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New Course Request:

ANTH 670. Bridging Theme Seminar in Anthropology. (3-0). Credit 3. Examination of topics that bridge two or more subfields in anthropology, including studies diasporas, dispersals and migration; evolution and ecology; material culture and technology; and food, nutrition, and culture. May be taken three times for credit. Prerequisite(s): Graduate classification.

BUAD 679. Leadership Development. (4-0). Credit 4. Focus on assignments and activities to develop self-awareness as a leader and encourage reflection; strategies to improve leadership and communication with emphasis on leading, influencing, and team work in a business context; integration of core business knowledge and skills. Prerequisite(s): Enrollment is limited to BUAD Classification 7 MBA students.

ECEN 741. Electronic Motor Drives. (3-3). Credit 3. Application of semiconductor switching power converters to adjustable speed DC and AC motor drives; steady state theory and analysis of electric motion control in industrial, robotic and traction systems; laboratory experiments in power electronic motor drives and their control. Prerequisite(s): Graduate classification.

EDCI 751. Problem-Based Research Frameworks. (3-0). Credit 3. Introduction to scientific research associated with problems in K-12 curriculum and instruction settings; evaluation and problem solving for effective solutions to educational problems in school-based settings. Prerequisite(s): Graduate classification and admission to online EdD in EDCI.

FINC 601. Financial Analysis Practicum. (3-0). Credit 3. Application of finance theory to careers in finance; development of practical skills for finance professionals, including proficiency with industry-standard software, databases, and analytic products; operational, legal, and ethical aspects of the financial industry; financial career planning. Prerequisite(s): Enrollment limited to FINC Classification 7 students only.

FINC 602. Corporate Finance. (3-0). Credit 3. Theoretical development of principles of corporate financial management; application of principles to problems faced by financial officers, such as capital budgeting, cost of capital, capital structure, dividend policy, financial distress, and corporate valuation. Prerequisite(s): Enrollment limited to MS-FINC students only.

FINC 603. Investments. (3-0). Credit 3. Theoretical development and application of principles of investment management; topics include measuring risk aversion, portfolio optimization, factor models, asset pricing models, bond pricing, term structure of interest rates, bend portfolio management, and equity valuation. Prerequisite(s): Enrollment limited to MS-FINC students only or by approval of Department Head.

FINC 604. Fixed Income Securities. (3-0). Credit 3. Economics and institutional analysis of bonds markets and determinants of interest rates for bonds, including Treasury issues, federal agency issues, corporate bonds, municipal bonds, mortgage-backed and asset-backed securities. Features of fixed income securities from microeconomic and macroeconomic perspectives. Analysis of risk and return, valuation, term structure, trading strategies and credit risk. Prerequisite(s): FINC 602 and FINC 603 or approval of Department Head.

FINC 605. Valuation and Financial Modeling. (3-0). Credit 3. Principles of value creation. Definition of fundamental value, market value, and replacement value. Differences between valuation approaches.

Applications to measuring the value of business organizations using rigorous applications of financial theory and accounting principles. Prerequisite(s): FINC 602, FINC 603, and ACCT 610 or by approval of Department Head.

GEOG 659. Geodatabases. (3-2). Credit 3. GIS data modeling; Introductory and advanced spatial SQL (structured query language); Spatial database management system (DBMS) server setup, management, and maintenance; Spatial DBMS design, implementation, tuning, performance analysis, and indexing; Connecting spatial data services and warehouses to GIS software.

GEOG 668. Arctic Climates. (3-0). Credit 3. Arctic climate system, physical characteristics and climatic features, the atmospheric energy budget, the atmospheric circulation, the surface energy budget, the hydrologic cycle, and the interactions between the atmosphere, Arctic Ocean, and its sea ice cover. Prerequisite(s): Graduate classification.

GEOG 676. GIS Programming. (3-2). Credit 3. Automation of GIS software; Integration of custom code as extensions into GIS software; Programmatic manipulation of GIS data. Prerequisite(s): Graduate classification.

GEOG 678. WebGIS. (3-2). Credit 3. Internet architectures; Setup, management, and maintenance of web-based Geographic Information System (WebGIS) servers, data, and services; Use of WebGIS data an services in the creation of custom web-based maps; Analysis of WebGIS system architecture, design, and implementation. Prerequisite(s): Graduate classification.

PERF 625. Latino/a Expressive Culture. (3-0). Credit 3. Explores how issues concerning Latinos, including race and ethnicity, religion, border politics, immigration, the drug war, family, gender and sexuality, and class, are reflected and debated through expressive forms of performance such as theater, comedy music, folklore, and performance art. Prerequisite(s): Acceptance into the MA in Performance Studies Program or instructor approval.

PETE 639. High Performance Drilling Design and Operational Practices. (3-0). Credit 3. Achieving differentiating drilling performance in most complex wells; includes physics of each type of performance limiter, real time operational practices, engineering redesign practices, and effective workflows to achieve the required change in reengineering and operational practices. Prerequisite(s): Graduate classification, PETE 355 or PETE 661 or instructor approval.

PHYS 647. Gravitational Physics. (3-0). Credit 3. Special relativity; equivalence principle; theory of gravitation; Einstein's theory of general relativity; classic tests of general relativity; simple black hole and cosmological solutions; global aspects; penrose diagrams; stationary black holes; Hawking radiation. Prerequisite(s): PHYS 611 and PHYS 615.

PHYS 651. Superstring Theory I. (3-0). Credit 3. Basics of string theory, including bosonic string, conformal field theory, strings with worldsheet and space-time supersymmetry, as well as the higher dimensional extended objects called D-branes. Prerequisite(s): PHYS 634 and PHYS 653 required; PHYS 647 recommended.

PHYS 652. Superstring Theory II. (3-0). Credit 3. M-theory unification of superstring theories into a single eleven-dimensional theory; duality symmetries relating string theories; string geometry; Calabi-Yau manifolds and exceptional holonomy manifolds; flux compactifcations; black holes in string theory;

AdS/CFT correspondence; string and M-theory cosmology. Prerequisite(s): PHYS 651; PHYS 647 recommended.

PHYS 653. Introduction to Supersymmetry and Supergravity. (3-0). Credit 3. Core material on supersymmetric field theories and their coupling to supergravity theories. Prerequisite(s): PHYS 634.

PHYS 654. The Standard Model and Beyond. (3-0). Credit 3. The standard model of particle physics in detail; general principles of gauge theories, including spontaneous breaking and applications to Electro-Weak Interactions and Quantum Chromodynamics; extension of the standard model involving Grand Unified Theories (GUT), Supersymmetry (SUSY), and Supergravity (SUGRA). Prerequisite(s): PHYS 624 and PHYS 634.

PHYS 655. String Phenomenology. (3-0). Credit 3. Physical applications of string theory; rudiments of string theory; compactification of extreme dimensions in string theory; free-fermionic formulation; dualities, M-theory, intersection D-Branes, and D-Brane phenomenology; model building. Prerequisite(s): PHYS 634 and PHYS 651.

VIBS 622. Endocrine Toxicology. (4-0). Credit. 4. Impacts of endocrine toxicology on endocrine system; prevalence, environmental and occupational use and disposal of environmental endocrine disrupting chemicals (EDCs); and structure, toxicokinetics and mechanism of action of EDCs; effects of EDCs on the development and function; disorders, and diseases of the endocrine and reproductive organs. Prerequisite(s): Graduate Classification; approval of instructor. Stacked with VIBS 421.

VIBS 624. Endocrinology. (3-1). Credit 3. Neuroendocrine control of puberty menstruation, ovulation, pregnancy, labor, lactation, female reproductive cycles, male reproductive functions, thyroid and parathyroid, adrenal and kidney, diabetes, obesity, sleep, memory, learning and aging, and their endocrine disorders; overview on biosynthesis, transport, and signaling of peptide and neuropeptide hormones, steroids and postglandins. Prerequisite(s): Honors; Graduate classification. Cross-listed with VTPP 624. Stacked with VIBS 424/VTPP 424.

VTPP 624. Endocrinology. (3-1). Credit 3. Neuroendocrine control of puberty menstruation, ovulation, pregnancy, labor, lactation, female reproductive cycles, male reproductive functions, thyroid and parathyroid, adrenal and kidney, diabetes, obesity, sleep, memory, learning and aging, and their endocrine disorders; overview on biosynthesis, transport, and signaling of peptide and neuropeptide hormones, steroids and postglandins. Prerequisite(s): Honors; Graduate classification. Cross-listed with VIBS 624. Stacked with VIBS 424/VTPP 424.

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Course Change Request:

AERO 601: Principles of Fluid Motion
COURSE TITLE AND CATALOG DESCRIPTION:

FROM: Principles of Fluid Motion. (4-0). Credit 4. Formulation of equations of motion for fluid flow; theoretical and numerical solution methods for potential (ideal) flow; application to thin and thick airfoil and wind aerodynamics; complex variable methods for potential flow.

TO: **Advanced Aerodynamics.** (3-0). Credit 3. Theoretical and approximate numerical solutions for incompressible and transonic flows and applications to airfoil, wing and whole-vehicle aerodynamics; approximate methods for boundary layers; introduction to aerodynamic design concepts; design of swept wings and delta wings, control surfaces, winglets, vortex generators and flow control.

HIST 678: Comparative Border Studies
COURSE TITLE AND CATALOG DESCRIPTION:

FROM: Comparative Border Studies. (3-0). Credit 3. Questions how groups create, articulate, enforce, and challenge difference; brings together disparate historiographies to consider a variety of theoretical and methodological approaches used in understanding borders; examines contact, conflict, and change across various kinds of historical and cultural boundaries. Prerequisite(s): Graduate classification.

TO: **Readings in the Southwest and its Borders.** (3-0). Credit 3. Reading seminar focusing on how groups in the American Southwest articulate, enforce, and challenge difference; brings together disparate historiographies to consider a variety of theoretical and methodological approaches used in understanding borders; examines contact, conflict, and change across various kinds of historical and cultural boundaries. May be taken two times for credit as content varies. Prerequisite(s): Graduate classification.

HIST 679: Topics in Comparative Border Studies
COURSE TITLE AND CATALOG DESCRIPTION:

FROM: Topics in Comparative Border Studies. (3-0). Credit 3. Selected topics and themes in an identified area of Comparative Border Studies. May be taken two times for credit as content varies. Prerequisite(s): Graduate classification.

TO: Research Seminar in the Southwest and its Borders. (3-0). Credit 3. Research and writing seminar focusing on selected topics and themes in an identified area of Southwest Border Studies. May be taken two times for credit as content varies. Prerequisite(s): Graduate classification.

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ISYS 631: Information Systems Design and Development Project
PREREQUISITE(S):

FROM: Graduate classification in business and knowledge of one programming language.

TO: Graduation classification; ISYS 622; ISYS 630.

SGSI 600: Development and Commercialization of Human Therapeutics
COURSE TITLE AND CATALOG DESCRIPTION:

FROM: SGSI 600. Development and Commercialization of Human Therapeutics. (2-0). Credit 2. The course will cover fundamentals of the commercialization of human therapeutics from research and discovery through clinical development. In the course, student will gain an understanding of the process of development and commercialization of human therapeutic from early discovery through regulatory and product development to early clinical fields. Additionally, practical exercises in the business of building and sustaining a biotechnology company will be explored.

TO: MSCI 608. Development and Commercialization of Human Therapeutics. (2-0). Credit 2. Survey the principles and concepts of commercializing a human pharmaceutical drug within the context of a startup biotechnology; emphasis is on the issues and concepts encountered in either academic or industrial careers in moving potential pharmaceutical drug towards approved therapeutic.

SGSI 601: Responsible Conduct of Research
COURSE TITLE AND CATALOG DESCRIPTION:

FROM: SGSI 601. Responsible Conduct of Research. (1-0). Credit 1. Responsible Conduct of Research (RCR) is defined by NIH as the practice of scientific investigation with integrity. It involves the awareness and application of established professional norms and ethical principles in the performance of all activities related to scientific research. Responsible conduct of research is an essential component of research training. This course is designed as a survey of basic topics that trainees will need to understand as they enter into the practice of research. The course will utilize outside reading assignments.

TO: MSCI 609. Responsible Conduct of Research. (1-0). Credit 1. Responsible Conduct of Research (RCR) is defined by NIH as the practice of scientific investigation with integrity. It involves the awareness and application of established professional norms and ethical principles in the performance of all activities related to scientific research. Responsible conduct of research is an essential component of research training. This course is designed as a survey of basic topics that trainees will need to understand as they enter into the practice of research. The course will utilize outside reading assignments.

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SGSI 602: Responsible Conduct of Research
COURSE TITLE AND CATALOG DESCRIPTION:

FROM: SGSI 602. Training Tomorrow's Life Science Entrepreneurs: A Practicum Course in the Development and Management. (3-0). Credit 3. A practicum course to provide the student with a practical hands on experience and knowledge of the creation and development of a life science biotechnology company. Students will work as part of a startup biotechnology company to assist in the early development and management of the country.

TO: MSCI 607. Life Science Entrepreneurship. (3-0). Credit 3. Independent study designed as an introduction and overview of the commercialization process involved in moving a research discovery from the bench to the market.

WFSC 628: Wetland Ecology
COURSE TITLE AND CATALOG DESCRIPTION:

FROM: Wetland Ecology. (3-0). Credit 3. Wetlands as ecological systems that are prime habitats for wildlife and fish; geomorphology, hydrology, limnology, plant and animal communities, and human use and management. Prerequisite(s): WFSC 403 or RLEM 316 or equivalent.

TO: Wetland Ecology and Pollution. (3-0). Credit 3. Wetlands as ecological systems that are prime habitats for wildlife and fish; geomorphology, hydrology, limnology, plant and animal communities, and humans use and management. Wetlands as ultimate reservoirs of environmental pollutants. Distribution, fate, and effects of environmental pollutants on aquatic and terrestrial wildlife. Prerequisite(s): Graduate classification or instructor approval.

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Special Consideration Items:

College of Education
- Department of Educational Administration and Human Resource Development
  - Master of Education in Educational Administration
    - Changes in the Master of Education in Educational Administration

College of Engineering
- Exception request for final exam for MS non-thesis degree option in College of Engineering