus I

(115Q) Four credits. Prerequisite: A qualifying score on the mathematics placement assessment. Students cannot receive credit for MATH 1131 and either MATH 1120, 1121, 1126, or 1151. (Two credits for students who have passed MATH 1125). Suitable for students with some prior calculus experience. Substitutes for MATH 1125, 1131, 1151 as a requirement.

Limits, continuity, differentiation, antidifferentiation, definite integral, with applications to the physical and engineering sciences.

2130Q. Honors Multivariable Calculus

(230Q) Four credits. Prerequisite: MATH 1152 or advanced placement credit for one year of calculus (a score of 4 or 5 on the Calculus BC examination) or consent of instructor. Not open to students who have passed MATH 2110 or 2143. May be used in place of MATH 2110 to fulfill any requirement satisfied by MATH 2110.

The subject matter of MATH 2110 in greater depth, with emphasis on the underlying mathematical concepts.

2141Q-2142Q. Advanced Calculus I, II

(243Q-244Q) Both semesters. 4 credits each semester. May be taken for honors credit but open to any qualified student. Prerequisite: A year of calculus (that may include high school) and instructor consent. MATH 2141Q may be used in place of MATH 1131 or 1151 to fulfill any requirement satisfied by MATH 1131 or 1151. MATH 2142Q may be used in place of MATH 1132 or 1152 to fulfill any requirement satisfied by MATH 1132 or 1152 or 2710.

A rigorous treatment of the mathematics underlying the main results of one-variable calculus. Intended for students with strong interest and ability in mathematics who are already familiar with the computational aspects of basic calculus.

2143Q-2144Q. Advanced Calculus III, IV

(245Q-246Q) Both semesters. 4 credits each semester. May be taken for honors credit but open to any qualified student. Prerequisite: MATH 2142Q or consent of instructor. MATH 2143 may be used in place of MATH 2110 to fulfill any requirement satisfied by MATH 2110. MATH 2144 may be used in place of MATH 2410, MATH 2420, or MATH 2210 to fulfill any requirement satisfied by MATH 2410, MATH 2420, or MATH 2210.

A rigorous treatment of more advanced topics, including vector spaces and their application to multivariable calculus and first-order, second-order and systems of differential equations.

219W. Pedagogical Seminar

(20W) One credit. Corequisite: MATH 2110. Prerequisite: ENGL 1010 or 1011 or 2011.

Weekly seminars and short essays reflecting on the learning experiences and content of MATH 2110.

2210Q. Applied Linear Algebra

(227Q) Three credits. Prerequisite: MATH 1132, 1152 or 2142. Recommended preparation: A grade of C- or better in MATH 1132. Not open for credit to students who have passed MATH 2144 or 3210.

Systems of equations, matrices, determinants, linear transformations, vector spaces, characteristic values and vectors, from a computational point of view. The course is an introduction to the techniques of linear algebra with elementary applications.

2360Q. Geometry

(223Q) Three credits. Prerequisite: MATH 1121, 1126, 1131, 1151, or 2142. MATH 1121 or 1126 may be taken concurrently.

Deductive reasoning and the axiomatic method, Euclidean geometry, parallelism, hyperbolic and other non-Euclidean geometries, geometric transformations.

2410Q. Elementary Differential Equations

(211Q) Three credits. Prerequisite: MATH 1132, 1152 or 2142. Recommended preparation: A grade of C- or better in MATH 1132; and MATH 2110 or 2130. Not open for credit to students who have passed MATH 2144 or 2420.
Introduction to ordinary differential equations and their applications, linear differential equations, systems of first order linear equations, numerical methods.

2420Q. Honors Differential Equations
(221Q) Three credits. Prerequisite: MATH 1152 or instructor consent. Not open to students who have passed MATH 2410 or 2414. MATH 2420 satisfies any requirement met by MATH 2410, and provides superior preparation for prospective mathematics, science, and engineering majors.

The subject matter of MATH 2410 in greater depth, with emphasis on the underlying mathematical concepts.

2610. Introduction to Actuarial Science
(236) Three credits. Prerequisite: Consent of instructor. An introduction to actuarial science, covering many of the topics in the first Foundations of Actuarial Practice module, Rule of the Actuary, of the Society of Actuaries. Topics include: what an actuary is and does; external forces that influence actuarial work; and the framework and processes actuaries use to perform actuarial work using Microsoft Excel.

2620. Financial Mathematics I
(285) (Also offered as MATH 5620.) Three credits. Prerequisite: MATH 1132, 1152 or 2141.

Fundamental concepts of financial mathematics, with applications in calculating present and accumulated values for various streams of cash flows as a basis for future financial decision making. Valuation of investments, pricing, duration calculation, asset/liability management, investment income, capital budgeting and valuing contingent cash flows.

To be reported to the Senate

2710. Transition to Advanced Mathematics
(213) Three credits. Prerequisite: MATH 1132Q or 1152Q. Not open for credit to students who have passed MATH 2143. Students intending to major in mathematics should ordinarily take MATH 2710 or 2710W during the third or fourth semester.

Basic concepts, principles, and techniques of mathematical proof common to higher mathematics. Logic, set theory, counting principles, mathematical induction, relations, functions. Concepts of abstract algebra and analysis.

To be reported to the Senate

2710W. Transition to Advanced Mathematics
Prerequisite: MATH 1132Q or 1152Q and ENGL 1010 or 1011 or 2011. Not open for credit to students who have passed MATH 2143. Only open to Mathematics majors. Students intending to major in mathematics should ordinarily take MATH 2710 or this course during the third or fourth semester.

2720W. History of Mathematics
(242W) Three credits. Prerequisite: Either (i) MATH 2110 or 2130, and either 2210 or 2410, or (ii) 2114 or 2420; and ENGL 1010 or 1011 or 2011. This course may not be counted in any of the major groups described in the Mathematics Departmental listing.

A historical study of the growth of the various fields of mathematics.

Pending Senate approval:

2784. Undergraduate Seminar I
(200) Two credits. Prerequisite: Either MATH 2144 or one from MATH 2110, 2130, or 2143 and one from MATH 2210, 2410, or 2420; ENGL 1010 or 1011 or 2011.

The student will attend talks during the semester and choose a mathematical topic from one of them to investigate in detail. The student will write a well-revised, comprehensive paper on this topic, including a literature review, description of technical details, and a summary and discussion.

Pending Senate approval:

2794W. Undergraduate Seminar II
(201W) Two credits. Prerequisite: MATH 2144 or one of MATH 2110, 2130, 2143 and one of MATH 2210, 2410, 2420; ENGL 1010 or 1011 or 2011.

The student will attend talks during the semester and choose a mathematical topic from one of them to investigate in detail. The student will then write a well-revised, comprehensive paper on this topic, including a literature review, description of technical details, and a summary and discussion, building upon the writing experience in MATH 2784.

3094. Undergraduate Seminar
(297) Three credits. Prerequisite: Open only with consent of instructor. This course, with a change of topic, may be repeated for credit.

3146. Introduction to Complex Variables
(252) (Also offered as MATH 5046.) Three credits. Prerequisite: MATH 2110 and 2410, or 2144, or 2420. Not open for credit to students who have passed MATH 5046.

Functions of a complex variable, integration in the complex plane, conformal mappings.

3150. Analysis I
(273) Three credits. Prerequisite: MATH 2144 or 2410 or 2420; MATH 2110 or 2130 or 2143; and a grade of C or better in either MATH 2142 or 2710.

Introduction to the theory of functions of one real variable.

3151. Analysis II
(274) Three credits. Prerequisite: MATH 3150.

Introduction to the theory of functions of several real variables.

3160. Probability
(231) Three credits. Prerequisite: MATH 2110, 2130 or 2143 which may be taken concurrently with the consent of the instructor.

Introduction to the theory of probability, sets and counting, probability axioms, conditional probabilities, random variables, limit theorems.

3170. Elementary Stochastic Processes
(232) (Also offered as STAT 3965.) Three credits. Prerequisite: STAT 3025 or 3345 or 3375 or MATH 3160.

Conditional distributions, discrete and continuous time Markov chains, limit theorems for Markov chains, random walks, Poisson processes, compound and marked Poisson processes, and Brownian motion. Selected applications from actuarial science, biology, engineering, or finance.

3210. Abstract Linear Algebra
(215) Three credits. Prerequisite: MATH 2144 or 2210; and a grade of C or better in either MATH 2142 or 2710.

Vector spaces and linear transformations over fields.

3230. Abstract Algebra I
(216) Three credits. Prerequisite: A grade of C or better in either MATH 2142 or 2710. Recommended preparation: MATH 2144 or 2210.

The fundamental topics of modern algebra including elementary number theory, groups, rings, polynomials and fields.

3231. Abstract Algebra II
(217) Three credits. Prerequisite: MATH 3230. Recommended preparation: MATH 3210.

Topics from ring theory, Galois theory, linear and multilinear algebra, or algebraic geometry.

3240. Introduction to Number Theory
(258) Three credits. Prerequisite: A grade of C or better in either MATH 2142 or 2710.

Euclid's algorithm, modular arithmetic, Diophantine equations, analogies between integers and polynomials, and quadratic reciprocity, with emphasis on developing both conjectures and their proofs.

3250. Combinatorics
(251) Three credits. Prerequisite: A grade of C or better in either MATH 2142 or 2710.

Analysis of combinatorial problems and solution methods. Topics include: Enumeration, generating functions, bijective proofs, sieve methods, recurrence relations, graphs, partially ordered sets, and extremal combinatorics.

3260. Introduction to Mathematical Logic
(233) Three credits. Prerequisite: A grade of C or better in either MATH 2142 or 2710. Recommended preparation: PHIL 2211.

Formalization of mathematical theories, elementary model theory with applications to algebra, number theory, and non-standard analysis. Additional topics: Elementary recursion theory and axiomatic set theory. Emphasis on the applications of logic to mathematics rather than the philosophical foundations of logic.

3330. Elements of Topology
(250) Three credits. Prerequisite: MATH 2110 or 2130 or 2143; and a grade of C or better in either MATH 2142 or 2710.

Metric spaces, topological spaces and functions, topological properties, surfaces, elementary topics in geometric topology.

3370. Differential Geometry
(225) Three credits. Prerequisite: A grade of C or better in either MATH 2142 or 2710 and either (i) MATH 2110, or 2130, and MATH 2410 or 2420, or (ii) MATH 2144.

The in-depth study of curves and surfaces in space.

3410. Differential Equations for Applications
(272) Three credits. Prerequisite: MATH 2110 and 2144 or 2410, or 2420. Not open for credit to students who have passed MATH 3412.


3435. Partial Differential Equations
(278) Three credits. Prerequisite: MATH 2110 and one of MATH 2410 or MATH 2420 or MATH 2144.

Solution of first and second order partial differential equations with applications to engineering and the sciences.

3510. Numerical Analysis I
(281) Three credits. Prerequisite: Either (i) MATH 2110 or 2130, or 2410, or either 2114 or 2144; and knowledge of at least one programming language.

Analysis of numerical methods associated with linear systems, eigenvalues, inverses of matrices, zeros of non-linear functions and polynomials. Roundoff error and computational speed.

3511. Numerical Analysis II
(282) Three credits. Prerequisite: MATH 3510.

Approximation integration, difference equations, solution of ordinary and partial differential equations.

3545. Actuarial Case Studies using SAS™
One credit. Prerequisites: MATH 2620, MATH 3160, STAT 3375, and consent of instructor.

Design, development, testing and implementation of solutions to problems in actuarial science using SAS™.
Design, development, testing and implementation of programs to solve actuarial problems using software such as Microsoft Office Excel with Visual Basic.

3610. Probability Problems (283) One credit. Two class periods. Prerequisite: MATH 2110, 2130 or 2143; and MATH 3160. Preparation through problem solving for the probability actuarial examination, which tests a student’s knowledge of the fundamental probability tools for quantitatively assessing risk. Recommended prior knowledge: a thorough command of probability, as well as basic concepts in insurance and risk management.

3615. Financial Mathematics Problems (280) One credit. Two class periods. Prerequisite: MATH 2620. Preparation for the financial mathematics actuarial examination, which tests a student’s knowledge of the theory of interest and financial economics at an introductory level.

3621. Actuarial Statistics (238) Three credits. Prerequisite: MATH 3160 and STAT 3375. Regression and time series applied to actuarial science. Covers the learning objectives established by the Society of Actuaries for Validation by Educational Experience in Applied Statistics.

3630. Actuarial Mathematics I (287) (Also offered as MATH 5630.) Three credits. Prerequisite: MATH 3160 or STAT 3375; and MATH 2620. MATH 3630 is not open to students who have passed MATH 5630. Provides the mathematical foundations of life contingencies and their applications to quantifying risks in other actuarial contexts. Topics include survival and life table models, actuarial present value calculations in annuities and insurances, and premium and reserve calculations based on a single life.

3631. Actuarial Mathematics II (288) (Also offered as MATH 5631.) Three credits. Prerequisite: MATH 3630. MATH 3631 is not open to students who have passed MATH 5631. A continuation of Actuarial Mathematics I. Topics include calculations of premiums and reserves based on multiple lives, multiple decrement and multiple state models. This course, along with MATH 3630, helps students prepare for the actuarial examination on models for quantifying risk.

3632. Loss Models Three credits. Prerequisite or corequisite: MATH 3630. Topics from the fourth actuarial examination relating to survival, severity, frequency and aggregate models, and the use of statistical methods to estimate parameters of such models given sample data.

3634. Actuarial Models (276) Three credits. Prerequisite: MATH 3160 or STAT 3025 or 3375; and MATH 2620. Introduction to the design of computerized simulations for analyzing and interpreting actuarial and financial problems. This course, together with MATH 5637, 5640, and 5641, helps the student prepare for the actuarial examination on the construction and evaluation of risk models.

3650. Financial Mathematics II (289) Three credits. Prerequisite: MATH 2620 and ACCT 2001, which may be taken concurrently. Not open for credit to students who have passed MATH 5621. The continuation of MATH 2620. Measurement of financial risk, the mathematics of capital budgeting, mathematical analysis of financial decisions and capital structure, and option pricing theory.

3660. Advanced Financial Mathematics (284) Three credits. Prerequisite: MATH 2620 and 3160. Advanced topics in financial mathematics such as single period, multi-period and continuous time financial models; Black-Scholes formula; interest rate models; and immunization theory.

3670W. Technical Writing for Actuaries (291W) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; consent of Director of Actuarial Science required. Students will write a technical report on an advanced topic in actuarial science.

3710. Introduction to Mathematical Modeling (204) Three credits. Prerequisite: MATH 2144 or 2420; or MATH 2210 and 2410. Not open for credit to students who have passed MATH 5530 or 5540, CHEM 505, or PHYS 5350. Construction of mathematical models in the social, physical, life and management sciences. Linear programming, simplex algorithm, duality. Graphical and probabilistic modeling. Stochastic processes, Markov chains and matrices. Basic differential equations and modeling.

3790. Field Study Internship (290) One to three credits. May be repeated for credit (to a maximum of 6 credits). Prerequisite: Consent of the Department Head, Director of the Actuarial Program, or the Undergraduate Coordinator required; completion of Freshman - Sophomore level requisite courses in the major. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

3793. Foreign Study (293) Credit and hours by arrangement. Prerequisite: Consent of the Department Head or Undergraduate Coordinator required, normally before the student’s departure. May count toward the major with consent of the Advisor and either the Department Head or Undergraduate Coordinator. May be repeated for credit (to a maximum of 15 for MATH 1793 and 3793 together).

3794. Problem Seminar (296) One credit. One class period. Prerequisite: MATH 1122, 1132, or 1152. This course, with a change of topic, may be repeated for credit. Problem sequences selected from algebra, geometry, calculus, combinatorics, and other branches of mathematics, designed to introduce mathematical concepts and to give experience in problem solving.

3795. Special Topics (298) Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

3796W. Senior Thesis in Mathematics (292W) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open only by consent of Department Head or Departmental Honors Committee. The student should define a general subject area for the thesis before choosing a thesis advisor and seeking consent at the time of registration. The student should submit a written proposal for the senior thesis to the advisor by the end of the semester preceding enrollment for thesis credit.

3798. Variable Topics (295) Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

3799. Independent Study (299) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. This course, with a change of topic, may be repeated for credit.

4110. Introduction to Modern Analysis (261) (Also offered as MATH 5110.) Three credits. Prerequisite: Consent of instructor. Not open for credit to students who have passed MATH 5510. Metric spaces, sequences and series, continuity, differentiation, the Riemann-Stieltjes integral, functions of several variables.

4210. Advanced Abstract Algebra (265) (Also offered as MATH 5210.) Three credits. Prerequisite: Consent of instructor. Not open for credit to students who have passed MATH 5210. Group theory, ring theory and modules, and universal mapping properties.

4310. Introduction to Geometry and Topology (267) (Also offered as MATH 5310.) Three credits. Prerequisite: Consent of instructor. Not open for credit to students who have passed MATH 5310. Topological spaces, connectedness, compactness, separation axioms, Tychonoff theorem, compact-open topology, fundamental group, covering spaces, simplicial complexes, differentiable manifolds, homology theory and the De Rham theory, intrinsic Riemannian geometry of surfaces.

Mechanical Engineering (ME)

Head of Department: Professor Baki M. Cetegen
Department Office: Room 480, United Technologies Engineering Building

For major requirements, see the School of Engineering section of this Catalog.

2233. Thermodynamic Principles (233) Three credits. Prerequisite: CHEM 1127Q or both CHEM 1124 and 1125; PHYS 1501Q; and MATH 2110Q which may be taken concurrently. Introduction to the First and Second Laws of Thermodynamics. Thermodynamic properties of pure substances and ideal gases. Analysis of ideal and real processes – including turbines, pumps, heat exchangers, and compressors.

2234. Applied Thermodynamics (234) Three credits. Prerequisite: ME 2233 or CHEG 2111.

Thermodynamic first and second law analysis of vapor and gas cycles, property relations for simple pure substances, properties of ideal gas mixtures, psychrometry, fundamentals of combustion thermodynamics, application of thermodynamics in the design of thermal engineering systems.

3214. Dynamics of Particles and Rigid Bodies (214) Three credits. Prerequisite: CE 2120. Kinematics and dynamics of particles. Motion relative to translating and rotating observers; inertial reference systems; central forces and orbits. Kinematics and dynamics of groups of particles and rigid bodies. Lagrangian description of motion.

3217. Metal Cutting Principles (217) Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: CE 3110, which may be taken concurrently. Examination of metal cutting processes including turning, shaping, drilling, grinding. Mechanics of two and three dimensional cutting. Principles and mechanisms of wear. Tool materials. Theoretical prediction of surface finish. Chemistry of cutting fluids. Laboratory period includes operation of machine tools. Experimental determination of cutting energies forces, stresses and strains. The interrelationship between these and practical metal cutting conditions.

3220. Mechanical Vibrations
3221. Manufacturing Automation
(221) Three credits. Prerequisite: Consent of instructor. Not open to students who have passed ME 5440.
Introduction to Computer Integrated Manufacturing (CIM), Fundamentals of automated manufacturing; Computer Numerical Control (CNC); production economics and optimization of production systems.

3222. Production Engineering
(222) Three credits. Prerequisite: Consent of instructor. Not open to students who have passed ME 5441.

3224. Analysis and Design of Mechanisms
(224) Three credits. Prerequisite: MATH 2110 and 2410 and CE 2110.
Application of kinematics in the analysis and synthesis of mechanisms. Type and dimensional design of linkages, cams and gears based on motion requirements and kinetostatic force transmission, in contrast to the strength requirements. Graphical, analytical and computer methods in design and analysis of mechanisms. Design considerations in mechanism synthesis. Design project.

(225) Three credits. Prerequisite: CSE 1010 or 1100, CE 3110, MATH 2110 and instructor consent.
Introduction to computer-aided graphics, modeling and design. Applications of graphics software and hardware with mini- and micro-computer systems. Interactive computer graphic techniques. Extensive laboratory study of wire-frame and raster computer graphics. Static and dynamic graphic presentation methods.

3227. Design of Machine Elements
(227) Three credits. Prerequisite: CE 3110.
Application of the fundamentals of engineering mechanics, materials and manufacturing to the design and analysis of machine elements.

3228. Introduction to Fatigue in Mechanical Design
(228) Three credits. Prerequisite: CE 3110. Not open to students who have passed ME 5431.
Design calculation methods for fatigue life of engineering components. Crack initiation and crack propagation fatigue lives; introduction to current literature in the field. Emphasis on finite life prediction by strain life methods.

3239. Combustion for Energy Conversion
(239) Three credits. Prerequisite: ME 2224.
Introduction to combustion processes and chemical kinetics. Mechanism of the formation of pollutants such as nitrogen oxides, carbon monoxide, soot, and unburned hydrocarbons in stationary and vehicular power plants.

3242. Heat Transfer
(242) Three credits. Prerequisite: ME 2233 and 2520.
Fundamentals of conduction, convection and radiation heat transfer. Application of the general laws of heat transfer, and heat exchange to a wide variety of practical problems. The analytical, numerical, and graphical solution of one, two, and three dimensional problems.

3250. Fluid Dynamics I
(250) Three credits. Prerequisite: ME 2233, and MATH 2110 and 2410. This course and CE 3120 may not both be taken for credit.
Laws of conservation of mass, momentum, and energy in fluid systems, fluid statics, dimensional analysis, incompressible, inviscid and viscous flows, steady and unsteady flows, internal and external flows.

3251. Fluid Dynamics II
(251) Three credits. Prerequisite: ME 2520 or CE 3120.

3253. Linear Systems Theory
(253) Three credits. Prerequisite: CE 2120 and MATH 2410Q.
Review of ODE solutions, mathematical modeling of dynamic systems, linearization of nonlinear behavior, Laplace domain representation of dynamics, transfer functions, block diagram algebra, signal-flow graphs, Mason’s rule, transient analysis of system response, convolution integral, Duhamel’s integral, Green’s function, stability of linear systems, Routh-Hurwitz method, root locus, frequency response, Bode and polar representations, introduction to feedback systems.

3255. Computational Mechanics
(255) Three credits. Prerequisite: MATH 2410Q and CE 3110.
Topics include elementary numerical analysis, finite differences, initial value problems, ordinary and partial differential equations and finite element techniques. Applications include structural analysis, heat transfer, and fluid flow.

3260. Measurement Techniques
Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: ECE 2000.
Theory and practice of measurement including analysis and application of electromechanical transducers. Methods of measuring length, area, time, pressure, temperature, force and strain. The determination of the phase relation between a driving potential and the response of a system. The application of statistical methods to analysis of experimental data.

3260W. Measurement Techniques
Prerequisite: ECE 2000; ENGL 1010 or 1011 or 2011.

3262. Introductory Thermo-Fluids Laboratory
(262) Three credits. One class period and one 3-hour laboratory period. Prerequisite and corequisite: ECE 2000 and ME 2233.
Introduction to experimental methods in Mechanical Engineering. Review and use of pressure, temperature, and flow measuring devices. Data acquisition and analysis including use of computers. Principles of good experimental design. Experiments selected mainly from within the thermo-fluids area.

3263. Introduction to Sensors and Data Analysis
Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: ME 2233; PHYS 1502Q; CE 2110.
Introduction to the design and behavior of common sensors, highlighting their proper use and physical limitations. In the lab, each type of sensor is used in a practical engineering problem, with data being taken via data acquisition software. Data analysis techniques, including Gaussian statistics, uncertainty analysis, frequency domain studies, are also covered and used on the acquired data.

3264. Applied Measurements Laboratory
Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: ME 2520.
Application of fundamental measurement techniques developed in ME 2523 to various mechanical systems and processes. Hands-on laboratory experiences include measurements in energy conversion, solid mechanics, dynamics, and fluid and thermal sciences, as well as statistical methods to analysis of experimental data.

3265. The Engineering Process for Innovation and Value Creation
Three credits. Prerequisite: Instructor consent.
The primary purpose of this course is to prepare engineers to survive in the 21st century business environment, where the world wide internet communication explosion will drive innovation to new levels. The engineering process of creation of value and innovation will be explored. The concepts and the tools required of engineering quality and engineering productivity will be developed. Guest lectures from people who have been active in innovation and starting new businesses will fill the course with real world examples.

3270. Fuel Cells
Three credits. Prerequisite: ME 2233, 3242, 3250.
Advanced course on fuel cells as an alternative energy conversion technology. Subjects covered include: thermodynamics and electrochemistry of fuel cells, operating principles, types of fuel cells, overview of intermediate/high temperature fuel cells, polymer electrolyte fuel cells and direct methanol fuel cells.

3275. Introduction to Computational Fluid Dynamics
Three credits. Prerequisite: ME 3242, 3250.
Computational fluid dynamics (CFD) based on pressure-based finite volume methods. Topics covered include: integral derivations of governing equations of fluid flow, finite volume discretization of diffusion and convection equations, pressure-velocity coupling algorithms based on SIMPLE method for flow field solutions and finite volume solutions of unsteady problems. The course also covers iterative and non-iterative solution methods for large systems of linear equations, as well as methods for verification and validation of computational solutions.

3279. Honors Research
Three credits. Prerequisite: Open to Honors students; consent of instructor.
May be used to convert independent research into course credit that may be applied toward the Honors Program requirements and will count as a technical elective. As part of the course, students will be involved in research programs of their choice in areas of emerging technologies. Research work will be directed by a Mechanical Engineering faculty member who serves as the research advisor for the course. Will typically involve collaborative efforts with graduate students and other researchers, and will provide significant independent problem solving experience to supplement the classroom experience obtained from traditional coursework.

3280. Turbines and Centrifugal Machinery
Three credits. Prerequisite: ME 3250.
Review of fundamental fluids and thermodynamics. Introduction to compressible flow concepts. Theory, design and performance of centrifugal and axial flow machinery including turbines, blowers, fans, compressors, superchargers, pumps, fluid couplings and torque converters. A detailed study of the mechanics of the transfer of energy between a fluid and a rotor. Preparation for practical design of turbomachinery.

3285. Sustainable Energy Sources and
Introduction to Clinical Microbiology

3130. Introduction to Clinical Microbiology
(Formerly offered as MT 3130.) Three credits. Two 1-hour lectures. Prerequisite: CHEM 2241 or 2441 or MCB 2000 or 3010 which may be taken concurrently; open only to Medical Laboratory Sciences majors; others with the consent of the Medical Laboratory Sciences Program Director. Not open to students who have passed MT 3131.


3132. Introduction to Clinical Microbiology

Laboratory
(Formerly offered as MT 3132.) One credit. One 2-hour and one 1-hour laboratory per week. Prerequisite: MLSC 3130 which must be taken concurrently; open only to Medical Laboratory Sciences majors.

Laboratory exercises that teach fundamentals of microbial structure, growth and metabolism and identification of bacteria causing human disease. A fee of $75 is charged for this course.

3301. Fundamentals of Medical Laboratory Sciences
(Formerly offered as MT 3301) Three credits. Prerequisite: Open only to Medical Laboratory Sciences majors; others with consent of the Medical Laboratory Sciences Program Director.

Introduction to the various disciplines of study in laboratory medicine. Principles of laboratory safety, quality assurance and quality control and laboratory mathematics, as well as use of common laboratory equipment. A fee of $75 is charged for this course.

3333. Mycology, Parasitology and Virology
(252) (Formerly offered as MT 3333.) Three credits. Prerequisite: To enroll in the course the student must earn a “C” or better in MLSC 3130 and 3132; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Principles of disease and epidemiology, mechanisms of pathogenicity and laboratory isolation and identification of fungi, parasites and viruses causing human disease. A fee of $75 is charged for this course.

3361. Molecular Techniques for Medical Laboratory Scientists
(215) (Formerly offered as MT 3361.) Two credits. One hour of lab and 1 hour of lecture. Prerequisite: BIOL 1107 and CHEM 1124Q and 1125Q or 1127Q and 1128Q; open only to Medical Laboratory Sciences majors.

Theory and techniques of molecular diagnostic testing in clinical settings, including DNA isolation, blotting techniques and polymerase chain reaction. A fee of $35 is charged for this course.

3365. Theory of Phlebotomy
(260) (Formerly offered as MT 3365.) One credit. Prerequisite: To enroll in the course the student must earn a “C” or better in AH 2001; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Venipuncture and special phlebotomy techniques, safety, ethics, and management of phlebotomy services.

4094W. Seminar in Medical Laboratory Sciences
(280W) (Formerly offered as MT 4094W.) Two credits. Prerequisite: To enroll in the course the student must earn a “C” or better in AH 4241; ENGL 1010 or 1011 or 2011; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Examination of case studies integrating all areas of the clinical laboratory in the prevention, diagnosis, and treatment of disease. Design and implementation of a research project or investigation of a topic in Medical Laboratory Sciences. Oral and written presentation of research project or topic.

4095. Special Topics
(298) (Formerly offered as MT 4095.) Credits and hours by arrangement. Prerequisite: The completion of Freshman - Sophomore requirements in the Medical Laboratory Sciences Program; open only with consent of instructor. May be repeated for credit.

Applications of the scientific method of inquiry to plan, implement, evaluate and report a study of a problem in medical technology or investigation of a special topic not covered in undergraduate medical technology courses.

4099. Independent Study for Undergraduates
(299) (Formerly offered as MT 4099.) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit.

Designed primarily for students who wish to extend their knowledge in any specialized area in the field of Medical Laboratory Sciences.

4301. Clinical Chemistry and Instrumentation
(250) (Formerly offered as MT 4301.) Four credits. Prerequisite: MCB 2000; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Manual and automated methods for the biochemical analysis of blood and body fluids; principles of operation, maintenance, and troubleshooting of laboratory instruments. Evaluation of test results in normal and diseased states. A fee of $75 is charged for this course.

4302. Clinical Chemistry Laboratory
(251) (Formerly offered as MT 4302.) Three credits. Prerequisite: To enroll in the course the student must earn a “C” or better in MLSC 4301; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Application of the theory and techniques learned in MLSC 4301 to the clinical laboratory setting. Understanding work flow, teamwork, evaluation of normal and abnormal results; instrumentation and quality assurance in the general laboratory environment.

4311. Hematology
(264) (Formerly offered as MT 4311.) Four credits. Prerequisite: Open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Principles of hemostasis, blood cell formation, morphology, function and kinetics; pathophysiology of coagulation and blood cell disorders; principles and procedures used to evaluate coagulation and blood cells in blood and body fluids; laboratory practice in microscopic evaluation. A fee of $75 is charged for this course.

4312. Hematology Laboratory
(274) (Formerly offered as MT 4312.) Three credits. Prerequisite: To enroll in the course the student must earn a “C” or better in MLSC 4311; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Application of the theory and techniques learned in MLSC 4311 to the clinical laboratory setting. Understanding work flow, teamwork, evaluation of normal and abnormal results, instrumentation and quality assurance in the general laboratory environment. Correlation of blood cell morphology and laboratory data in normal and disease states.

4321. Clinical Immunology
(213) (Formerly offered as MT 4321.) Two credits. Prerequisite: To enroll in the course the student must earn a “C” or better in AH 3121; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Methods for detection of antigens and antibodies in blood and body fluids; immunological methods for the diagnosis of infectious diseases and abnormalities of the immune system. A fee of $75 is charged for this course.

4322. Clinical Immunology Laboratory
(269) (Formerly offered as MT 4322.) One credit. Prerequisite: To enroll in the course the student must earn a "C" or better in MLSC 4321; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Application of the theory and techniques learned in MLSC 4321 to the clinical laboratory setting. Understanding work flow, teamwork, evaluation of normal and abnormal results, instrumentation, and quality assurance in the general laboratory environment.

4341. Clinical Microbiology Laboratory
(266) (Formerly offered as MT 4341.) Four credits. Prerequisite: To enroll in the course the student must earn a "C" or better in MLSC 3130 and 3132; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Isolation and identification of normal flora and clinically significant bacteria and fungi from clinical specimens, correlation of the organisms isolated to disease states, and susceptibility testing of bacteria. A fee of $75 is charged for this course.

4342. Clinical Microbiology Laboratory
(267) (Formerly offered as MT 4342.) Four credits. Prerequisite: To enroll in the course the student must earn a "C" or better in MLSC 4341; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Application of the theory and techniques learned in MLSC 3333 and MLSC 4341 to the clinical laboratory setting. Understanding work flow, teamwork, evaluation of normal and abnormal results, instrumentation, and quality assurance in the general laboratory environment.

4351. Transfusion Services
(270) (Formerly offered as MT 4351.) Two credits. Prerequisite: To enroll in the course the student must earn a "C" or better in AH 3121; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Human blood groups, HLA antigens, compatibility testing, donor selection, and their relationship to transfusion and transplantation. Evaluation of laboratory results for selection of blood components for therapy. A fee of $75 is charged for this course.

4352. Transfusion Services Laboratory
(275) (Formerly offered as MT 4352.) Two credits. Prerequisite: To enroll in the course the student must earn a "C" or better in MLSC 4351; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Application of the theory and techniques learned in MLSC 4351 to the clinical laboratory setting. Understanding work flow, teamwork, evaluation of normal and abnormal results, instrumentation and quality assurance and preparation of blood components in the general laboratory environment.

4366. Phlebotomy Laboratory
(261) (Formerly offered as MT 4366.) One credit. Prerequisite or corequisite: MLSC 3365; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory). Performance of venipuncture and skin puncture techniques. Understanding work flow, scheduling, teamwork, and quality assurance in the general laboratory environment.

4371. Urinalysis
(272) (Formerly offered as MT 4371.) One credit. Prerequisite: Open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Renal physiology, chemical and microscopic examination of urine, correlation of results with disease states, chemical analysis of feces. A fee of $75 is charged for this course.

4372. Urinalysis Laboratory
(273) (Formerly offered as MT 4372.) One credit. Prerequisite: To enroll in the course the student must earn a "C" or better in MLSC 4371; open only to Medical Laboratory Sciences majors; others with consent of Medical Laboratory Sciences Program Director.

Application of the theory and techniques learned in MLSC 4371 to the clinical laboratory setting. Understanding work flow, teamwork, evaluation of normal and abnormal results, instrumentation and quality assurance in the general laboratory setting environment.

**Military Science (MISI)**

**Head of Program:** Lieutenant Colonel James Zopelis

**Department of Military Science:** William Hall Building

1101. General Military Science I
(131) One credit. One class period.

Organization of the Army, basic soldier skills; ropes, knots, and rappelling; individual physical fitness; land navigation; time management; role of regular Army, Reserve and National Guard; M16 rifle.

1102. General Military Science I
(132) One credit. One class period.

Organization and equipment of small military units, fundamentals of marksmanship and military instruction techniques. Leadership lab as announced. Army customs and traditions; land navigation; heat and cold survival; tactical communications; military correspondence; leadership/professional ethics; branches of Army; encoding and decoding messages.

1133. General Military Science: Air Rifle Marksmanship
(133) One credit. One class period, two hours lecture and laboratory. May be taken only once for credit.

Air Rifle Marksmanship will provide an introduction to the fundamentals of rifle marksmanship, the safe and proper use, and care of the rifle, the elements of competitive shooting, and the psychology of shooting.

1201. General Military Science II
(145) One credit. One class period and leadership laboratory.

Map reading, mountaineering, principles of war.

1202. General Military Science II
(146) One credit. One class period and leadership laboratory.

Emergency First Aid, leadership, military instruction techniques.

3301. General Military Science III
(252) Three credits. One 3-hour class period and leadership laboratory. One weekend field training exercise. Prerequisite: MISI 3301.

Leadership principles, techniques, and the responsibilities of command. Military instruction techniques, to include student class presentations.

3302. General Military Science III
(253) Three credits. One 3-hour class period and leadership laboratory. One weekend field training exercise. Prerequisite: MISI 3301.

Dynamics of small unit tactics, and branches of the Army.

4401. General Military Science IV
(297) Three credits. One 3-hour class period and leadership laboratory. One weekend field training exercise. Prerequisite: MISI 3302.

Army staff organization, unit administration and management, logistics, military intelligence, leadership seminar, the international system, and strategic doctrine.

4402. General Military Science IV
(298) Three credits. One 3-hour class period and leadership laboratory. One weekend field training exercise.

Military law, obligations and responsibilities of an officer, contemporary human problems, and a leadership seminar.

**Modern Greek (MGRK)**

**Head of Department:** Associate Professor Rosa Chinchilla

**Department Office:** Room 207, Oak Hall

1101-1102. Elementary Levels I and II
(101-102) Three credits. One 3-hour class period and leadership seminar.

1103-1104. Intermediate Levels I and II
(103-104) Three credits. One 3-hour class period.

1101 and 1103 are offered in the first semester, and 1102 and 1104 in the second. Please refer to the Critical Languages course descriptions in this publication. Consult the Program Director in Oak Hall 207 or at rosa.chinchilla@uconn.edu for more information.

3293. Foreign Study

Credits and hours by arrangement. Prerequisite: Consent of Director required, normally to be granted prior to the student’s departure. May count toward the major with consent of the advisor. May be repeated for credit.

Special topics taken in a foreign study program.

3295. Special Topics

Credits and hours by arrangement. Prerequisites and recommended preparation vary. With a change in content, may be repeated for credit.

3299. Independent Study

Credits and hours by arrangement. Prerequisite: Open only with consent of Director. With a change in content, may be repeated for credit.

**Molecular and Cell Biology (MCB)**

**Head of Department:** Professor Michael Lynes

**Department Office:** Room 104, Biology/Physics Building

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

1401. Honors Core: Computational Molecular Biology
(120) (Also offered as BME 1401, CSE 1401, and PNB 1401.) Three credits.

Introduction to research in computational biology through lectures, computer lab exercises, and mentored research projects. Topics include gene and genome structure, gene regulation, mechanisms of inheritance, biological databases, sequence alignment, motif finding, human genetics, forensic genetics, stem cell development, comparative genomics, early evolution, and modeling complex systems. CA 3.

1405. Honors Core: The Genetics Revolution in Contemporary Culture
(125) Three credits. Prerequisite: Open only to freshmen and sophomores in the Honors Program.

Exploration of the use of genetics concepts in popular culture. Topics include genetic analysis,
genetic engineering, cloning and DNA forensics as represented in media including news, film, literature and art. Discussion includes influence on society, attitudes towards science, domestic and foreign policy as well as medical practice and law. CA 3.

2000. Introduction to Biochemistry
(203) Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: CHEM 2241 or 2444. (CHEM 2444 may also be corequisite.) Not open for credit to students who have passed MCB 3010.

The structure, chemistry, and metabolism of carbohydrates, lipids and proteins. Enzyme function and kinetics, energy metabolism, and structure and function of nucleic acids. A survey course for students of agricultural, general biology, medical technology, nursing, and pharmacy. Molecular and Cell Biology majors, biophysics majors, and other students desiring a more intensive introduction or considering advanced course work in biochemistry or molecular biology should take MCB 3010. A fee of $25 is charged for this course.

2210. Cell Biology
(210) Three credits. Prerequisite: BIOL 1107. This course is intended to be taken before MCB 2000 or 3010.

Structural organization of cells and the molecular basis of dynamic cellular processes, with emphasis on eukaryotic cells. Topics include protein targeting, vesicle trafficking, cytoskeleton, cell-cell interactions in tissues, and the molecular basis of related human diseases.

Pending Senate approval:

2225. Honors Cell Biology Laboratory
Four credits. One 1-hour lecture and two 4-hour laboratories. Prerequisite or corequisite: MCB 2210. Prerequisite: BIOL 1107 or equivalent. Open to honors students; open to non-honors students with instructor consent.

A laboratory experience that will prepare students for thesis research in the biological sciences. Focus will be on experimental design, data quantitative analysis and presentation of data. Topics include cell culture, DNA transfection, fluorescence and time-lapse microscopy, DNA transfection, image processing, and flow cytometry. Students will also pursue independent research projects. A fee of $75 is charged for this course.

2400. Human Genetics
(218) Three credits. Two lectures and one problem-solving/case-study session. Prerequisite: BIOL 1107. Not open to students who have passed MCB 2410.

Foundational principles of classical genetics and modern genomics with a specific focus on humans. Emphasis on case studies and applications to human genetic diseases.

2410. Genetics
(200) Three credits. Two lectures and one discussion session. Not open to students who have passed MCB 2400. Prerequisite: BIOL 1107.

Foundational principles of classical genetics and modern genomics with a specific focus on eukaryotic model genetic organisms. Emphasis on molecular mechanisms underlying heredity. Intended for majors in Molecular and Cell Biology and related disciplines.

2610. Fundamentals of Microbiology
(229) Four credits. Three lecture periods and one 2½-hour laboratory period. Prerequisite or corequisite: CHEM 2241 or 2443. Recommended preparation: BIOL 1107 or equivalent. Biology of microorganisms, especially bacteria. Cellular structure, physiology, genetics, and interactions with higher forms of life. Laboratory familiarizes students with methodology of microbiology and aseptic techniques. A fee of $30 is charged for this course.

3007. Introduction to Biophysical Chemistry
(207) Three credits. Prerequisite: CHEM 2443; MATH 1122 or 1132; PHYS 1202, 1402 or 1602 or instructor consent.

Energetics and kinetics of metabolic reactions. Interactions of electromagnetic radiation and biological macromolecules. Formation and energetics of supramolecular structures. The basis of selected techniques of molecular biology, such as DNA hybridization, radioimmune assays. DNA melting and thermal transitions in polymers, thermodynamics, analysis of reactions, binding theory, cooperative interactions.

3010. Biochemistry
(204) Five credits. Four class periods and one 3-hour laboratory. Prerequisite or corequisite: CHEM 2444. Recommended preparation: MCB 2210 or MCB 2610. Not open for credit to students who have passed MCB 2000.

The structure and function of biological macromolecules. The metabolism of carbohydrates, lipids, amino acids, proteins and nucleic acids. The regulation of metabolism and biosynthesis of biological macromolecules. An in-depth introduction intended for students planning to take advanced course work in biochemistry, biophysics, or other areas of molecular biology. A fee of $75 is charged for this course.

3011. Human Metabolism and Disease
(205) Two credits. Prerequisite: MCB 2000 or 3010 or instructor consent.

A thorough analysis of the inter-relationships of metabolic pathways in connection with human health and disease, including inherited metabolic diseases and the role of hormones in metabolic pathways.

3022W. Human Disease and the Development of Therapeutic Agents
(222W) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011. Recommended preparation: One 2000-level course in MCB.

Molecular basis of human disease and strategies for developing therapeutic treatments. Applications of genetic, cellular, and biochemical information in treating disease states. Especially appropriate for students interested in biomedical research and the health profession.

3100. Introduction to Translational Research
Three credits. One 2-hour lecture on Storrs campus and one 4-hour work period in hospital. Prerequisite: BIOL 1107; open to juniors or higher; open to honors students; open to non-honors students with instructor consent. Recommended preparation: MCB 2000, 2210, 2610, or 3010.

Basic science and design of human subject research; participation in clinical, patient-oriented research projects in a hospital setting.

3189. Clinical Research Laboratory
Three credits. Prerequisite: MCB 3100. May be repeated for credit.

Participation in a clinical research study at a medical center (transportation to this off-campus site to be arranged by the student.)

3201. Gene Expression
(201) (Formerly offered as MCB 2211.) Three credits. Recommended preparation: MCB 2210 or 2410 or 2610.

Basic mechanisms of genetic information transfer in eukaryotic cells from DNA to folded and assembled proteins. Regulation of transcription, translation, DNA replication, and the cell cycle.

3210. Molecular Endocrinology
Three credits. Prerequisite: BIOL 1107; open to juniors and seniors only. Recommended preparation: FN 2362.

Molecular mechanism(s) of hormone action in vertebrates and invertebrates. Molecular cloning and characterization of peptide hormone genes, purification and molecular characterization of receptors, hormone actions at the molecular levels and signal transduction. Includes student presentations on selected papers.

3211. Cancer Cell Biology and Genetics
Three credits. Prerequisite: MCB 2210; recommended preparation: MCB 2410.


3219. Developmental and Regenerative Biology
(219) (Formerly offered as MCB 4219.) Three credits. Prerequisite: BIOL 1107. Recommended preparation: MCB 2210 and 2400 or 2410, which may be taken concurrently.

Fundamental principles that govern animal embryonic development and regeneration with emphasis on the cellular and molecular basis of pattern formation and cell differentiation in a variety of model organisms. Relevance to human development and disease and therapeutic applications will be discussed.

3246. Virology
(246) Three credits. Prerequisite: MCB 2610 and MCB 2210. Recommended preparation: MCB 3201 or 3010.

Biological, biochemical, physical, and genetic characteristics of viruses, with an emphasis on molecular and quantitative aspects of virus-cell interactions.

3412. Genetic Engineering and Functional Genomics
(212) Three credits. Prerequisite: MCB 2400 or 2410. Recommended preparation: MCB 2000 or 3010.

Methods and applications of genetic engineering, including gene manipulation and transfer techniques in prokaryotes and eukaryotes. Emphasis on applications of recombinant DNA technology in the elucidation of gene function. Consideration of recent technological developments in molecular genetics, such as cloning, gene therapy, the patenting and release of genetically engineered organisms, and societal issues related to these developments.

3413. Concepts of Genetic Analysis
Four credits. Two class periods and 3-hour laboratory. Prerequisite: MCB 2410 or 2400.

Survey of genetic theory and applications of genetic analysis to model organisms including animals, plants, and microbes. A fee of $50 is charged for this course.

3414. Experiments in DNA Identification
(214) Two credits. One 50-minute lecture period and one 3-hour laboratory session. Prerequisite: MCB 2410 or 2413.

An introductory laboratory course in principles and techniques of DNA manipulation and identification. Course simulates independent research, using modern molecular genetics techniques. A fee of $20 is charged for this course.

3421. Introduction to Molecular Evolution and Bioinformatics
(221) Three credits. Recommended preparation: At least one 2000-level course in MCB.

Evolution of biomolecules, and application
to molecular data analysis and the design of new molecules. Topics include prebiotic chemistry, origin of cells, selfish genes, molecular innovations, data bank searches, alignment of sequence and 3-D protein structures. Course includes lectures, discussions and computer lab exercises.

3602W. Introduction to Bioinformatic Tools for Microbial Genome Annotation
One credit. One 2-hour computer lab period. Prerequisite: MCB 2000 OR 2610 OR 3010; ENGL 1010 or 1011 or 2011. Analysis of microbial genome sequences using computational tools to examine metabolic pathways and genetic features as they relate to an organism’s lifestyle. Writing assignments utilize information gathered from the relevant scientific literature and students’ analyses of genome-derived information.

3617. Molecular Biology and Genetics of Prokaryotes
(217) Four credits. Three lecture periods and one 2-hour discussion. Prerequisite: MCB 2610. Molecular genetics of bacteria, archaea, and their viruses. Transcription and replication of DNA, transformation, transduction, conjugation, genetic mapping, mutagenesis, regulation of gene expression, and genome organization.

3633. Pathogenic Microbiology
(233) Four credits. Two class periods and one 2-hour, 45 minute laboratory period. Prerequisite: MCB 2610. Descriptions of infectious diseases caused by bacteria, viruses, and protozoans in relation to the affected human organ systems and discussions of the underlying virulence factors, molecular mechanisms, and epidemiological data. Modern techniques are used in the laboratory to identify and characterize pathogenic bacteria. A fee of $75 is charged for this course.

3635. Applied Microbiology
(235) Three credits. Prerequisite: MCB 2610. Recommended preparation: MCB 2000 or 3010. A study of the biology, physiology, and genetics of microorganisms useful in industry, agriculture, and selected environmental processes.

3636. Marine Microbiology
(236) (Also offered as MARN 3016.) First semester (Avery Point) second semester (Storrs). Three credits. Two lecture-discussion class periods and one 2-hour laboratory period for which field trips may be substituted. Prerequisite: MCB 2610 or instructor consent. A general survey of the taxonomy, physiology, and ecology of marine microorganisms.

3841W. Research Literature in Molecular and Cell Biology
(241W) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open only with consent of instructor. Recommended preparation: one 2000-level course in MCB. With a change in content, may be repeated for credit. Discussion of current research in molecular and cell biology.

3895. Special Topics
(296) Credits and hours by arrangement. A change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

3898. Variable Topics
(289) Three credits. With a change of topic, may be repeated for credit. Prerequisites and recommended preparation vary.

3899. Independent Study
(299) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit with change in topic. Designed for the advanced undergraduate student who is pursuing a special problem as an introduction to independent investigation.

3899W. Research Thesis in Molecular and Cell Biology
Three credits. Hours by arrangement. Prerequisite: At least three credits of MCB 3898 or 4898, which may be taken concurrently; ENGL 1010 or 1011 or 2011; open with consent of instructor. Writing of a thesis based upon the student’s independent laboratory research project.

4008. Techniques of Biophysical Chemistry
(208) Three credits. Prerequisite: MCB 3007, or CHEM 3563 or instructor consent. Theory and applications of biophysical methods for the analysis of the size, shape and interactions of proteins and nucleic acids. Topics include analytical gel electrophoresis, light scattering, X-ray scattering, calorimetry, surface plasmon resonance and single molecule approaches.

4009. Structure and Function of Biological Macromolecules
(209) Three credits. Prerequisite or corequisite: MCB 2610 or instructor consent. Fundamentals of protein structure and the forces that stabilize structure. Topics include recurrent structural motifs, molecular ancestry/homology, evolution of protein structure, structure-function correlations, and the structural basis of regulation. Discussion of the techniques used to investigate structure, including X-ray diffraction, NMR, TEM, AFM, structure prediction, and computational simulations. Advanced topics may include chaperones, structural genomics and the roles of misfolded proteins in disease.

4026W. Advanced Biochemistry Laboratory
(226W) Four credits. One 1-hour lecture and two 4-hour laboratories. Prerequisite: Either MCB 3010 or MCB 2000 with instructor consent; ENGL 1010 or 1011 or 2011. Theory and application of modern techniques for separation and characterization of biological macromolecules, including several types of liquid chromatography, liquid scintillation spectro-photometry, and SDS polyacrylamide gel electrophoresis. Instruction in writing a scientific paper. A fee of $75 is charged for this course.

4211. Basic Immunology
(211) (Formerly offered as MCB 3212.) Three credits. Prerequisite: BIOL 1107. Recommended preparation: MCB 2210. An introduction to the genetic, biochemical, and cellular mechanisms of the immune system. Addresses basic aspects of immune function, and will examine abnormal immune function associated with cancer, autoimmune disease, AIDS, and other immunological abnormalities.

4416. Forensic Application of DNA Science
(290) (Formerly offered as MCB 3416.) Three credits. Prerequisite: MCB 2400 or 2410. DNA analysis in forensic science, with emphasis on molecular genetic technology in criminal investigations and issues surrounding the use of DNA evidence. Team-taught with forensic practitioners.

4601. Physiology of Archaea and Bacteria
(Formerly offered as MCB 3801.) Three credits. Prerequisite: MCB 2000, 2610 or 3010. Examination of biochemical energy generation, regulation of metabolism, and cellular structures of archaea and bacteria. Physiological processes as they occur in nature and biotechnology industries.

4624. Experiments in Bacterial Genetics
(224) Three credits. Two 3-hour laboratory/lecture periods. Prerequisite: MCB 2610; open only with instructor consent. Recommended preparation: MCB 3617. Experiments in bacterial genetics, emphasizing genetic manipulations and analyses using modern biological techniques including transposon mutagenesis, DNA isolation, PCR, DNA sequencing and phenotypic analysis. A fee of $75 is charged for this course.

4894. Undergraduate Seminar
(297) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. May be repeated for credit with a change of topic.

4899. Introduction to Honors Research
(291) Credits and hours by arrangement. Prerequisite: Open only to honors students with consent of instructor. May be repeated for credit with change in topic. Laboratory research project carried on by the student under the guidance of a faculty member. The student is required to submit a brief report on the research findings at the end of the semester.

4997W. Honors Research Thesis in Molecular and Cell Biology
(292W) Three credits. Hours by arrangement. Prerequisite: At least three credits of MCB 3898 or 4898, which may be taken concurrently; ENGL 1010 or 1011 or 2011; open only to honors students; open only with instructor consent. Writing of a thesis based upon a student’s independent laboratory research project.

Music (MUSI)

Head of Department: Eric Rice
Department Office: Room 229, Music Building

For major requirements, see the School of Fine Arts section of this Catalog.

1001. Music Appreciation
(191) Three credits. No previous training required. Not appropriate for students who have previously passed MUSI 1021 or 1022. Intended primarily for students who are not music majors.

An approach toward intelligent listening, illustrated by recordings. CA 1.

1002. Sing and Shout! The History of America in Song
(102) Three credits. Lecture with discussion groups. Junda
Develop an understanding of American people, history and culture through the study and singing of American folk songs. CA 1. CA 4.

1003. Popular Music and Diversity in American Society
Three credits. Two lecture hours and one discussion hour per week. No prior musical training or knowledge required.

An introduction to popular music and diversity in America: jazz, blues, Top-40 pop, rock, hip-hop and other genres. Musicians and their music studied in the context of twentieth-century and contemporary American society, emphasizing issues of race, gender,
1004. Non-Western Music
(190) Three credits. Not open for credit to students who have passed MUSI 3421W. Intended primarily for students who are not music majors. Stephens Folk, popular, and classical music of selected non-Western cultures, with an emphasis on the distinctive characteristics of each culture. CA I. CA 4-INT.

(105) Three credits. No previous musical training required. Stanley An exploration of how 1) musicians have drawn upon nature as a source of inspiration, and 2) music has been used, in the recent past and continuing today, to call attention to the dangers facing the environment. CA I.

1006. Earthtones: Vocal Ensemble
(Also offered as FINA 1001.) One credit. One laboratory period. May be repeated for credit with a change of topic for a maximum of 5 credits. World music vocal ensemble that brings to life the songs of specific cultures as a means to gain knowledge and understanding of communities, culture, spirituality and social justice. A fee of $25 is charged for this course. CA I.

1011. Music Fundamentals and Ear Training I
(153) Three credits. Basic skills in note reading, rhythm, meter, pitch symbols, scales, key-signatures, intervals, triads, sight singing, and dictation. No previous training is required.

1012. Music Fundamentals and Ear Training II
(155) Three credits. Prerequisite: MUSI 1011. Further development of skills in music reading, sight singing, and dictation.

1021. Introduction to Music History I
(193) Three credits. Not intended for music majors. Music history in relation to other arts from the early Christian era to J.S. Bach (1750). Some background in music fundamentals or performance is highly recommended. CA I.

1022. Introduction to Music History II
(194) Three credits. Not intended for music majors. Music history in relation to other arts from the mid 18th Century to the present. Some background in music fundamentals or performance is highly recommended. CA I.

1101. Convocation, Concert and Recital Repertoire
(101) Required of all music majors every semester of residence. No credit. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

1103. Introduction to University-Level Musical Study
(103) Zero credits. Required of all music majors during the first fall semester of residence. Students taking this course will be assigned a grade of S (satisfactory) or U (unsatisfactory). Miller Study, rehearsal, audience and technology skills.

1107. Steel Pan Ensemble
One credit two-hour rehearsal and one sectional weekly. Performance of a repertoire that varies from the traditional calypso and soca styles of Trinidad and Tobago to today’s top music. No previous musical experience required.

1108. Marching Band
(109) One credit. Three laboratory periods. Prerequisite: Open only with consent of instructor. May be repeated for credit. McNeill, Mills

1109. Varsity Band
(108) One credit. Two laboratory periods. Prerequisite: Open only with consent of instructor. May be repeated for credit. McNeill, Mills

1110. Band
(110) One credit each semester. Three laboratory periods. Prerequisite: Open only with consent of instructor. May be repeated for credit. Wind Ensemble, Symphony Band, Concert Band. McNeill, Mills, Reinhart Repertoire, rehearsal techniques, preparation and presentation of performances in support of the University community.

1111. Chorus
(111) One credit each semester. Three laboratory periods. Prerequisite: Open only with consent of instructor. May be repeated for credit. Standard symphonic repertoire, technique of orchestral routine, preparation and presentation of concerts.

1112. University Symphony Orchestra
(112) One credit each semester. Three laboratory periods. Prerequisite: Open only with consent of instructor. Standard symphonic repertoire, technique of orchestral routine, preparation and presentation of concerts.

1113. Chamber Ensemble
(113) One credit each semester. Three laboratory periods. Prerequisite: Open only with consent of instructor. May be repeated for credit. Chamber music for various combinations of voices, string, woodwind, brass, percussion and keyboard instruments. Preparation and presentation of concerts.

1114. Voices of Freedom Gospel Choir
(114) One credit. One 2-hour laboratory period. Prerequisite: Open only with consent of instructor. May be repeated for credit. Preparation and presentation of concerts. Gospel and spiritual music of the Black experience.

1115. Jazz Ensemble
(115) One credit. Two laboratory periods. Prerequisite: Open only with consent of instructor. May be repeated for credit. Jazz repertoire, rehearsal techniques, preparation and presentation of concerts.

1116. Small Ensemble
(116) One credit. Two laboratory periods. Prerequisite: Open only with consent of instructor. May be repeated for credit. Small ensemble music under the direction of a conductor. Preparation and presentation of concerts.

1117. Women’s Choir
(117) One credit. Two ½-hour laboratory periods. Prerequisite: Open only with consent of instructor. May be repeated for credit. Choral repertoire from all periods, concentration on vocal and choral techniques as related to musical styles, preparation and presentation of concerts.

1118. Collegium Musicum
(118) One credit per semester. Two laboratory periods. Prerequisite: Open only with consent of instructor. May be repeated for credit. Rice Performance practices, iconography, notation, instrumentation in vocal and instrumental music before 1700. Preparation and participation in historically authentic performances.

1119. Opera Workshop
(119) One credit each semester. Three laboratory periods. Prerequisite: Open only with consent of instructor. May be repeated for credit. Performance practices. Preparation and participation in scenes from operatic repertoire.

1193. Foreign Study.
Credits and hours by arrangement. Prerequisite: Consent of department head required, normally before the student’s departure to study abroad. May be repeated for credit with a change in course content.

1221. Secondary Applied Music
(121) One credit each semester. Prerequisite: Open only with consent of instructor and department head. May be repeated for credit. Ensemble required with conditions stated under MUSI 1222. Basic performance techniques. Elementary and intermediate repertoire. Primarily for students majoring in another applied area.

1222. Applied Music
(122) Br (Bassoon), Co (Cello), Ct (Clarinet), Em (Euphonium), Fl (Flute), Fn (French Horn), Gr (Guitar), Hp (Harp), Oe (Oboe), On (Organ), Pn (Percussion), Po (Piano), Ss (String Bass), T (Timpani), Tt (Trumpet), Ta (Tuba), V (Viola), Vn (Violin), Ve (Voice).

One to three credits each semester. May be repeated for credit. Participation in an appropriate ensemble, MUSI 1110, 1111, or 1112, is required each semester for students registered in MUSI 1222 unless exception is made by the department head.

Open to qualified students. Before registering for the course, students must obtain an audition with the department and obtain the consent of the department head. Open only with consent of instructor.

1231. Class Instruction in Piano
(123) One credit each semester. Two class periods and required practice. Prerequisite: Open only with consent of instructor. May be repeated for credit. Clark

1241. Applied Accompanying
(124) One credit per semester. One class period per week by arrangement. Prerequisite: Open only with consent of instructor. Intended for students whose area of emphasis is keyboard. An audition is required for all other students. May be repeated for credit. Performance class in accompanying skills.

1251. Introduction to Diction for Singers
(126) One credit. Two 1-hour laboratory periods. Prerequisite: concurrent registration in applied voice study under MUSI 1222, 3222, or 5322.

An introduction to the International Phonetic Association (IPA) symbols with special application to the study of English diction for singers.

1252. Italian Diction for Singers
(127) One credit. Two 1-hour laboratory periods. Prerequisite: concurrent registration in applied voice study under MUSI 1222, 3222, or 5323.

A continuing study of the IPA symbols with their special application to the study of Italian diction for singers.

1311. Ear Training and Musicianship I
(143) One credit. Two 1-hour class periods. Prerequisite: Open only with consent of instructor. Devoted to the development of musicianship skills, including sight singing, rhythmic reading, melodic and harmonic dictation, and aural comprehension of musical structure.
1312. Ear Training and Musicianship II
(144) One credit. Two 1-hour class periods. Prerequisite: MUSI 1311.
Devoted to the continuing development of musicianship skills, including sight singing, rhythmic reading, melodic and harmonic dictation, and aural comprehension of musical structure.

1313. Harmony I
(145) Three credits. Three 1-hour class periods. Prerequisite: Open only with consent of instructor. Not open for credit to students who have passed MUSI 135. Squibbs
Writing and analysis of tonal harmony; relation to melody and counterpoint.

1314. Harmony II
(146) Three credits. Three 1-hour class periods. Prerequisite: MUSI 1313. Not open for credit to students who have passed MUSI 136. Squibbs
Continuation of MUSI 1313.

1501. Applied Music Techniques
(125) Bs (Brass), Pn (Percussion), Sg (String), Ve (Voice), Wd (Woodwind). One credit. Two laboratory periods. Prerequisite: Open only with consent of instructor. May be repeated for credit.

1601. Introduction to Improvisation
(138) One credit. One laboratory period. Prerequisite: Open only with consent of instructor. May be repeated once for credit.

1701. Introduction to Music Education
One credit. Two class periods per week.
Overview of music education and the total music program, K-12 for music pre-teaching students. Demonstration and discussion of relevant approaches to the teaching of music at all levels. Explores career opportunities in music education and related fields. Includes class observations.

1995. Special Topics Lecture
(195) Credits, prerequisites, and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.

2253. German Diction for Singers
(128) One credit. Two 1-hour laboratory periods. Prerequisite: MUSI 1251 and concurrent registration in applied voice study under MUSI 1222, 3222, or 5323.
A continuing study of the IPA symbols with their special application to the study of German diction for singers.

2254. French Diction for Singers
(129) One credit. Two 1-hour laboratory periods. Prerequisite: MUSI 1251 and concurrent registration in applied voice study under MUSI 1222, 3222, or 5323.
A continuing study of the IPA symbols with their special application to the study of French diction for singers.

3222. Applied Music, Advanced Course
(222) Credits and hours by arrangement. Ensemble required with conditions stated under MUSI 1222. Prerequisite: Advanced standing in performance as recommended by a faculty jury, recommendation by an instructor in this department, and consent of the Department Head; open to juniors or higher. May be repeated for credit.
A continuation of MUSI 1222 for students with proven ability.

3231. Vocal Pedagogy
(281) Two credits. Two class periods. Prerequisite: MUSI 3222 and consent of instructor; open to juniors or higher.
Vocabulary, methodology and practical application of pedagogical techniques.

3232. Instrumental Pedagogy and Literature
(229) One credit. One or two instrumental hours per week. Prerequisite: Open to juniors or higher; open only with consent of instructor. Corequisite: MUSI 3222 (Junior-Senior level).

3241. Orchestral Techniques
(282) One credit. Prerequisite: Open to juniors or higher; open only with consent of instructor. May be repeated for credit.
The art of practice, preparation, and performance of orchestral literature.

3311. Ear Training and Musicianship III
(243) One credit. Two 1-hour class periods. Prerequisite: MUSI 1312.
Devoted to the continuing development of musicianship skills, including sight singing, rhythmic reading, melodic and harmonic dictation focusing on chromaticism, and aural comprehension of musical structure.

3312. Ear Training and Musicianship IV
(244) One credit. Two 1-hour class periods. Prerequisite: MUSI 3311.
Devoted to the continuing development of musicianship skills, including sight singing, rhythmic reading, melodic and harmonic dictation focusing on chromaticism, and aural comprehension of musical structure.

3313. Harmony III
(245) Three credits. Three 1-hour class periods. Prerequisite: MUSI 1314.
Continuation of MUSI 1314.

3314. Harmony IV
(246) Three credits. Three 1-hour class periods. Prerequisite: MUSI 3313.
Continuation of MUSI 3313.

3321. Form and Analysis I
(257) Three credits. Prerequisite: MUSI 3314; open to juniors or higher. Not open for credit to students who have passed MUSI 236 with a grade of “B” or better.
Musical structure and expression; melodic, harmonic, rhythmic and contrapuntal relationships; style analysis.

3322W. Form and Analysis II
(258W) Prerequisite: MUSI 3321; ENGL 1010 or 1011 or 2011; open to juniors or higher.
Continuation of MUSI 3321. Emphasis on the larger works of the 19th-century and 20th-century styles.

3331. Composition I
(251) Three credits. Prerequisite: MUSI 3314; open to juniors or higher. Fuchs
Creative writing in the smaller forms. Extensive analysis and discussion.

3332. Composition II
(252) Two credits. Prerequisite: MUSI 3331 and consent of instructor; open to juniors or higher. Fuchs
Composition by synthesizer and computer.

3342. Arranging for Music Educators
Two credits. Two class periods. Prerequisite: MUSI 3312 and 3314. Fuchs
Through in-class instrument presentations and score study, students will be exposed to concepts and techniques of adapting and scoring music for small and large instrumental and vocal ensembles.

3351. Orchestration I
(275) Three credits. Prerequisite: MUSI 3313 and consent of instructor; open to juniors or higher.
Range, tone quality, and characteristics of the various orchestral and band instruments. Elementary scoring problems.

3361. Counterpoint I
(277) Three credits. Prerequisite: MUSI 3314; open to juniors or higher.
Two- and three-voiced textures in the principal 16th-century styles: Josquin, Lassus, Palestrina.

3371Q. Twentieth Century Theory and Analysis
(279Q) Three credits. Prerequisite: MUSI 3314 and MUSI 3321; open to juniors or higher. With consent of instructor, MUSI 3321 may be taken concurrently. Recommended preparation: A mathematics course. Bass
Analytical techniques appropriate to selected styles of twentieth century music. Problems in twentieth century counterpoint and composition.

3401. Music History and Literature Before 1700
(284) (Formerly offered as MUSI 287.) Three credits. Prerequisite: MUSI 1314.
Medieval, Renaissance, to High Baroque periods. Score study, development of notation, and relation to other artistic traditions.

3402. Music History and Literature 1700-1830
(285) Three credits. Prerequisite: MUSI 3401.
Leading composers, genres, elements of style, form and harmony, musical institutions and aesthetics in the High Baroque, Pre-classic, and Classic periods.

3403. Music History and Literature 1830 to Present
(286) Three credits. Prerequisite: MUSI 3402.
The romantic period and the Twentieth Century.

3410W. Music, History, and Ideas
(210W) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher; open only with consent of instructor.
Relationships of musical styles to cultural and intellectual backgrounds.

3411. The Composer and the Composer’s World
(211) Three credits. Prerequisite: MUSI 3403; open to juniors or higher. May be repeated for credit with a change in content.
Selected works in relation to the musical institutions, musical style, social, intellectual and political milieu, and biography of composer(s).

3421. Music in World Cultures
Three credits. Not open for credit to students who have passed MUSI 1004. Prerequisite: MUSI 3403 and consent of instructor; open to juniors or higher. Stephens
Comparison of musical concepts, styles, and performance practice in the social context of various cultures. CA 4-INT.

3421W. Music in World Cultures
(292W) Three credits. Not open for credit to students who have passed MUSI 1004. Prerequisite: MUSI 3403 and consent of instructor, ENGL 1010 or 1011 or 2011; open to juniors or higher. Stephens: CA 4-INT.

3561. Marching Band Techniques
(283) Two credits. Two class periods. Prerequisite: Open to juniors or higher; open only with consent of instructor. With a change of content, may be repeated for credit.

3571. Seminar in Music Education
(273) One or two credits. One or two class periods. Prerequisite: Open to juniors or higher; open only with consent of instructor. With a change of content, may be repeated for credit.
Theories and procedures for the organization of musical instruction.

3601. Jazz Improvisation and Performance (238) One credit. One laboratory period. Prerequisite: MUSI 1601; open to juniors or higher. May be repeated for credit.

Advanced jazz theory, styles, and ensemble techniques.

3611. A History of Jazz (217) Three credits. Prerequisite: MUSI 1314; open to juniors or higher.

3631. Jazz Arranging I (239) Two credits. Two class periods. Prerequisite: MUSI 1314 or equivalent and consent of instructor; open to juniors or higher. MacDonald

Arranging and composition of chamber jazz ensembles and big band.

3632. Jazz Arranging II (240) Two credits. Two class periods. Prerequisite: MUSI 3631 and consent of instructor; open to juniors or higher. MacDonald

Continuation of MUSI 3631.

3721. Vocal Literature I (225) Two credits. Two class periods. Prerequisite: Open to juniors or higher. Corequisite: MUSI 3222 and consent of instructor.

Songs and arias of the Renaissance and Baroque Periods: Oratorio Literature.

3722. Vocal Literature II (226) Two credits. Two class periods. Prerequisite: Open to juniors or higher. Corequisite: MUSI 3222 and consent of instructor.

Classical Period Songs; German Lied.

3723. Vocal Literature III (227) Two credits. Two class periods. Prerequisite: Open to juniors or higher. Corequisite: MUSI 3222 and consent of instructor.

French melodie; Songs of Nationalistic origin.

3724. Vocal Literature IV (228) Two credits. Two class periods. Prerequisite: Open to juniors or higher. Corequisite: MUSI 3222 and consent of instructor.

British and American Songs; The Modern Period.

3777. Introduction to Audio and Recording Three credits. One 3-hour class period. Prerequisite: Open only with instructor consent.

Audio theory and recording in the digital domain for musicians, performers, composers and digital media specialists.

3801. Acoustics and the Perception of Music (261) Three credits. Prerequisite: Open to juniors or higher.

Science of Music, using basic quantitative techniques.

3851. Music Technology for Music Teachers Two credits. Laboratory. Prerequisite: Open only to students in the Music Education Degree program; open to juniors or higher.

Current approaches to the application of music technology to the task of teaching music in elementary and secondary schools.

3982. Practicum in Music (201) Credits and hours by arrangement. Prerequisite: Open to juniors or higher; open only with consent of instructor. May be repeated for credit. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

3993. Foreign Study Credits and hours by arrangement. Prerequisite: Open to juniors or higher; consent of department head required. May be repeated with a change in course content.

Special topics taken in a foreign study program.

4333. Composition III Two credits. Hours by arrangement. Prerequisite: MUSI 3332 and instructor consent; open to juniors or higher. May be repeated for credit.

Individual instruction in musical composition.

4339. Composition Forum One credit each semester. One 1-hour class period per week. Prerequisite: Acceptance into composition emphasis; instructor consent. May be repeated to a maximum of 8 credits.

Weekly forum for students enrolled in the composition emphasis to discuss with each other, faculty, and visiting artists topics relevant to the professional development of composers. Topics include various aspects of the business of music, media technology, and score study.

4371. Theory Review (290) Three credits. Prerequisite: Open to juniors or higher.

An overview of traditional undergraduate theory. Intended for graduate students in Music.

4471. Seminar: The Life and Works of Individual Composers (271) Three credits. Prerequisite: MUSI 3403 and one MUSI 2000 or higher level W course; open to juniors or higher; open only with consent of instructor. With a change in content, may be repeated once for credit.

4472. Seminar: Style Periods in Music History (272) Three credits. Prerequisite: MUSI 3403 and one 2000 or higher level W course; open to juniors or higher; open only with consent of instructor. With a change in content, may be repeated once for credit.

4473. Seminar: History of Musical Forms (274) Three credits. Prerequisites: MUSI 3403 and one 2000 or higher level W course; open to juniors or higher; open only with consent of instructor. With a change in content, may be repeated once for credit.

Sonata, concerto, madrigal, motet, or other musical forms.

4489. Procedures in Historical Research (291) Three credits. Prerequisite: MUSI 3403 and one MUSI 2000 or higher level W course; open to juniors or higher; open only with consent of instructor.

A project-oriented approach to bibliographic tools and research methods applicable to the historical study of music.

4731. Conducting I (232) Two credits. Prerequisite: MUSI 1314; open to juniors or higher. Renshaw

Physical aspects of conducting, reading of full and condensed scores.

4732. Conducting II: Choral (233) Two credits. Prerequisite: MUSI 4731; open to juniors or higher.

4733. Conducting II: Instrumental (234) Two credits. Prerequisite: MUSI 4731; open to juniors or higher. Renshaw

4979. Senior Recital (297) Required of all Bachelor of Music performance majors. No credit. Prerequisite: Open to juniors or higher. Students completing this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

4995. Special Topics (298) Credits and hours by arrangement. Prerequisite: Open to juniors or higher; open only with consent of instructor. May be repeated for credit.

Classroom course in a special topic as announced in advance for each semester.

4999. Independent Study (299) Credits and hours by arrangement. Prerequisite: Open to juniors or higher; open only with consent of head of department. May be repeated for credit.

Natural Resources and the Environment (NRE)

Head of Department: Professor John V olin
Department Office: Room 308, W.B. Young Building

For major requirements, see the College of Agriculture, Health and Natural Resources section of this Catalog.

1000. Environmental Science (100) (Formerly offered as NRME 1000.) Three credits. Ortega, Rudnicki

An introduction to basic concepts and areas of environmental concern and how these problems can be effectively addressed. Topics include human population; ecological principles; conservation of biological resources; biodiversity; croplands, rangelands, forestlands; soil and water conservation; pollution and water management; and wildlife and fisheries conservation. CA 3.

1235. Environmental Conservation (130) (Formerly offered as NRME 1235.) Three credits. Lecture and discussion. Yokoun

Overview of the history of natural resource use and environmental conservation policy development from prehistoric to present times. Examination of the emergence of the 20th century conservation movement in North America and the transition to the environmental movement is used to highlight recurring environmental issue themes such as: private ownership vs. public trust doctrine; commercial trade in natural resources; development vs. protection; sustainability; and the role of society and governments in regulation. Through selected readings and case studies, students are challenged to begin development of their personal ethics regarding the development, conservation and protection of the environment. CA I.

1315. Introductory Wildlife Ecology and Conservation (217) (Formerly offered as NRME 2315.) Three credits. Prerequisite: Open only to freshmen and sophomores or instructor consent. Ortega

An introduction to wildlife ecology, conservation programs, and resource values. The distribution, life history and status of those amphibians, reptiles, birds, and mammals whose populations humans are attempting to preserve, reestablish, or control.

2000. Introduction to Geomatics (219) (Formerly offered as NRME 2000.) Four credits. Three lecture periods and one laboratory period. Cicco, Meyer

Principles and applications of geographic information systems (GIS), global positioning system (GPS), and remote sensing. Students will be provided with the scientific knowledge and technical skills needed to collect and use spatial data effectively in a GIS.

2010. Natural Resources Measurements (242) (Formerly offered as NRME 2010.) Three credits. Two class periods and one 2-hour laboratory. Prerequisite: Open only to Natural Resources majors, Environmental Science majors with a Natural Resources concentration, or by instructor consent. Field trips required. Clau sen
Principles and instrumentation used in the measurement of environmental conditions and processes.

2215. Introduction to Water Resources
(218) (Formerly offered as NRE 3218 and as NRME 3218.) Three credits. Three class periods and two field trips. Prerequisite: Open to sophomores or higher. Recommended preparation: NRE 1000 and GSCI 1050. Robbins

Introduction to surface and ground water resource assessment, development and management. Integration of scientific, legal, environmental and human factors that enter into developing and maintaining sustainable water resources. Examines current and future plight of water shortages and water quality issues here and abroad.

2325. Fish and Fisheries Conservation
Three credits. Prerequisite: Open to sophomores or higher. Recommended preparation: NRE 1000, BIOL 1102 or 1110. Auster

An examination of the linkages between life history, habitat and effects of human activities on the conservation and sustainable use of marine, estuarine and freshwater fishes.

2345. Introduction to Fisheries and Wildlife
Three credits. Ortega, Vokoun

An introduction to the basic principles used in the management of wildlife and fish populations, their habitats and ecosystems, and their human stewards. Students will be introduced to the fundamental concepts, topics, and skill sets that are commonly needed in the wildlife and fisheries profession.

2415. Dendrology
(214) (Formerly offered as NRME 2415.) Three credits. Two class periods and one 3-hour laboratory period. Recommended preparation: BIOL 1108 or 1110. Worthley

The taxonomy, silvics, and distribution of trees and shrubs of the United States with emphasis upon Northeastern species. Field trips will be required.

2455. Forest Ecology
(285) (Formerly offered as NRE 4455 and NRME 4455.) Three credits. Two class periods and one 3-hour laboratory. Recommended preparation: NRE 2415, which may be taken concurrently. Rudnicki

Forest structure and functional processes and their relation to physical environment (light, temperature, water, soil); the influence of time (succession, disturbance, stand dynamics) and space (landscape ecology, ecosystem management). Laboratory will be in the field or computer lab.

2600. Global Sustainable Natural Resources
Three credits. Helton, Rittenhouse

Sustainable management of natural resources across cultural, political, and ecological boundaries. Topics include marine and freshwaters, forests, food production and urban development. CA 4-INT.

3105. Wetlands Biology and Conservation
(204) (Formerly offered as NRME 3105.) Three credits. Three class periods and one weekend field trip. Prerequisite: Open to juniors or higher. Recommended preparation: BIOL 1107 and 1108. Claussen

Principal wetland habitats of North America are surveyed, and the relationship of wildlife associations to biological and physical features of wetlands is reviewed. Emphasis is placed on issues relating to wetlands conservation and management.

3115. Air Pollution
(210) (Formerly offered as NRME 3115.) Three credits. Recommended preparation: NRE 3145 or NRE 3146; open to juniors or higher. Anyah

The atmospheric effects and controls of air pollution and air quality, air pollution emissions and assessments, and impacts of atmospheric air pollutants.

3125. Watershed Hydrology
(211) (Formerly offered as NRME 3125.) Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: NRE 2110. Warmer

Fundamental hydrologic processes, water balances, precipitation analyses, infiltration, soil water, evapotranspiration, open channel flow, discharge measurements, and analysis, flow frequencies, ground water-surface water interactions, runoff processes and prediction. Problem oriented course requiring use of computer spreadsheets.

3145. Meteorology
(241) (Formerly offered as NRME 3145.) Three credits. Prerequisite: Open to juniors or higher. Yang

A survey course in meteorology at the introductory level covering weather and climate processes.

3146. Climatology
Three credits. Yang

Fundamentals of climatology: elements, processes, and mechanisms that govern or affect the climate and climate change, climatological theories and observations, climate across spatial and temporal scales, scientific methods for climatic analysis and applications.

3155. Water Quality Management
(246) (Formerly offered as NRME 3155.) Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: NRE 3125 or NRE 4165. Clausen

An introduction to all aspects of water quality problems relating to the many beneficial uses of water, including the physical, chemical, and biological properties.

3201. Conservation Law Enforcement
(201) (Formerly offered as NRME 3201.) Three credits.

Basic pre-professional course for majors in natural resource conservation and related disciplines. Recommended for persons considering a career in wildlife, fisheries, law enforcement, or other natural resource conservation and management disciplines.

3205. Stream Ecology
(205) (Formerly offered as NRME 3205.) Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: BIOL 1108 or equivalent. Vokoun

A broad overview of stream ecology will be presented. Emphasis will be placed on types of lotic habitats and the diversity and community patterns of organisms which inhabit them. Adaptations to life in running water and energy flow in stream ecosystems will also be discussed. Efforts targeted at the conservation of streams will be integrated throughout the semester. One or more field trips required.

3245. Environmental Law
(240) (Formerly offered as NRME 3245.) Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: NRE 3100 or above. Fauver

An overview of environmental law including the common law principles of nuisance, negligence, and trespass. Students will become acquainted with legal research techniques; emphasis will be on federal, state, and municipal programs addressing clear air, clean water, hazardous waste, inland wetlands, coastal zone management, and prime agricultural farm land and aquifer protection.

3246. Human Dimensions of Natural Resources
Three credits. Prerequisite: Open to juniors or higher. Miranda, Ramirez

Leadership, management, and workplace skills in professional natural resources management in governmental and nonprofit sectors. Public policy and administration, strategic collaboration and networks, organizational leadership, and conflict resolution will be covered.

3305. African Field Ecology and Renewable Resources Management
(207) (Formerly offered as NRME 3305.) Also offered as EEB 3307 and EEB 5307. Four credits. One class period during the semester, followed by three weeks in the field in South Africa. Prerequisite: Instructor consent required. Recommended preparation: EEB 2244. Ortega

An intensive, field oriented methods course conducted primarily in South Africa at the Basil Kent Field Station, Great Fish River Reserve in collaboration with the University of Fort Hare. An introduction to South African culture and history, ecology, and natural resources is provided in weekly meetings during the semester. This is followed by approximately three weeks in the field in South Africa (a required part of the course). Topics covered include vegetation and faunal surveys, data collection and analysis, biodiversity monitoring, and conservation management, and other selected themes. A research paper relating to an independent project conducted by the student in the field is required. CA 4-INT.

3335. Wildlife Management
(223) (Formerly offered as NRME 3335.) Three credits. Prerequisite: NRE 2345. Recommended preparation: Prior course work in ecology. Ortega

Brief review of wildlife conservation and ecological principles; management of wetlands, farmlands, rangelands, and forest lands for wildlife; programs dealing with exotic, urban, nongame, and endangered wildlife; contemporary economic, administrative, and policy aspects of management.

3345. Wildlife Management Techniques
(233) (Formerly offered as NRME 3345.) Four credits. Two class periods and two 2-hour laboratories. Prerequisite: NRE 3335; open to juniors or higher. One or more field trips will be required.

Based upon understanding and applying ecological principles, technology and science based information to fulfill human goals for wildlife resources and their habitats. Use of literature, development of basic field and laboratory skills, and application of management and research principles are integral. Collection and reporting of biological data upon which wildlife conservation decisions are based are emphasized. Designed for pre-professional students and meets professional certification requirements.

3345W. Wildlife Management Techniques
Prerequisite: NRE 3335; ENGL 1010 or 1011 or 2011; open to juniors or higher.

3365. Private Lands Wildlife Management
(248) (Formerly offered as NRE 3365.) Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: One 2000-level or above course in ecology or wildlife management; open to juniors or higher. Recommended course for Public Lands Wildlife Management (NRE 3355). Provides practical experience and acquaintance with persons or groups managing wildlife resources on private properties such as nature preserves, land trusts, non-governmental organizations, farms, recreational clubs, commercial shooting preserves and propagation facilities. Appreciation for private land management options, economic realities and other challenges, plus ability to assess resource potentials on private land, are stressed. Field trips required.

3500. Exurban Silviculture
Four credits. Lecture and laboratory. Prerequisite: NRE 2415. Recommended preparation: NRE 2455. Rudnicki

Application of ecological principles in controlling forest establishment, composition, health and growth.
Study of cultural treatments that maintain and enhance desired benefits from the forest on a sustainable basis, with an emphasis on the diverse needs and values of landowners and society within the exurban forest.

3535. Remote Sensing of the Environment
(237) (Formerly offered as NRME 3535.) Three credits. Three class periods. Prerequisite: Open to juniors or higher. Recommended preparation: NRE 2000 or equivalent. Civco

The principles of the interpretation of remote sensing imagery acquired from aircraft and satellite platforms will be studied. Applications of remote sensing to natural resources and the environment will be discussed.

3674. Introduction to Environmental and Natural Resources of China
One credit. Yang

Basics about the environmental and natural resources of China, including geography, climate, agriculture, history and culture.

3675 Environmental and Natural Resources of China
Three credits. Prerequisite: Open to juniors or higher; advanced sophomores (above 50 credits) may be considered. Recommended preparation: NRE 3674. Yang

Introduction to the environment of China, focusing on the management and sustainability of natural resources and environmental systems. A field trip to China is required.

3690. Field Study Internship
(287) (Formerly offered as NRME 3690.) One to six credits. Hours by arrangement. Prerequisite: Open to juniors or higher with consent of advisor and department head. This course may be repeated provided that the sum total of credits earned does not exceed six. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory). Designed to acquaint students through actual work experience with research and management activities not available on campus. Students will work with professionals in an area of concentration. Student evaluation will be based upon the recommendation of the field supervisor and a detailed written report submitted by the student.

3693. Foreign Studies in Natural Resources
Variable (1-6) credits. Hours by arrangement. May be repeated for credit; may count up to 6 credits toward major with consent of advisor and Department Head. Prerequisite: Department Head consent required prior to study abroad. Students may only count a maximum combined credit total of 6 credits toward the Natural Resource major of foreign study, Independent Study and Internship credits.

Courses taken in Natural Resources and related areas as part of an approved Study Abroad Program.

3699. Independent Study
(299) (Formerly offered as NRME 3699.) Credits and hours by arrangement. May be repeated for credit. Prerequisite: Open to juniors or higher; open only with consent of instructor.

Senate approval required:

4000W. Natural Resources Planning and Management
(239W) (Formerly offered as NRME 4000W.) Three credits. Prerequisite: Open only to Natural Resources and Environmental Science majors, or by instructor consent; Senior standing; ENGL 1010 or 1011 or 2011. Clausen

Concepts and methods of planning for the allocation, management and utilization of terrestrial and aquatic ecosystems. Techniques and methods of managerial decision making. Written technical reports required.

4094. Seminar
(295) (Formerly offered as NRME 4094.) One credit. May be repeated for credit. Prerequisite: Open to juniors or higher; open only with consent of instructor. Volin

4135. Introduction to Ground-Water Hydrology
(254C) (Formerly offered as NRME 4135C.) Four credits. Three class periods and one 3-hour laboratory period for which occasional field trips will be substituted. Prerequisite: GSCI 1050; or GSCI 1051 and 1052; or instructor consent; open to juniors or higher. Robbins

Basic hydrologic principles with emphasis on ground water flow and quality, geomorphic relationships, quantitative analysis and field methods.

4165. Soil and Water Management and Engineering
(260) (Formerly offered as NRME 4165.) Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: NRE 3125 or CE 4820. Warner

Soil management, erosion and erosion control, reservoir management, storm water control, watershed management, and on-site sewage treatment systems. Written technical reports, use of spreadsheets and field work required. Some field trips required.

4170. Climate-Human-Ecosystem Interactions
Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: introductory courses in climate and environmental science. Anyah

Understanding pathways of interactions among climate change, ecological processes, and human activities through time are studied. Feedbacks that either reinforce or limit such interactions will also be discussed.

4335. Fisheries Management
(235) (Formerly offered as NRME 4335.) Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: STAT 1000Q or higher; open to juniors or higher. Yokoai

Introduction to fisheries management principles with application to the biotic, habitat, and human components of fisheries. Selected topics include sampling gears, harvest regulations, stocking, population dynamics, and habitat management practices in ponds, lake, reservoir, river, and stream fisheries.

4340. Environmental Toxicology
Three credits. Prerequisite: Open to juniors or higher. Recommended preparation: A course in statistics. Bosker

Understanding impacts of contaminants on the environment. Topics include uptake, bioaccumulation and elimination of contaminants, use of laboratory and field tools to measure impacts, responses in organisms, and existing and emerging areas of ecotoxicology (pesticides, nutrients, pharmaceuticals). Labs are focused around further exploring toxicant fate and effects in ecosystems.

4370. Population Dynamics
Three credits. Prerequisite: Open to juniors or higher; advanced sophomores (above 50 credits) may be considered. Recommended preparation: STAT 1100Q, MATH 1060Q, and MATH 1110Q or higher, and NRE 3345. Rittenhouse

How population dynamics models are used in science and in the management of fish and wildlife populations, factors influencing population dynamics. Design, evaluation, and use of a population model.

4475. Forest Management
(280) (Formerly offered as NRE 3475 and as NRME 3475.) Four credits. Two 1½-hour lectures and one 4-hour laboratory period. Prerequisite: NRE 2415; open to juniors or higher. Recommended preparation: NRE 3500.

Application of forest mensuration, ecology, and silviculture in sustainable forest management. Field trips required.

4535. Remote Sensing Image Processing
(238C) (Formerly offered as NRME 4535C.) Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: NRE 2000 or 3535; open to juniors or higher; open only with consent of instructor. Civco

The principles of quantitative remote sensing, image processing and pattern recognition will be studied. Computer-assisted data analysis techniques will be used.

4544. Application of Surveying for Natural Resources
Three credits. Two class periods and one 2-hour laboratory period. Fieldwork required. Meyer

Use of opto-mechanical instruments (spirit levels and total stations) for high-accuracy land measurement, with applications to common problems in natural resource management such as transect layout. Students will learn to perform control surveys and to create detailed maps from the control surveys.

4545. Geodesy
(253) (Formerly offered as NRME 4545.) Three credits. Three lecture class periods. Prerequisite: NRE 2000. Recommended preparation: NRE 4544. Meyer

Horizontal and vertical geodetic datums, proper integration of spatial information collected in disparate datums, distortions created by cartographic projections, and proper use of standard cartographic coordinate systems. Integration of observations from opto-mechanical instruments (such as total stations) with Global Navigation Satellite System observations.

4575. Natural Resource Applications of Geographic Information Systems
(277) (Formerly offered as NRME 4575.) Four credits. Three class periods and one 2-hour laboratory. Prerequisite: Open to juniors or higher. Civco

Principles and applications of computer-assisted spatial data analysis in natural resources management. Hypothetical and actual case studies of the use of geographic information systems (GIS) to solve natural resource problems will be discussed. Raster- and vector-oriented, microcomputer-based GIS software will be applied.

4600. Current Topics in Environmental and Natural Resources
Two credits. Prerequisite: Open only to juniors or higher. Not open to students who have completed NRE 4601. Volin

An exploration of a diversity of environmental and natural resource topics that will be addressed across a continuum of applied to theoretical approaches. Weekly readings will introduce and familiarize students with guest lecturers’ research and allow students to engage in an in-depth discussion with each lecturer prior to attending weekly seminar.

4601. Current Topics in Environmental and Natural Resources - Honors
Three credits. Prerequisite: Open only to juniors or higher; open only to Honors students. Not open to students who have completed NRE 4600. Volin

An exploration of a diverse set of environmental and natural resource topics that will be examined using a continuum of applied-to-theoretical approaches. Each week, readings will introduce and familiarize students with a guest lecturer’s research and allow students to engage in an in-depth discussion with each lecturer.
prior to attending their seminar. Honors students will meet for an hour after each seminar and will include student-led discussion and presentations on the seminar research topic.

4665. Natural Resources Modeling
(256) (Formerly offered as NRME 4665.) Three credits. Prerequisite: MATH 112Q or higher; open to juniors or higher; open only to natural resource majors except by consent. Clausen, Warner

Applications of conservation of mass, energy and momentum in modeling natural resource systems. Defining systems; determining flows and storages; interactions and feedback mechanisms within systems. Problem oriented course including computer solutions using spreadsheets or modeling programs.

4689. Undergraduate Research in Natural Resources
(296) (Formerly offered as NRME 4689.) Credits and hours by arrangement. May be repeated for credit to maximum of six credits. Prerequisite: Open to juniors or higher; open only with consent of instructor. Field or laboratory research performed by the advanced undergraduate student in an area of natural resources under the supervision of a NRE faculty member. A report and/or an oral presentation will be required at the end of the semester.

4695. Special Topics
(298) (Formerly offered as NRME 4695.) Credits and hours by arrangement. May be repeated for credit with a change of topic. Prerequisite: Open to juniors or higher; open only with consent of instructor. Topics and credits to be published prior to the registration period preceding the semester offerings.

4697W. Undergraduate Research Thesis in Natural Resources
(297W) (Formerly offered as NRME 4697W.) Three credits. Hours by arrangement. Prerequisite: Three credits of either NRE 3699 or 4689, which may be taken concurrently; ENGL 1010 or 2011; open to juniors or higher; open only with consent of instructor.

Writing of a formal thesis based on independent research conducted by the student. Thesis proposal and final thesis must follow guidelines developed by the Department; and be submitted to, and approved by, a department review committee.

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Nursing (NURS)

Dean: Professor Regina M. Cusson
Office: Room 201, Storrs Hall

For major requirements, see the School of Nursing section of this Catalog.

1110. Introduction to Health and the Discipline of Nursing
(110) Three credits.

An introduction to the internal and external factors that influence health while simultaneously introducing students to the discipline and profession of nursing. Leading causes of illness, injury and death are discussed with emphasis on the role of the nurse in promoting health and disease prevention. Avenues for responsible participation in socio-political action to influence the health of all communities are explored.

1130. Health Care Delivery System
(112) Three credits.

An historical and contemporary exploration of the American health care delivery system: its evolution and development, legal and regulatory perspectives, roles of all providers and finances. A comparison with socialized health care will be made.

1175W. The End of Life: A Multicultural Interdisciplinary Experience
(175W) Three credits. Prerequisite: ENGL 1010 or 1011 or 2011.

An examination of experiences at the end of life to enhance student awareness of related issues through a societal, personal, multicultural, and interdisciplinary lens. CA 4.

2175. Global Politics of Childbearing and Reproduction
Three credits. One lecture per week.

Maternal health and reproductive issues on a global scale. Focused and sustained examination of the social, cultural, and political forces which organize childbirth and reproductive experiences. CA 1. CA 4-INT.

3100. Clinical Science I
(200) Three credits. Two class periods. Prerequisite: PNB 2264, may be taken concurrently; open only to Nursing majors; open to sophomores.

Critical examination of concepts from pathophysiology, pharmacology and nutrition as they apply to preventative health care of adults. Introduction of knowledge, skill and attitude of basic mathematics competency for medication administration.

3110. Clinical Science II
(201) Three credits. Two class periods. Prerequisite: CHEM 1122; NURS 3100; PNB 2264, PNB 2265; open only to Nursing majors; open to sophomores.

Critical examination of concepts from microbiology, pharmacology and complex medication administration as they apply to health care of individuals throughout the lifespan.

3120. Health Assessment throughout the Lifespan
(221) Three credits. Prerequisite: NURS 3100; PNB 2264; PNB 2265 concurrent; open only to Nursing majors.

Students will acquire the knowledge, skills, and values needed for assessing individuals through the lifespan. Supervised laboratory sessions will provide opportunity to practice newly acquired skills. A fee of $75 is charged for this course.

3130. Public Health Nursing
(270) Three credits. Prerequisite: NURS 1130; open only to Nursing majors.

Theories from nursing and public health are examined within the context of aggregate/population based care. Primary, secondary and tertiary approaches are used to promote the health of selected population/community.

3205. Nursing Research and Evidence-Based Practice
Three credits. Prerequisite: STAT 1000Q or 1100Q; ENGL 1010 or 1011.

Introduction to qualitative and quantitative research and application to evidence-based nursing practice. Focus placed on developing the ability to understand, interpret, critically appraise, and apply research for nursing practice.

3215. Nursing Research
(213W) Three credits. Prerequisite: To enroll in this course, a student must have earned a “C” or better in STAT 1000Q or 1100Q; open only to Nursing majors.

Not open to students who have passed NURS 3215W.

An introduction to qualitative and quantitative research. A variety of processes and resources is used to identify scholarly writing, critique research, and apply research findings to nursing.

3220. Clinical Science for Sub-Acute and Chronically Ill Adults
(212) Three credits. Prerequisite: To enroll in this course, a student must have earned a “C” or better in NURS 1110, 1130, 3100, 3110, 3120 and 3130; open only to Nursing majors.

Critical examination of concepts of pharmacology, microbiology, nutrition and pathophysiology as they relate to nursing care of adults with sub-acute and chronic health problems and their families.

3225. Ethical Ways of Knowing
(225) Three credits. Prerequisite: To enroll in this course, a student must have earned a “C” or better in NURS 3292 or RN license; open only to Nursing majors.

An exploration of the ethical way of knowing in nursing. Selected models and theories illustrating an ethical approach will be analyzed.

3230. Nursing Science for Adults with Sub-Acute or Chronic Health Issues
(218) Three credits. Prerequisite: To enroll in this course, a student must have earned a “C” or better in NURS 1110, 1130, 3100, 3110, 3120, and 3130; open only to Nursing majors.

Critical examination of theory, research and expert clinical practice supportive of nursing with adults experiencing sub-acute and chronic health problems and their families. A fee of $75 is charged for this course.

3234. Theory and Nursing Practice for Adults with Sub-Acute or Chronic Problems
Nine credits. Prerequisite: To enroll in this course, a student must have earned a “C” or better in NURS 1110, 1130, 3100, 3110, 3120, and 3130; open only to Nursing majors.

Critical examination of theory, research and expert clinical practice supportive of nursing with adults experiencing sub-acute and chronic health problems and their families. Provides experience in clinical and simulation learning environments for the application of theory from nursing and related disciplines to individuals with sub-acute or chronic health care problems. Emphasis is on the role of the nurse in the delivery of interdisciplinary care. A fee of $75 is charged for this course.

3292. Practicum with Sub-Acute and Chronically Ill Individuals
(219) Six credits. Prerequisite: To enroll in this course, a student must have earned a “C” or better in NURS 1110, 1130, 3100, 3110, 3120, and 3130; open only to Nursing majors.

Nursing and interdisciplinary care of the person and family with sub-acute and chronic health issues. A fee of $75 is charged for this course.

3295. Special Topics in Nursing
(298) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor. With a change in content, this course may be repeated for credit.

3330. Clinical and Nursing Science: Nursing Care of the Childbearing Family
(232) Four credits. Prerequisite: To enroll in this course, a student must have earned a “C” or better in NURS 3215, 3220, 3230, and 3292; open only to Nursing majors.

Builds on students’ understanding of microbiology, pharmacology, nutrition and pathophysiology as these sciences relate to childbearing families. Emphasis is on development of clinical decision making skills related to nursing care of childbearing families with a particular focus on anticipatory guidance, prevention, intervention and health restoration.

3334. Theory and Nursing Practice for Perinatal and Women’s Health
Seven credits. Prerequisite: To enroll in this course, a student must have earned a “C” or better in NURS 3205, 3220, and 3234; open only to Nursing majors.

Builds on students’ understanding of microbiology, pharmacology, nutrition and pathophysiology as these sciences relate to perinatal and women’s health. Emphasis is on development of clinical decision making skills related to nursing care for pregnant women and the childbearing family. A variety of processes and resources is used to identify scholarly writing, critique research, and apply research findings to nursing.

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pharmacology, nutrition, genetics, and pathophysiology as these sciences relate to childbearing families. Emphasis is on clinical decision making skills related to nursing care of childbearing families with a particular focus on anticipatory guidance, prevention, intervention and health restoration. Provides experience in clinical and simulation learning environments for the application of theory from nursing and related disciplines to perinatal and women’s health. Emphasis is on the role of the nurse in the delivery of interdisciplinary care. A fee of $75 is charged for this course.

3392. Practicum with Childbearing Families (239) Three credits. Prerequisite: To enroll in this course, a student must have earned a “C” or better in NURS 3215, 3220, 3230, and 3292; NURS 3330 concurrent; open only to Nursing majors.

Provides experience in the application of principles of nursing used in the care of childbearing families. Clinical placements will be settings such as day care centers, childbirth education classes, schools, clinics, group homes, women’s health centers and agencies providing acute and chronic care. A fee of $75 is charged for this course.

3444. Theory and Nursing Practice for Child Health Seven credits. Prerequisite: To enroll in this course, a student must have earned a “C” or better in NURS 3205, 3220, and 3234; open only to Nursing majors.

 Builds on students’ understanding of microbiology, pharmacology, nutrition, genetics, and pathophysiology as these sciences relate to childbearing families. Emphasis is on development of clinical decision making skills related to nursing care of childbearing families with a particular focus on anticipatory guidance, prevention, intervention and health restoration. Provides experience in clinical and simulation learning environments for the application of theory from nursing and related disciplines to child health. Emphasis is on the role of the nurse in the delivery of interdisciplinary care. A fee of $75 is charged for this course.

3450. Clinical and Nursing Science for Nursing Care of Childbearing Families (252) Four credits. Prerequisite: To enroll in this course, a student must have earned a “C” or better in NURS 3215, 3220, 3230, 3292; NURS 3330 concurrent; open only to Nursing majors.

Builds on students’ understanding of microbiology, pharmacology, nutrition, genetics, and pathophysiology as these sciences relate to childbearing families. Emphasis is on development of clinical decision making skills related to nursing care of childbearing families with a particular focus on anticipatory guidance, prevention, intervention and health restoration.

3492. Practicum with Childbearing Families (259) Three credits. Prerequisite: To enroll in this course, a student must have earned a “C” or better in NURS 3215, 3220, 3230, 3292; NURS 3450 concurrent; open only to Nursing majors.

Provides experience in the application of principles of nursing used in the care of infants, children, adolescents and their families. Clinical placements will be settings such as day care centers, schools, clinics, group homes, women’s health centers and agencies providing acute and chronic care.

3554. Theory and Nursing Practice for Behavioral and Psychological Health Seven credits. Prerequisite: To enroll in this course, a student must have earned a “C” or better in NURS 3205, 3220, and 3234; open only to Nursing majors.

Major theoretical perspectives regarding etiology and treatment of psychiatric illness are described and discussed including biological, psychological, sociological and environmental factors. The evolving role of the nurse with regard to promoting mental health, advocacy, and preventing and/or minimizing adverse sequelae to psychiatric illness are explored, including use of therapeutic communication, critical thinking and application of the nursing process to assist individuals and families with a variety of behavioral health problems. Provides experience in clinical and simulation learning environments for the application of theory from nursing and related disciplines to behavioral health. Emphasis is on the role of the nurse in the delivery of interdisciplinary care. A fee of $75 is charged for this course.

3560. Clinical and Nursing Science for Psychiatric and Mental Health Nursing (264) Four credits. Prerequisite: To enroll in this course a student must have earned a grade of “C” or higher in NURS 3215, 3220, 3230, 3292; open to Nursing majors only. Not open to students who have completed NURS 262, 263.

Major theoretical perspectives regarding etiology and treatment of psychiatric illness are described and discussed including biological, psychological, sociological and environmental factors. The evolving role of the nurse with regard to promoting mental health, patient advocacy, and preventing and/or minimizing adverse sequelae to psychiatric illness are explored, including use of therapeutic communication, critical thinking and application of the nursing process to assist individuals and families with a variety of behavioral health problems.

3592. Practicum for Psychiatric and Mental Health Nursing (269) Three credits. Prerequisite: To enroll in this course, a student must have earned a “C” or better in NURS 3215, 3220, 3230, 3292; NURS 3560, must be taken concurrently; open only to Nursing majors.

Provides experience in the clinical application of theory from nursing and related disciplines to mental health and illness (behavioral health). The focus is on psychiatric illness, critical thinking, communication skills, the nursing process in persons with a primary or secondary/adjunctive illness. The target of nursing care is the individual, family, group or community. A fee of $75 is charged for this course.

3664. Theory and Nursing Practice for Acutely Ill Adults Seven credits. Prerequisite: To enroll in this course, a student must have earned a “C” or better in NURS 3205, 3220, and 3234; open only to Nursing majors.

Critical examination of pharmacology, microbiology, nutrition, genetics, and pathophysiology as they relate to nursing care of adults experiencing acute and/or life threatening problems. Critical examination of theory, research, and expert clinical practice supportive of nursing care with adults experiencing acute and/or life threatening problems.

3692. Practicum with Acutely Ill Adults (279) Three credits. Prerequisite: To enroll in this course, a student must have earned a “C” or better in NURS 3215, 3220, 3230, 3292; NURS 3670 must be taken concurrently; open only to Nursing majors.

Nursing and interdisciplinary care of acutely ill persons and their families.

3715W. Nursing Leadership Three credits. Prerequisite: ENGL 1010 or 1011; to enroll in this course, a student must have earned a “C” or better in NURS 3234; open only to Nursing majors.

An in-depth analysis of the components that facilitate new nursing graduates to become leaders at the patient bedside, within interdisciplinary groups, and in the community. Emphasis is on written and oral communication, leadership, social disclosure and social justice to benefit the client and the discipline.

4001. Holistic Nursing Part 1: Basic Concepts Three credits. Prerequisite: To enroll in this course, a student must be a junior or senior nursing honors student, RN-MS student or a graduate student. Open only with consent of instructor.

The curriculum in this two-course certificate program is designed for nurses interested in gaining a holistic perspective in nursing practice and everyday life and provides nurses with the educational foundation required to take the national board certification examination in holistic nursing. This course was developed around the five core values of holistic nursing to provide nurses with a foundation of holism and the knowledge and skills necessary to integrate within their professional nursing practice. Teaching learning interventions and complementary and alternative modalities (CAM) are selected as examples of nursing approaches to promote health and healing of patients. Every nurse who completes the two courses will receive a certificate.

4002. Holistic Nursing Part 2: Advanced Concepts Three credits. Prerequisite: To enroll in this course, a student must be a junior or senior nursing honors student RN-MS student or a graduate student. Open only with consent of instructor.

Introduces students to advanced concepts in holistic nursing. Major concepts of health and wellness, body-mind healing, spirituality and health, selected complementary and alternative modalities (CAM), and evidenced based practice are highlighted. Participants engage in experiential activities that explore and analyze a range of practices that are applicable for providing holistic care in a variety of health care settings.

4003. Holistic Nursing Practicum Three credits. Prerequisite: NURS 4001 and NURS 4002, which may be taken concurrently.

Provides students with the opportunity to apply theory from holistic nursing to individuals, families, and community groups in a variety of health care settings. Focus is on relationship-centered holistic care and selected CAM modalities applied across the wellness-illness continuum in collaboration with other members of the health care team. Selected readings, clinical experiences, and practicum project are determined in collaboration with faculty.

4235. The Aesthetic Way of Knowing in Nursing (235) Three credits. Prerequisite: To enroll in this course, a student must have earned a “C” or better in NURS 3234 or RN license; open only to Nursing majors.
An exploration of the aesthetic way of knowing in nursing.

4265. Nursing's Past as Prologue
(251) Three credits. Prerequisites: Students must have earned a “C” or higher in NURS 3234 or RN license; open to Nursing Majors Only. Not open to students who have completed NURS 110.

Beginning with Florence Nightingale, the impact of events and the contributions of individuals will be examined in light of present day concerns in the profession of nursing. Issues such as race, class, gender and other social, political and economic factors will be analyzed. Internal and external forces that shape the substance of nursing education, practice, and research will be analyzed.

4292. Capstone Practicum
(289) Variable credits. Recommended preparation: To enroll in this course, a student must have earned a “C” or better in all nursing courses through first semester, senior year; open only to Nursing majors. Undergraduate students should register for 6 credits.

Synthesis of knowledge, skills, and values from all prior learning to provide professional nursing care as a beginning practitioner. A fee of $75 is charged for this course.

4299. Independent Study
(299) Credits and hours by arrangement. Prerequisite: Open only with consent of instructor.

Primarily for qualified students who wish to extend their knowledge by investigating special problems in nursing. With a change in content, this course may be repeated for credit.

4304. Health Assessment and Fundamentals of Nursing Praxis
Variable credits, 1 through 12. Student must be accepted into Basic Nursing (CEIN B.S.) Certificate Program.

Utilizes a combination of didactic and laboratory methods to explore all realms of health assessment (inspection, palpation, percussion, and auscultation) and introduces learners to the technological skills necessary for safe nursing practice: vital signs, activities of daily living, medication administration, wound healing and dressing changes, tubes and lines, safety and isolation precautions, and routine monitoring. Patient populations are adults in sub-acute and chronic settings. Addresses the nursing science, clinical science and disease science as appropriate to the assessment and skills. Students must earn at least a grade of “C” in this course to progress.

4414. Theory and Nursing Practice for Behavioral and Psychological Health
Four credits. Prerequisite: To enroll in this course, a student must have earned a “C” or better in NURS 4392; student must be accepted into Basic Nursing (CEIN B.S.) Certificate Program.

Major theoretical perspectives regarding etiology and treatment of psychiatric illness are described and discussed including biological, psychological, sociological and environmental learning environments for the application of theory from nursing and related disciplines to behavioral health. Emphasis is on the role of the nurse in the delivery of interdisciplinary care.

4424. Theory and Nursing Practice for Perinatal and Women's Health
Four credits. Prerequisite: To enroll in this course, a student must have earned a “C” or better in NURS 4392; student must be accepted into Basic Nursing (CEIN B.S.) Certificate Program.

Builds on students’ understanding of microbiology, pharmacology, nutrition, genetics, and pathophysiology as these sciences relate to childbearing families. Emphasis is on development of clinical decision making skills related to nursing care of childbearing families with a particular focus on anticipatory guidance, prevention, intervention and health restoration. Provides experience in clinical and simulation learning environments for the application of theory from nursing and related disciplines to perinatal and women’s health. Emphasis is on the role of the nurse in the delivery of interdisciplinary care.

4434. Theory and Nursing Practice for Child Health
Four credits. Prerequisite: To enroll in this course, a student must have earned a “C” or better in NURS 4392; student must be accepted into Basic Nursing (CEIN B.S.) Certificate Program.

Builds on students’ understanding of microbiology, pharmacology, nutrition, genetics, and pathophysiology as these sciences relate to childbearing families. Emphasis is on development of clinical decision making skills related to nursing care of childbearing families with a particular focus on anticipatory guidance, prevention, intervention and health restoration. Provides experience in clinical and simulation learning environments for the application of theory from nursing and related disciplines to child health. Emphasis is on the role of the nurse in the delivery of interdisciplinary care.

4454. Theory and Nursing Practice for Community Health
Four credits. Prerequisite: To enroll in this course, a student must have earned a “C” or better in NURS 4414, 4424 and 4434; student must be accepted into Basic Nursing (CEIN B.S.) Certificate Program.

Builds on students’ understanding of microbiology, pharmacology, nutrition, genetics, and pathophysiology as these sciences relate to community health. Principles of epidemiology will be introduced. Emphasis is on development of clinical decision making skills related to nursing care of individuals, families, and populations living in the community. Major concepts of wellness, prevention, and chronicity will be explored. Provides experiences in clinical and simulation learning environments for the application of theory from nursing and related disciplines to community health. Emphasis is on the role of the nurse in the delivery of interdisciplinary care.

4554. Theory and Nursing Practice for Adult Acute Care
Eight credits. Prerequisite: To enroll in this course, a student must have earned a “C” or better in NURS 4414, 4424 and 4434; student must be accepted into Basic Nursing (CEIN B.S.) Certificate Program.

Critical examination of pharmacology, microbiology, nutrition, and pathophysiology as they relate to nursing care of adults experiencing acute and/or life threatening problems. Critical examination of theory, research, and expert clinical practice supportive of nursing care with adults experiencing acute and/or life threatening problems. Provides experience in clinical and simulation learning environments for the application of theory from nursing and related disciplines to the care of acutely ill adults. Emphasis is on the role of the nurse in the delivery of interdisciplinary care.

4597W. Senior Thesis in Nursing
Three credits. Prerequisite: ENGL 1010 or 1011 or 2011; at least 9 credits of NURS 4299; open only to Honors students; open only by instructor consent.

Writing a thesis based upon a student’s independent research project.

Nutritional Sciences (NUSC)

Head of Department: Professor Sung I. Koo
Department Office: Room 214, Roy E. Jones Building

For major requirements, see the College of Agriculture, Health and Natural Resources section of this Catalog.

1030. Interdisciplinary Approach to Obesity Prevention
(Also offered as AH 1030.) Three credits. Prerequisite: Open to freshmen and sophomores in the Honors Program.

Explores the biology of obesity including genetic predispositions and behaviors that increase obesity risk (dietary, physical activity, social, psychological), the obesogenic environment, including how communities are physically built, as well as the economic relationship to obesity risk, and policy and ethical implications for obesity prevention. Multi-level obesity prevention approaches that involve the individual, family, organization, community, and policy. CA 3.

1161. Husky Reads: Introducing Food and Nutrition to Children through Reading
(Also offered as EKIN 1161.) One credit. This course may be repeated with change of activity and/or skill level; not to exceed 3 credits towards the major for students in Nutritional Sciences.

Supervised field work and experiential learning in nutritional literacy for preschoolers and young children, geared to individual, dual, and team activities. Readings and reflections.

1165. Fundamentals of Nutrition
(165) Three credits.

An introduction to the principles and concepts of nutrition with emphasis on the nature and function of carbohydrates, fats, proteins, minerals and vitamins, and their application to the human organism. CA 3.

1166. Honors Colloquium in Nutrition
(167) One credit. One class period and one 2-hour discussion/laboratory every other week. Concurrent enrollment in NUSC 1165 required.

Lectures, discussions, and laboratory exercises to complement topics from NUSC 1165. Primarily for, but not restricted to, Honors students.

1167. Food, Culture and Society
(166) Three credits.

Social, cultural, and economic factors affecting food intake and nutritional status. Includes contemporary topics such as world food problems, hunger in the United States, dieting and eating disorders, health foods and vegetarianism. CA 4-INT.

1195. Special Topics Lecture
(195) Credits, prerequisites, and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.

1245. Introduction to Dietetics
One credit. Prerequisite: Open only to CANR students, others with consent. Not open for credit to students who have passed NUSC 2245 or 3245.

Introduction to the profession of dietetics, including clinical, community, and food service management. Dietetic internship application preparation.

1645. The Science of Food
(160) (Also offered as ANSC 1645.) Three credits.

An introductory level course for students interested in the application of science to food. Nutritional and functional attributes of various food constituents are
discussed. Issues concerning food processing and food safety are covered. CA 3.

2200. Nutrition and Human Development
(200) Three credits. Prerequisite: NUSC 1165. Nutritional needs and consequences of nutritional deficiencies throughout the life cycle: periconception, pregnancy, lactation, childhood, adolescence and aging. Maternal and child public health issues in the developed and developing world.

2241. Nutritional Assessment
(241) One credit. One class period and one 2-hour laboratory, every other week. Prerequisite: NUSC 1165. Recommended preparation: MCB 2000 or 3010, PNB 2250 or 2265. Enrollment restricted to Nutritional Sciences and Kinesiology majors. Anthropometry, clinical, and biochemical techniques for assessment of human nutritional status. Prerequisite: NUSC 1165 and open only to Nutritional Sciences Didactic Program students; open to juniors or seniors. Consent of instructor required. May be repeated for credit to a total of 15 credits.

2245. Profession of Dietetics
(245) One credit. Prerequisite: Open only to NUSC Didactic Program students and others with consent. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory). Overview of the profession of dietetics, including clinical, community, and food service management. Portfolio development and dietetic internship application process and preparation. Consent of instructor required.

3150. Medical Nutrition Therapy I
(Also offered as DIET 3150.) Three credits. Prerequisite: MCB 2000; PNB 2264, 2265; NUSC 1165; open only to Dietetics majors and NUSC Didactic Program students; open to juniors or higher. Introduction to the nutrition care process, nutrition assessment, planning of special diets, and applications of medical nutrition therapy to selected disease states and conditions. Consent of instructor required. No more than six credits of experience or independent study may apply toward the major.

3171. Husky Nutrition I
Three credits. Prerequisite: NUSC 1165; instructor consent. Lecture and experiential learning in pre-schools where students conduct learning activities about reducing sweetened beverage consumption. Lecture, applied learning laboratory, supervised field work with community nutrition education and problem-solving. Readings, discussion, and reflections.

3172. Husky Nutrition II
Three credits. Prerequisite: NUSC 1165; instructor consent. Lecture and learning laboratory, with supervised field work in providing healthy nutrition education in community settings. Readings, quizzes, discussions, reflections, and a term paper.

3180. Experience in Community Nutrition
(281) One to six credits. Prerequisite: NUSC 1165; consent of instructor required. May be repeated for credit. No more than six credits of experience or independent study may apply toward the major. Supervised field work with community nutrition education or problem-solving. Readings and reports.

3230. Community Nutrition
(Also offered as DIET 3230) Three credits. Prerequisite: NUSC 2200; open to Dietetics majors, NUSC majors, and AHS majors; juniors or higher, others by consent. Not open to students who have passed NUSC 3267. Role of community structure, agencies, and resources in community health relating to nutrition.

3233. Food Composition and Preparation
(233) Three credits. Prerequisite: NUSC 1165. Recommended preparation: CHEM 2241 or 2443. Study of the composition of food and the physical and chemical changes that occur during preparation and processing that affect taste, palatability, shelf-life, and nutrient content.

3234. Food Composition and Preparation Laboratory
(235) One credit. One 3-hour laboratory period. Prerequisite: NUSC 1165, CHEM 2241 or 2443 and concurrent registration in NUSC 3233. Enrollment restricted to Nutritional Sciences and Allied Health Dietetic majors. Open to others by consent if space is available. Laboratory techniques related to composition of foods, and the physical and chemical changes that occur during preparation. A fee of $50 is charged for this course.

3245. Profession of Dietetics
One credit. Prerequisite: NUSC 1245; open only to Nutritional Sciences Didactic Program students; others with consent. Not open for credit to students who have passed NUSC 2245. Overview of dietetic internships and application process. Resume writing, job placement, ethics and dietetics.

3250. Medical Nutrition Therapy II
(Also offered as DIET 3250.) Three credits. Prerequisite: DIET 3150 or NUSC 3150; open only to Dietetics majors and Nutritional Sciences Didactic Program students; juniors or higher. Continuation of Medical Nutrition Therapy I. Further investigation of the interrelationships of physiology and biochemistry of disease and dietary intervention.

3271. Food Services Systems Management Laboratory/Discussion
Two credits. Two 2-hour laboratory/discussion periods. Prerequisite: NUSC 3233 and 3234; open only to Nutritional Sciences students enrolled in NUSC 3272. Laboratory/discussion of quantity food preparation, recipe modification, cost analysis, recipe nutrient analysis and application of food sanitation. A fee of $50 is charged for this course.

3272. Food Service Systems Management I
(Also offered as DIET 3272.) Two credits. Two class periods. Recommended preparation: NUSC 3233, 3234. Open only to students who have passed NUSC 3270. Quantity food procurement, preparation and distribution; recipe standardization and menu development; sanitation and safety; portion and quality control; systems approach and delivery systems.

3291. Nutritional Sciences Internship
Variable credits (1-3). Hours by arrangement. Prerequisite: NUSC 1165 and 2200; open to juniors or higher; open to Nutritional Science majors with consent. May be repeated for credit up to a total of 6 credits. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

3693. International Studies in Nutritional Sciences
Variable credits. Hours by arrangement. Prerequisite: Open only with consent of department; open to sophomores or higher. May be repeated for credit up to a total of 15 credits. Variable topics. Coursework undertaken within approved study abroad programs.

3782. Experience in Food Service Systems Management
(275) One to six credits. Prerequisite: Consent of instructor required. May be repeated for credit. No more than six credits of experience or independent study may apply toward the major.

Application of principles of food service management. Supervised placement.

3823. Experience in Medical Nutrition Therapy
(283) One to three credits. Prerequisite: NUSC 3150; consent of instructor required. No more than six credits of experience or independent study may apply toward the major. Rodger.

Mentored experiences in Medical Nutrition Therapy that include traditional (e.g., hospitals, long term care centers) and contemporary (e.g., wellness clinics, sports nutrition practice) placement with registered dietitians/nutritionists.

4236. Principles of Nutrition
(236) Four credits. Prerequisite: NUSC 1165 and MCB 2000 or 3010. Function and metabolism of carbohydrates, proteins, fats, minerals, and vitamins.

4237W. Writing in Nutritional Sciences
(237W) One credit. Prerequisite: ENGL 1010 or 1011 or 211; open only by consent of instructor; NUSC 4236 must be taken concurrently. A writing-intensive class that emphasizes both style and content consistent with the discipline of Nutritional Science.

4250. Nutrition for Exercise and Sport
(250) Three credits. Prerequisite: NUSC 1165 and MCB 2250 or 2265. Basic nutrition principles. Physical activity, exercise, sport performance and consequences of nutritional ergogenic aids.

4260. Dietary Supplements and Functional Foods
Three credits. Prerequisite: NUSC 1165; CHEM 2241 or 2443 or concurrent registration. Efficacy, safety, and regulations of dietary supplements and health-promoting foods.

4272. Food Service Systems Management II
(Also offered as DIET 4272.) Two credits. Two class periods. Prerequisite: DIET/NUSC 3272. Open to students who have passed NUSC 4270. Institutional menu development; cost and budgeting; equipment layout and design; personnel management; marketing and merchandising; purchasing and inventory control.

4294. Seminar
(295) One credit. One class period. Prerequisite: NUSC 2200. May be taken twice. Review, evaluation, and oral and written presentation of contemporary nutrition issues.

4295. Special Topics
(298) Credits and hours by arrangement. Prerequisite: Consent of instructor required. May be repeated for credit with a change of topic.

Topics and credits to be published prior to the registration period preceding the semester offerings.

4296W. Senior Thesis in Nutrition
(296W) Three credits. Hours by arrangement. Prerequisite: Open only by consent of honors advisor and department head; enrollment limited to Nutritional Sciences honors students; ENGL 1010 or 1011 or 211.

4299. Independent Study
(299) One to three credits. Prerequisite: Consent of instructor and department head required. No more than six credits of experience or independent study may apply toward the major.

Individual study and research with faculty. Written report.

Occupational Safety and Health
(OSH)

Interim Head of Department: Professor Nancy Bull
A hands-on introduction to latest information technology concepts and tools as applicable to business, such as spreadsheets for business analysis, business programming and database management, technology project management, electronic commerce, emerging technologies for online marketing, emerging social media, information security and privacy, and intellectual property. Executives from industry will be guest speakers.

3103. Business Information Systems
(203C) Three credits. Prerequisite: ACCT 2001; open only to School of Business students; others with the consent of the Operations and Information Management Department Head, open to juniors or higher.

Information needs of managers, the structure of the information systems required to fill these needs, systems development, business computing technology, and management applications within major business functional subsystems.

3104. Operations Management
(204) Three credits. Prerequisite: Open to juniors or higher.

Introduction to concepts, models, and information systems applicable to the planning, design, operation and control of systems which produce goods and services. Topics include process design, facility locations, aggregate planning, inventory control, and scheduling.

3211. Systems Analysis and Design
(211) Three credits. Prerequisite: OPIM 3103, 3220, 3221, 3222; open only to MIS majors; open to juniors or higher.

System development methodologies for business information systems. Project management concepts, hardware and software technology, and organizational considerations are explored. Students participate in a system development project.

3212. Advanced Information Technologies
(212) Three credits. Prerequisite: OPIM 3103, 3220, 3221, 3222; open only to MIS majors; open to juniors or higher.

Deepens knowledge of application development tools for the design of decision oriented information systems. Emphasis will be placed on emerging tools and techniques relevant for modern organizational information needs.

3220. Business Software Development
(220) Three credits. Prerequisite: Open to juniors or higher.

The development of computer software for business information processing. Topics include flowcharting, pseudocode, programming with a business oriented computer language, file processing concepts, and on-line and batch processing.

3221. Business Database Systems
(221) Three credits. Prerequisite: Open to juniors or higher.

Introduces market-leading techniques for transaction processing as well as decision making and business intelligence, that help to identify and manage key data from business processes. Provides the essential tools required for further data mining applications. Combines lecture, class discussion and hands-on computer work in a business-oriented environment.

3222. Network Design and Applications
(222) Three credits. Prerequisite: Open to juniors or higher.

Principles and applications of business telecommunications emphasized. Covers important network systems as well as crucial techniques in building these systems. Students participate in network design and implementation project.

3223. Advanced Business Application Development
(223) Three credits. Prerequisite: OPIM 3103; open to MIS majors only; open to juniors or higher.

Covers structured and object-oriented programming methodologies for developing business applications. Program design techniques and logic emphasized. Students participate in a business application design and implementation project.

3224. Web Business Application Development
Three credits. Prerequisite: OPIM 3220 and 3221 (or equivalent programming and database coursework); open to MIS majors only; others with instructor’s permission. Each student is required to bring a laptop with hardware and software as per School of Business specifications that can connect to the internet and handle the required software.

Covers structured and object-oriented programming methodologies for developing database supported business applications on platforms such as the worldwide web. Program design techniques and logic are emphasized. Students participate in a team based business application design and implementation project.

3505. Business Database Management
(205) Three credits. Prerequisite: OPIM 3103 or equivalent; open to juniors or higher; open to School of Business majors; others with consent of the Operations and Information Management Department Head. Cannot be used toward fulfilling MIS major requirements. Offered only at regional campus locations.

Introduction to the development and implementation of database applications. Topics covered include costs and benefits of database approach, database design lifecycle, the relational data model, Structured Query Language, database applications development and data warehousing. Students will learn the relational database concept and participate in the hands-on design and implementation of a database using the relational architecture and a database management system.

3506. Business Application Programming
(206) Three credits. Prerequisite: OPIM 3103 or equivalent; open to juniors or higher; open only to Business Administration, Business and Technology, and Financial Management majors; others with the consent of the Operations and Information Management Department Head. Cannot be used toward fulfilling MIS major requirements. Offered only at the Hartford, Waterbury, and Stamford Regional Campus locations.

Development of business application software using structured and object oriented programming techniques. The emphasis is on programming logic, rapid application development techniques and personal productivity tools. Topics include program design techniques, program constructs, interface development techniques, event driven programming, file and database processing, and object linking and embedding.

3507. Internet Technologies and Electronic Commerce
(207) Three credits. Prerequisite or corequisite: OPIM 3505, OPIM 3506; open to juniors or higher; open only to Business Administration, Business and Technology, and Financial Management majors; others with the consent of the Operations and Information Management Department Head. Cannot be used toward fulfilling MIS major requirements. Offered only at the Hartford, Waterbury, and Stamford Regional Campus locations.

Introduces Internet technology and tools from the perspective of business users. The focus is on providing knowledge base and functional tools for students as workers in the 21st Century. The specific technologies covered in the class will depend upon state-of-the-art at the time of class offering. However, some of the general concepts include: HTML, client side
programming such as Javascript or VBscript, dynamic content creation and management, electronic business process management, security concerns and solutions, and regulatory/public policy issues. A significant part of the course will involve hands-on training.

3510. Business Data Analytics I
Three credits. Prerequisite: OPIM 3103 or equivalent; open to juniors or higher; open only to School of Business majors; others with consent of the Operations and Information Management Department Head. Cannot be used toward fulfilling MIS major requirements. Offered only at regional campus locations.

Presents essential data analytics topics. Covers basic programming logic and techniques necessary for developing preprocessing and data cleaning with a light introduction to data mining and visualization techniques.

3511. Business Data Analytics II
Three credits. Prerequisite: OPIM 3510 or equivalent; open to juniors or higher; open only to School of Business majors; others with consent of the Operations and Information Management Department Head. Cannot be used toward fulfilling MIS major requirements. Offered only at regional campus locations.

Presents data analytics principles and state-of-the-art data mining software, with an emphasis placed on applications in business. Provides an introduction to a variety of statistical techniques and algorithmic principles used in data mining. Various data mining procedures will be discussed and subsequently implemented using state-of-the-art analytics toolsets.

3512. Project Management for Business Data Analytics
Three credits. Prerequisite: OPIM 3505 and OPIM 3510; corequisite: OPIM 3511; open to juniors or higher; open only to School of Business majors; others with consent of the Operations and Information Management Department Head. Cannot be used toward fulfilling MIS major requirements. Offered only at regional campus locations.

Introduction to the concepts necessary for both project managers and project team members to deliver successful data analytics projects on time, on budget and in scope. The phases and knowledge areas of project management, as defined by the Project Management Institute (PMI), are covered as well as the tools and techniques in each area for successful project management. Introduction to appropriate tools and regulatory issues. A significant part of the course will involve hands-on training.

3513. Principles of Project Management
Three credits. Prerequisite: Open to juniors or higher.

Provides an introduction to the concepts necessary for both project managers and project team members to deliver successful projects on time, on budget and in scope. The phases and knowledge areas of project management, as defined by the Project Management Institute (PMI), are covered as well as the tools and techniques in each area for successful project management. An introduction to Microsoft Project software will also be covered.

3802. Data and Text Mining
Three credits. Prerequisite: STAT 1000Q, 1100Q, or equivalent; open to School of Business students, others with permission of Department Head. Each student is required to bring a laptop (with Windows or Mac OS) that can connect to the internet and handle required software (see School of Business specifications).

Introduction to the concepts of data and text mining and positions students to structure and successfully complete information analytics projects. Various concepts and approaches are analyzed and subsequently implemented using state-of-the-art analytic tools.

3803. Spreadsheet Modeling for Business Analysis
Three credits. Prerequisite: OPIM 3103 or instructors consent; open to School of Business students; others with permission of Department Head. Each student is required to bring a laptop installed with Microsoft Excel that can connect to the internet.

Introduction to business decision and data analysis with electronic spreadsheets in Excel, the primary quantitative analysis software in business environments. Modeling and decision techniques are covered in combination with Excel functions and tools. Applications in different business functional areas are also covered.

4891. Field Study Internship
(289) One to six credits. Hours by arrangement. Prerequisite: Completion of Freshman - Sophomore School of Business Requirements and consent of instructor and Department Head; open to juniors or higher. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Designed to provide students with an opportunity for field work relevant to one or more major areas within the Department. Students will work under the supervision of one or more professionals in the specialty in question. Student performance will be evaluated on the basis of an appraisal by the field supervisor and a detailed written report submitted by the student.

4893. Foreign Study
(293) Credits and hours by arrangement, up to a maximum of six credits. Prerequisite: open to juniors or higher; consent of Department Head required, prior to the student’s departure. These credits must be awarded for regularly scheduled course work at a recognized foreign university in the field of information systems or in the student’s Applications Area; if in the Applications Area the consent of both the Department Head and the Head of the Applications Area is required. Prior to taking the course the student must sign up for the course in advance as a course in that Applications Area.

No credits can be counted toward required courses in the MIS major.

Special topics taken in a foreign study program.

3895. Special Topics
(289) Credits and hours by arrangement. Prerequisite: OPIM 3103 and others as announced separately for each offering; open to juniors or higher. With a change in content, may be repeated for credit.

Classroom course in special topics in operations management, operations research and information management as announced in advance for each semester.

4899. Independent Study
(299) Credits by arrangement, not to exceed six in any semester. Prerequisite: Open only with consent of instructor and Department Head; open to juniors or higher.

Individual study of special topics in operations management, operations research and information management as mutually arranged between a student and an instructor.

Pathobiology and Veterinary Science (PVS)

Head of Department: Professor Steven J. Geary
Department Office: Room 103, Animal Pathology Building

For major requirements, see the College of Agriculture, Health and Natural Resources section of this Catalog.

1000. Biomedical Issues in Pathobiology
(113) Two credits. Bushmich

This introductory course focuses on current global issues of health and disease to describe fundamental topics in pathobiology. Global biomedical concerns regarding infectious diseases, population, cancer, biotechnology and environmental health will be addressed. Course content will provide examples of the impact of veterinary and human pathology on world health issues.

2095. Special Topics Lecture
(195) Credits, prerequisites, and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.

2100. Anatomy and Physiology of Animals
(200) Four credits. Prerequisite: BIOL 1107 or equivalent. Three class periods and one 2-hour discussion/ laboratory period. Smyth

A study of the anatomy and physiology of animals with reference to pathological changes of the component parts of the body. A fee of $50 is charged for this course.

2301. Health and Disease Management of Animals
(202) Three credits. Prerequisite: PVS 2100. Bushmich

Designed for students who plan to own and work with domestic animals. Its purpose is to develop student competence in disease management and to foster an intelligent working relationship with their veterinarian. The course will cover a systematic study of infectious and noninfectious diseases of domestic animals from the standpoint of economy and public health.

3094W. Seminar
(295W) Two credits. One class period. Prerequisite:
ENGL 1010 or 1011 or 2011; open only with consent of instructor. Majors may take this course in each semester of the senior year. May be repeated for credit. Khan

3095. Special Topics
(298) Credits and hours by arrangement. May be repeated for credit with a change of topic. Prerequisite: Open only with consent of instructor. Topics and credits to be published prior to the registration period preceding the semester offerings.

3099. Independent Study
(299) Credits and laboratory periods by arrangement. May be repeated for credit.

Special problems in connection with departmental research programs and diagnostic procedures for diseases of animals. Some suggested topics are histopathologic laboratory procedures, clinical hematology, diagnostic bacteriology, diagnostic parasitology.

3100. Histologic Structure and Function
(296) Four credits. Three class periods and one 2-hour laboratory. Prerequisite: Open to juniors or higher; open only with consent of instructor. Recommended preparation: PVS 2100 or PNB 2264-2265 or PNB 2274-2275 or an equivalent course in vertebrate anatomy and physiology. Burns
Designed for students in biologic, paramedical and animal sciences, its purpose is to integrate histologic and cellular structure with function, utilizing human tissues and those from other vertebrates.

3201. Principles of Animal Virology
(248) Three credits. Prerequisite: Open to juniors or higher. Garmendia
Structure and classification of viruses, cultivation and multiplication, pathogenesis and epidemiology of viral infections, host response, oncogenic viruses, immunization against, and laboratory diagnosis of viral diseases.

3201W. Principles of Animal Virology
(248W) Prerequisite: ENGL 1010 or 1011 or 2011; open to juniors or higher.

3341. Pathobiology of the Avian Species
(252) Three credits. Prerequisite: Open to juniors or higher. Khan
A systematic study of metabolic, nutritional, genetic, and infectious diseases of commercial poultry, avian wildlife, and caged pet birds. Emphasis is placed upon diagnosis and disease prevention. For each system of the body, pertinent anatomy, physiology, histology, pathology, and histopathology will be discussed.

3501. Diagnostic Techniques for the Biomedical Sciences
(260) Two credits. One 1-hour lecture and one 3-hour laboratory. Prerequisite: Open to juniors or higher; instructor consent required; open only to students who have declared the Agricultural Biotechnology minor and passed MCB 3414. Recommended preparation: MCB 2000, Anamani, Frasca, Lipcius, Risatti
Theoretical basis and practical exposure to modern laboratory methods used in the biomedical sciences for disease diagnosis.

4203. Principles of Antibacterial Development
Three credits. Prerequisite: MCB 2610, or an equivalent course in general microbiology or bacteriology with consent of the instructor. Open to juniors or higher. Zhou
Designed to cover important concepts and pioneering strategies currently being used to develop novel antibacterials.

4300. Principles of Pathobiology
(297) Three credits. Prerequisite: Open to juniors or