Graduate Course Descriptions

This letter/number system is used to designate the colleges and the disciplines and subjects offered within these colleges.

Key to Course Description Information

Before registering for a course, students must satisfy prerequisites as indicated in the following course descriptions. When changes are made, students are to follow the requirements in the most recent catalog.

Course Prefix

ATP  Athletic Training
CADF  CAD Foundation (GR)
CMW  Certificate Midwifery (GR)
CSL  Complex Systems Leadership
CTC  Community & Trauma Counseling
DMM  Disaster Medicine Mgmt (GR)
DMW  Doctor of Midwifery (GR)
DSGN  Special Topics in Design
DSL  Doctor Strategic Leadership
FDM  Fashion Design Management
GEOD  Geodesign
GFE  Global Fashion Enterprise
GFEF  Global Fashion Enter. Foundtn
GRINTRN  Graduate Internship
HSCI  Health Science
IARC  Interior Architecture M.S.
IARCP  Prep Interior Arch Crs M.S.
IDD  Interact. Digital Design (GR)
IDF  Indus/Interactive Dsgn Foundat
IMBA  Innovator MBA
IMBAX  Innovator MBA (online)
IMBF  IMBA Program Foundation Crse
Undergraduate Course Descriptions

ATP-600 - Emergency Care  4.00 Credits

This course prepares the athletic training student to respond to medical emergencies and acute conditions in physical activity settings. Through successful completion students will be able to perform lifesaving procedures at the professional rescuer level, practice universal precautions, prevent transmission of disease and become proficient in using automated external defibrillators. Upon successful completion of the course, the students will become Certified Emergency Medical Response Instructors. Prerequisites: "B-" or better in BIO 201, BIO 201L, BIO 202, and BIO 202L. Have met all admission criteria for the Master of Science in Athletic Training program.
### ATP-605 - Fundamentals of Athletic Training  
**4.00 Credits**

This course is designed to introduce students to the profession of Athletic Training. This course provides an introduction to injury prevention, recognition, and treatment strategies. Injury prevention principles, injury classification, and common injuries will be surveyed. 

**Prerequisites:** Have met all admission criteria for the Master of Science in Athletic Training Program

### ATP-610 - Basics of Rehabilitation  
**3.00 Credits**

This course will introduce the student to basic clinical skills and problem-solving abilities to be built upon in future course work. It is designed to introduce the student to hands-on patient care skills in a laboratory setting. These skills include but not limited to: assessment of vital signs; principles of body mechanics; range of motion and manual muscle testing assessment; transfers; assistive device fitting and education; gait assessment and training. The students will also have the opportunity to apply this knowledge immediately during clinical experiences. 

**Prerequisites:** Admission into the Master of Science in Athletic Training Program

### ATP-615 - Functional Human Anatomy  
**3.00 Credits**

This course provides an in-depth study of musculoskeletal anatomy and function as it applies to human performance and dysfunction. Emphasis will be placed on the study of the structure and functional significance of the human body - with emphasis on neural, musculoskeletal and cardiopulmonary systems. This course will provide an introduction to clinical application of relevant anatomy, with respect to some common conditions seen in the health/medical profession. 

**Prerequisites:** "B-" or better in BIO 201, BIO 201L, BIO 202, and BIO 202L. Have met all admission criteria for the Master of Science in Athletic Training program

### ATP-620 - Practicum I  
**3.00 Credits**

This course is designed to provide introductory hands-on experience in the field of Athletic Training. Upon competition, the student will have a novice understanding of the recognition, evaluation and treatment of injuries and illnesses. Under the direct supervision of a preceptor, the student will be challenged to transfer knowledge learned didactically and apply it in clinically. A minimum of 250 and maximum of 300 clinical hours is required to earn credit for the class. The student shall not work more than 20 hours/week or greater than 6 days in a row. 

**Prerequisites:** Admission to the Master of Science in Athletic Training Program

### ATP-625 - Prevention, Evaluation & Treatment of Athletic Injuries I  
**4.00 Credits**

A systematic approach to orthopedic/sports assessment and rehabilitation will be examined. The upper extremity will be studied in-depth stressing anatomy, neurology, physiology, etiology, pathology, assessment and rehabilitation techniques. This course will also examine the knowledge, skills and values the entry-level Athletic Trainer must possess to plan, implement, document and evaluate the efficacy of therapeutic exercise programs for the rehabilitation and reconditioning of upper extremity injuries and illnesses of athletes and the physically active. Assessment techniques will be presented and discussed in a didactic manner as well as applied through lab experiences.

### ATP-630 - Therapeutic Modalities for Athletic Training  
**3.00 Credits**
This is a comprehensive course in the theory and use of therapeutic modalities in a sports medicine setting. Students will learn about the injury response cycle and healing process and how to incorporate modalities to these processes. The student will have an in-depth understanding of the physiology behind the therapeutic effects. Students will become proficient as far as application, electrode placement, patient set-up and parameters of modalities used in sports medicine. Principles of neurophysiology, pain control, and the electromagnetic and acoustic spectra will be discussed and applied through lab experiences.

**ATP-635 - Human Physiology: Exercise, Nutrition & Performance**  3.00 Credits

This course provides an in-depth structure/function relationship of the neuromuscular, metabolic, cardiorespiratory and hormonal responses to acute exercise and the physiological adaptations to chronic exercise. Topics include thermoregulation, ergogenic aids, body composition, sport training, growth and development, and aging.

**ATP-640 - Practicum II Athletic Injuries I**  3.00 Credits

This clinical rotation allows for the student to gain more hands-on clinical experience in the profession of Athletic Training outside of the classroom and in the clinical setting. This rotation is designed to provide the athletic training student hands-on experiences with which to understand, recognize, evaluate, and treat athletic injuries and illnesses using the range of skills required of an athletic training professional. Under the supervision of a preceptor, the student will be challenged to transfer knowledge learned didactically and apply it in the clinical setting. Students will be expected to begin to understand and demonstrate the knowledge and skills identified in the Standards as designated by the CAATE and its eight content areas: Evidence-Based Practice; Prevention and Health Promotion; Clinical Examination and Diagnosis; Acute Care of Injury and Illness; Therapeutic Interventions; Psychosocial Strategies and Referral; Healthcare Administration; and Professional Development and Responsibility. A minimum of 250 clinical hours is required to earn credit for the class.

**ATP-645 - Motor Control and Human Movement Training**  3.00 Credits

This course guides the study of the principles of motor skill performance and learning and the application of these theories to physical activities, learners and various environments. This course will also examine the structural and mechanical principles involved in human movement and the contribution of these principles to the efficiency of human movement.

**ATP-660 - Specialty Practicum in Athletic Training**  2.00 Credits

This 6-week clinical rotation allows for student to gain advanced clinical experience in the profession of Athletic Training outside of the classroom and in the clinical setting. This rotation is designed to provide the athletic training student with immersive hands-on experiences with which to understand, recognize, evaluate, and treat NON-athletic and NON-orthopedic injuries and illnesses as required by CAATE standards using a range of skills required of an athletic training professional. Under the supervision of a preceptor, the student will be challenged to transfer knowledge learned didactically and apply it in the clinical setting in an immersive manner. Students will be expected to integrate and apply knowledge and skills identified in the Standards as designated by the CAATE and its eight content areas: Evidence-Based Practice; Prevention and Health Promotion; Clinical Examination and Diagnosis; Acute Care of Injury and Illness; Therapeutic Interventions; Psychosocial Strategies and Referral; Healthcare Administration; and Professional Development and Responsibility. A minimum of 240 and maximum of 420 clinical hours is required to earn credit for the class. The student shall not work more than 70 hours/week and greater than 6 days in a row.
ATP-661 - Practicum III Athletic Injuries I  3.00 Credits
This 8-week full-immersion clinical rotation allows for student to gain advanced clinical experience in the profession of Athletic Training outside of the classroom and in the clinical setting. This rotation is designed to provide the athletic training student with immersive hands-on experiences with which to understand, recognize, evaluate, and treat athletic injuries and illnesses using the range of skills required of an athletic training professional. Under the supervision of a preceptor, the student will be challenged to transfer knowledge learned didactically and apply it in the clinical setting in an immersive manner. Students will be expected to integrate and apply knowledge and skills identified in the Standards as designated by the CAATE and its eight content areas: Evidence-Based Practice; Prevention and Health Promotion; Clinical Examination and Diagnosis; Acute Care of Injury and Illness; Therapeutic Interventions; Psychosocial Strategies and Referral; Healthcare Administration; and Professional Development and Responsibility. A minimum of 320 and maximum of 560 clinical hours is required to earn credit for the class. The student shall not work more than 70 hours/week and greater than 6 days in a row. The schedule is an effort to replicate a full-time certified athletic trainer's employment experience but with weekly work hour limitations.

ATP-662 - Practicum IV  3.00 Credits
This 8-week full-immersion clinical rotation allows for student to gain advanced clinical experience in the profession of Athletic Training outside of the classroom and in the clinical setting. This rotation is designed to provide the athletic training student with immersive hands-on experiences with which to understand, recognize, evaluate, and treat athletic injuries and illnesses using the range of skills required of an athletic training professional. Under the supervision of a preceptor, the student will be challenged to transfer knowledge learned didactically and apply it in the clinical setting in an immersive manner. Students will be expected to integrate and apply knowledge and skills identified in the Standards as designated by the CAATE and its eight content areas: Evidence-Based Practice; Prevention and Health Promotion; Clinical Examination and Diagnosis; Acute Care of Injury and Illness; Therapeutic Interventions; Psychosocial Strategies and Referral; Healthcare Administration; and Professional Development and Responsibility. A minimum of 320 and maximum of 560 clinical hours is required to earn credit for the class. The student shall not work more than 70 hours/week and greater than 6 days in a row. The schedule is an effort to replicate a full-time certified athletic trainer's employment experience but with weekly work hour limitations.

ATP-665 - Prev, Eval, Treat of Athletic Injuries II - Lower Extremities  3.00 Credits
A systematic approach to orthopedic/sports assessment and rehabilitation will be examined. The lower extremity will be studied in-depth stressing the anatomy, neurology, physiology, etiology, pathology, assessment and rehabilitation techniques. This course will also examine the knowledge, skills and values the entry-level Athletic Trainer must possess to plan, implement, document and evaluate the efficacy of therapeutic exercise programs for the rehabilitation and reconditioning of lower extremity injuries and illnesses of athletes and others involved in physical activity. Assessment techniques will be presented and discussed in a didactic manner as well as applied through lab experiences.

ATP-670 - Prev, Eval, Treat of Athletic Injuries - III - Spine  4.00 Credits
A systematic approach to orthopedic/sports assessment and rehabilitation will be examined. The head, neck and spine will be studied in-depth stressing the anatomy, neurology, physiology, etiology, pathology, assessment and rehabilitation techniques. This course will also examine the knowledge, skills and values the entry-level Athletic Trainer must possess to plan, implement, document and evaluate the efficacy of therapeutic exercise programs for the rehabilitation and reconditioning of the head, neck and spine injuries and illnesses of athletes and others involved in physical activity. Assessment techniques will be presented and discussed in a didactic manner as well as applied through lab experiences.

**ATP-675 - Strength and Conditioning**  
This course includes a functional, scientific approach to the design of strength and conditioning programs. Includes testing protocols used for measuring fitness, body composition, posture, flexibility, muscular strength, power, speed, and endurance. General fitness, wellness, and sports nutrition concepts and dietary supplements will be discussed.

**ATP-680 - Medical and Professional Ethics**  
Medical and Professional Ethics Understanding the philosophical principles related to biomedical ethics, patient-practitioner relationships and the role of the physician assistant provider within the health care system are the main topics encompassed in this lecture and discussion seminar course.

**ATP-685 - Org & Admin in Athletic Training**  
Design to educate student on topics that focus on understanding the dynamics of a complex healthcare system with regards to the delivery and management of individualized patient care, Principles of organization and administration of athletic training programs; management of personnel; legal aspects; relation of athletic trainer to athletic programs and sports medicine team.

**ATP-690 - General Medical Conditions&Pharm in AT**  
This course provides the student a thorough understanding of injury, illness and/or disease of various body systems; specific understanding of medical diagnostics, interventions (including pharmacology) and participation considerations for the athletic population are addressed. The student will be able to recognize, assess, differentially diagnose, know when to refer and treat different Illness/condition in patient populations through various learning modalities including but not limited to lectures, hands on skills, laboratory experiences, and so on.

**ATP-691 - Research-Collaborative Project I**  
This course will give students valuable experience in research design, data collection and/or analysis by playing an integral role in a faculty sponsored research project or collaborating with graduate or undergraduate students from another program on a collaborative project relevant to sport medicine anywhere on campus.

**ATP-692 - Research-Collaborative Project II**  
This course is a continuation of Research/Collaborative Project. Students will finish their research projects and focus on writing their manuscript for a peer reviewed journal. This course is designed for the student to collaborate with other students/faculty from different departments on campus to complete their projects. Writing intensive.
ATP-695 - Psychological Aspects of Injury & Rehab  3.00 Credits
This course focuses on understanding the psychological factors relative to exercise, injury, inactivity, and rehabilitation following injury. Strategies for identifying problems, intervening, and making referral are presented.

ATP-696 - Special Topics in Athletic Training  2.00 Credits
An in-depth study of particular topics, contemporary issues or concerns in Athletic Training. The course will be taught by a specialist(s) in the field related to the topic.

CADF-500 - CAD I for Industrial Design  3.00 Credits
The course introduces students to computer-aided design with a focus on the industrial design processes. In an intuitive fashion, students create and refine designs using a solids-modeling software package. In order to recognize the critical role CAD plays in the development of designs, students will use designs created in design studio courses as the subject matter of the CAD activities. Design-control drawings, three-dimensional rendered drawings and perspective drawings will be the course's output.

CADF-500N - CAD I for Industrial Design  3.00 Credits
The course introduces students to computer-aided design with a focus on the industrial design processes. In an intuitive fashion, students create and refine designs using a solids-modeling software package. In order to recognize the critical role CAD plays in the development of designs, students will use designs created in design studio courses as the subject matter of the CAD activities. Design-control drawings, three-dimensional rendered drawings and perspective drawings will be the course's output.

CADF-501 - CAD II Digital Design Techniques  3.00 Credits
This course will build upon principles introduced in introductory CAD courses. It is primarily a laboratory course in which students will learn to take their early design concepts through to the final presentation using advanced digital design techniques. Students will use multiple digital design software packages across computer platforms with an emphasis on CAID packages such as NURBS modelers and animation software, as well as vector-based, desktop-publishing programs and bitmap-based programs.

CMW-602 - Interviewing and Counseling  0.50 Credits
Interviewing and Counseling This is an on-campus intensive course focusing on the skills a midwife requires to successfully communicate with clients. This course will develop basic interviewing and counseling skills that build trust and demonstrate respect for women. Theory and practice of skills for interviewing and counseling women in all aspects of women's health care are offered.

CMW-610 - Antepartum Care  4.00 Credits
Antepartum Care This course examines the fundamentals of prenatal care, including the components of prenatal care, criteria for assessing perinatal outcomes and the application of the midwifery management process in the antepartum period. Theoretical foundations for diagnosis and dating of pregnancy, common discomforts of pregnancy, assessment of pelvic adequacy and assessment of fetal well-being and nutrition in pregnancy are covered in depth.

**CMW-611 - Intrapartum Care**  
4.00 Credits

Intrapartum Care This course teaches the principles of midwifery for the laboring woman and her family, correlating physiologic processes to the maternal and fetal experiences of labor and birth. Concepts of normal birth and its variations lead to thoughtful analysis of management options.

**CMW-612 - Postpartum/Newborn Care**  
2.50 Credits

Postpartum/Newborn Care This course develops the knowledge base for assessing the physical and emotional changes of the postpartum period, breastfeeding, early attachment and parenting behaviors. It provides the knowledge base for understanding the physiology of transition to extrauterine life and early newborn adaptations. Assessments for newborn health, gestational age and attachment behaviors are included.

**CMW-613 - Embryology and Genetics**  
1.00 Credits

This hybrid and on-campus course will cover basic concepts of genetics, including inheritance and genetic disorders. Concepts of embryology will include fertilization, implantation and the embryonic period.

**CMW-619 - Adv Perinatal Pathophysiology**  
4.00 Credits

This course examines the fundamentals of perinatal care of complex client(s) in the antepartum, intrapartum, postpartum and newborn periods. Students will utilize course materials to simulate and problem-solve written cases in a virtual midwifery practice. Midwifery management discussions and peer review will include a variety of topics of frequently seen complications in the perinatal period.

**CMW-631 - Clinical I Well Woman & Mater I**  
2.00 Credits

Clinical I Maternity and Well Woman Care I The course consists of supervised clinical practice in the midwifery management of uncomplicated antepartum and well-woman clients needing routine primary care, care for common gynecologic problems and contraception. Students learn consistent and accurate use of the midwifery management process with emphasis on subjective and objective data collection and beginning assessment and plan development. An on-campus skills workshop prepares students for this clinical course and includes risk assessment, development of a needs assessment and problem list, and pertinent hand skills. Additionally, history taking and physical assessment will be reviewed and demonstrated. Microscopy skills will be introduced. Contraceptive techniques will be reviewed.

**CMW-632 - Clinical II Well Woman & Mater**  
3.00 Credits
Clinical II Maternity and Well Woman Care 2 The course consists of supervised clinical practice in the midwifery management of uncomplicated antepartum and well-woman clients needing routine primary care, care for common gynecologic problems and contraception. Students are expected to continue to demonstrate consistent and accurate use of the midwifery management process with emphasis on independent development of an assessment, plan for, and evaluation of, care.

This course is three credits and consists completely of continued clinical practice in the midwifery management of uncomplicated antepartum and well woman clients needing routine primary care, care for common gynecologic problems and contraception. Prerequisite: take CMW-631;

CMW-633 - Clin.Iii Full Scop Midw Care I 4.00 Credits
Clinical III Full Scope Midwifery Care 1 Clinical III adds supervised clinical practice in the care of uncomplicated intrapartum, postpartum and newborn clients. Students learn consistent and accurate use of the midwifery management process with emphasis on subjective and objective data collection and beginning assessment and plan development in the care of intrapartum clients. Management of patients experiencing complications/emergencies requiring consultation/referral will be included. Emphasis is also placed on facilitating breast-feeding, positive family bonding, and management of newborns within their families. Prerequisite: take CMW-632

CMW-634 - Clin.Iv Full Scope Midw Care 2 5.00 Credits
Clinical IV Full Scope Midwifery Care 2 Clinical IV consists of supervised clinical practice in fullscope midwifery care in a student role. Students manage uncomplicated and complicated clients needing primary care, gynecologic, intrapartum and perinatal care. Students continue to demonstrate consistent and accurate use of the midwifery management process with emphasis on independent assessments, planning, implementation and evaluation of care, consultation and referral. Prerequisite: take CMW-633;

CMW-635 - Basic Skills in Health Care 3.00 Credits
Basic Skills in Health Care This course is an introduction to common health care skills and knowledge used in clinical practice. Presentation of self as care provider to diverse clientele with respect for human rights is emphasized. Contents include but are not limited to vital sign measurement and interpretation, infection control, sterile technique, wound care, urinary catheterization, venipuncture, fetal and uterine external monitoring application, emergency response procedures, therapeutic presence and communication, and skills in team building and patient advocacy. Medical terminology, written and electronic medical records and basic laboratory assessments will be reviewed. Practice and successful return demonstration of selected skills will be done at the student's first on campus experience after completion of this course. Prerequisite: CMW-635L Corequisite: CMW-635L

CMW-635L - Basic Skills in Health Care Lab 1.00 Credits
During this one week on-campus intensive laboratory course, students review, practice and demonstrate selected basic health care skills for midwifery practice such as vital sign measurement, sterile technique, bladder catheterization, medical terminology, documentation of care and presentation of self as a clinician with faculty guidance and feedback for skill development. Students in this laboratory course participate in hands-on practice using task trainers and simulated patient care scenarios to build beginning competency. Prerequisite: CMW-635 Corequisite: CMW-635

CMW-636 - Environments of Health Care 3.00 Credits
Environments of Health Care The effects of various environments of care on social dynamics between health care providers and patients will be explored. Theories of stress and coping and shared leadership will be addressed. Environments examined will include: home, office/clinic, hospital/health care institution, and care in place ‘disaster/emergency care. Available resources in each environment and the evidence supporting their use or misuse will be discussed. Observational clinical experiences in a variety of environments will be described and analyzed via reflective journals and asynchronous seminar discussion. Midwifery role and scope of practice in the various environments will be highlighted. Identifying local health care providers and resources for future practice referrals situates midwifery care in a system which provides for needs of women and their families ranging from simple to complex.

CMW-637 - Health & Illness in Clinical Practice
3.00 Credits
Health and Illness in Clinical Practice This course will examine concepts of health and illness at various stages of human development. The midwifery model of care and the midwifery management process will be introduced as frameworks guiding care practices. Wellness care and complementary integrated approaches will be discussed. Selected common health alterations at every life phase will be explored, with emphasis on the midwife's role for independent or collaborative management or referral. The plan of care for these clients ' including further testing or assessment, therapeutics and educational needs - will be examined. Problem based learning scenarios will serve as the stimulus for identifying learning needs and developing midwifery care strategies.

CMW-638 - Advanced Pharmacology I
2.50 Credits
This course is a comprehensive course in pharmacology for womens health care. The language of pharmacology and the principles of pharmacodynamics and pharmacokinetics serve as the foundation for the course. Major classifications of agents that are covered in the course include: hormones, antimicrobials, analgesia and anesthesia, over-the-counter drugs. Prescriptive writing, including legal and ethical aspects, is covered as well. At the completion of this course, students will have advanced knowledge in pharmacology.

CMW-639 - Advanced Pharmacology II
0.50 Credits
Advanced Pharmacology II This course is the second in a two-part series series in pharmacology for women's health care. In this course, we will discuss concepts and issues in drug prescription for pregnant women and their newborns. Changes in pharmacodynamics and pharmacokinetics during pregnancy are reviewed. Major classifications of agents that are covered in the course include: vitamins and minerals; uterotonins/uterotropins; and drugs administered to newborns.

CMW-640 - Prep for Full Scope Practice
1.00 Credits
Preparation for Full Scope Midwifery Practice This on-campus course explores issues in midwifery practice including: the role, rights and responsibilities of the midwife in the clinical practice setting; the legal, ethical and financial realities of professional midwifery practice; alternatives in full scope midwifery care with examples from experts; and environments of midwifery care including home, hospital and birth center settings. Students take a closer look at one birth center model of childbearing care by spending time on site. Content covered in this visit includes: 1) the history, philosophy and development of the birth center movement in the United States and 2) the accreditation and needs assessment process.

CMW-641 - Prep for Office Based Pract.
1.00 Credits
This on-campus intensive course focuses on building the office-based clinical skills a midwife requires to successfully communicate with and care for clients. Clinical decision making and use of the midwifery management process is emphasized. Hand skills as well as interviewing and counseling skills are reinforced during laboratory simulation. Clinical microscopy and laboratory result interpretation are practiced. Skills for building trust and demonstrating respect for clients are woven throughout. Expectations for clinical rotations are reviewed.

CMW-642 - Professional Issues 3.00 Credits
This course is designed to provide an appreciation of the history and critical issues in midwifery, as well as health care in the United States in general. This course will also increase appreciation of the variety of roles that a midwife can play and aid in understanding rights and responsibilities as a midwifery health care provider.

CMW-643 - Adv Physiol & Patho Prim Care 3.00 Credits
This course focuses on human physiology and pathophysiology and the application of these principles in the primary care of women. Anatomical and physiological principles necessary for health care professionals are reviewed. Normal and abnormal structures and processes underlying health and disease are explored with connections made to assessment and diagnosis in the clinical setting. Midwifery management of common primary care conditions across the health span is presented and explored.

CMW-644 - Advanced Pharmacology II 1.50 Credits
Advanced Pharmacology II prepares the midwife to provide appropriate drug therapy to women during pregnancy, intrapartum, and the postpartum period as well as to the newborn. Changes in pharmacodynamics and pharmacokinetics during pregnancy and in the neonatal period are reviewed. A general knowledge of pharmacotherapeutics is applied to the treatment of a variety of conditions during pregnancy, including hyperemesis, gestational diabetes, and urinary tract infections. The course also explores the use of vitamin and mineral supplementation throughout a woman's lifetime.

CMW-645 - Healthcare of Women 4.00 Credits
This course presents basic principles and application of well woman care across the life span. Reproductive anatomy and physiology is reviewed. Sexuality, menstrual cycle function/dysfunction, common gynecological conditions and problems, and family planning are common threads in this course. Midwifery management of gynecologic conditions, from routine care to more complex problems, is explored.

CMW-646 - Midwifery Nexus Project 1.50 Credits
As the culminating project for your basic midwifery education, this course provides a framework for students to further develop a particular area of interest relevant to midwifery practice emphasizing active, collaborative engagement with real world problems. Consistent with the definition of practice used by the American College of Nurse-Midwives (2011) for advanced midwifery education, this final project encompasses not only clinical care, but also education, policy, administration, and research. Each student will dialogue with faculty to develop and execute a final project that will contribute to the profession of midwifery.

CMW-699 - Advanced Health Assessment 3.00 Credits
This course presents the knowledge and skills for primary health care providers to complete a thorough and sensitive comprehensive history and physical examination on a client, with emphasis on the midwifery role. A professional approach to the development of the provider-client relationship is introduced. A methodical sequence to history taking, systems review and symptom appraisal is described. Assessment of the physical signs of health and health alterations is reviewed. Special populations, cultural variations and age-related issues across the life-span are considered. Selected diseases and disorders seen in primary care are explored for their manifestations found in a history and physical assessment. Clinical reasoning, critical decision-making, and the midwifery management process are emphasized and practiced. At the completion of this course, students will have advanced knowledge and skills in health assessment.

**CSL-905 - Systms Think & Imp to Leadrshp**  
3.00 Credits
This course critically examines the systems of systems approaches including Early Cybernetics, General Systems Theory, Systems Dynamics, Soft and Critical Systems, Later Cybernetics, Complexity Theory, Learning Systems, and Family Systems theory. The use of a systems thinking framework and specific systems approaches in combination with methods of problem solving and problem dissolving will be examined to discern the implications and applications when leading complex organizations.

**CSL-906 - Complx Appr,theor,imp to Ldrsh**  
3.00 Credits
This course critically examines approaches and theories associated with complexity and complex systems including complex adaptive social systems, complexity leadership models, emergence and leadership, mathematical models and computational modeling of leadership, and methods and metaphors of complex systems. How complexity theories are integrated and their implication for leadership will be discerned.

**CSL-907 - Complx Problem & Opportunity**  
3.00 Credits
This course critically examines the approaches of formulating complex challenges (problems and opportunities), how inadequate formulation leads to error and appropriate formulation leads to effective methodological and other research interventions. The current literature addressing how complex challenges are formulated and addressed across domains including health care, education, finance, government, nonprofit, and other complex organizational systems will be reviewed, analyzed and synthesized.

**CSL-908 - Complx Syst Ldrshp Proseminar**  
3.00 Credits
This course will invite and engage visiting complex system leaders to present and discuss their perspectives, frameworks, methods, and outcomes. Students will examine and evaluate these presentations and based on the extant literature and their professional interests will generate research and design inquiry topics and projects.

**CSL-909 - Research Scholarship Project**  
3.00 Credits
In lieu of a dissertation which all admitted into this program will have previously completed, this course requires the student to write two high quality academic papers that address or are informed by complex systems leadership. Each paper will meet the author guidelines for an identified peer-review academic journal selected by the student and advising committee and will be judged by the advising committee on its merit of being accepted and published. Papers will be selected from among the following or equivalent types: argumentative, research analytic or synthetic, compare-and-contrast, cause-and-effect or design-based, reports of controlled or qualitative research, or interpretive.

CTC-510 - History and Theory of Art Therapy 3.00 Credits
This course provides students with an understanding of the foundation of the art therapy profession, including history, philosophy, milestones, practitioners, and overview of the major theories in art therapy. Students will examine the roots of art therapy in culture, and the roots of the art therapy profession as a clinical discipline. Students will become familiar with the founders of modern art therapy including those who have developed the profession within specific theoretical approaches. Students will develop understanding of how different theories might manifest within the practice of art therapy.

CTC-512 - Ethics, Standards & Prof Orient in At 3.00 Credits
Study addresses professional roles and functions of art therapists and agencies/organizations in which art therapists work, a history of ethical principles, and current and developing issues of ethical practice. Attention will be given to showing art, saving art, online practice, and ethical decision making models. Discussion includes membership in professional art therapy organizations as well as credentialing and licensure.

CTC-520 - Studio and Techniques of Art Therapy 3.00 Credits
This course will expose students to direct experience of the therapeutic utility and psychological influence of art processes and materials. Art making will be explored relative to assessment techniques, intervention strategies, treatment planning, and building of therapeutic rapport. Study will include systemic applications of art such as the Expressive Therapies Continuum (ETC), the Formal Elements of Art Therapy Scale (FEATS), and the Diagnostic Drawing Series (DDS). Open only to students in the CTC art therapy specialization.

CTC-601 - Orientation to the Counseling Profession 3.00 Credits
Orientation to the Counseling Profession provides students with an understanding of the foundation of the counseling profession, including history, philosophy, and the essential fund of knowledge for counseling practice. Study addresses professional roles and functions of counselors and counseling agencies, ethical practice and issues, and models of practice and administration. Discussion includes membership in professional organizations and credentialing.

CTC-602 - Practicum I: Theory Prac Coun 3.00 Credits
This course provides didactic and experiential learning of advanced counseling theory and practice, with an introduction to theory-driven evidenced-based practices for trauma treatment. Classroom learning and readings provide an in-depth overview of a variety of theoretical approaches underlying individual and group practice in counseling. Discussion will include the basic concepts, interventions, research, practice and issues related to each classic and contemporary approach. Study will address how each approach conceptualizes client presentation and helps the student determine appropriate counseling interventions. Prerequisite: CTC-601 Corequisite: CTC-601
CTC-602A - Practicum I: Theory Prac Coun Grp 0.00 Credits

CTC-603 - Human Growth & Development 3.00 Credits
Human Growth and Development provides an understanding of the development of the individual through the lifespan. Study explores the development of attachment, cognition, emotions, and personality. Discussion includes the perspectives of the bioecological model and factors influencing healthy and unhealthy development, with particular attention to the effects of trauma causing events and contexts on individuals of all ages.

CTC-604 - Psychopathology 3.00 Credits
This course provides an understanding of the classification, etiology, and treatment of psychopathology. Study includes the examination of symptomatology, clinical presentation, diagnostic criteria, and diagnosis involved with disorders prevalent within counseling contexts.

CTC-605 - Foundation of Trauma Counseling 3.00 Credits
CTC 605 Foundations of Trauma Counseling provides an understanding of the phenomena of trauma and human responses, treatment, and recovery. Discussion includes identifying major types of trauma, effects, assessment, and a survey of clinical interventions. The neurobiology of trauma and responses is explored, with attention to its relevance to understanding response behaviors and treatment.

CTC-605CT - Foundation of Trauma Counseling 0.00 Credits
Foundations of Trauma Counseling provides an understanding of the phenomena of trauma and human responses, treatment, and recovery. Discussion includes identifying major types of trauma, effects, assessment, and a survey of clinical interventions. The neurobiology of trauma and responses is explored, with attention to its relevance to understanding response behaviors and treatment.

CTC-606 - Social and Cultural Diversity 3.00 Credits
This course provides an understanding of the social and cultural influences that affect the development, interpersonal relationships, and life experience of diverse client populations. The counseling discipline is committed to the helping professional being prepared to work with individuals with varying backgrounds, including race, ethnicity, culture, gender, sexual orientation, religious preference, and physical disability. The special counseling needs of diverse populations is discussed, including issues relating to different life experiences and needs, treatment approaches, and access to resources.

CTC-607 - Adv. Counseling Theory & Prac 3.00 Credits
This course provides didactic and experiential learning of advanced counseling theory and practice. Classroom learning and readings provide an in-depth overview of a variety of theoretical approaches underlying counseling practice. Discussion will include the basic concepts, interventions, research, practice and issues related to each classic and contemporary approach. Study will address how each approach conceptualizes client presentation and will further help the student to determine appropriate counseling interventions. The experiential portion of this course will be completed in both practicum field placements (as a continuation of CTC 602), and within a small group lab facilitated by a faculty instructor.

### CTC-608 - Group Work in CTC 1.50 Credits
This course will provide an understanding of the theory and practice of group counseling. Study explores principles of group dynamics and processes, methods of group interventions and counseling, and characteristics of types of participants, leadership, and facilitation, especially in regards to trauma intervention and counseling. The course includes direct experience in which students design a group intervention and practice group facilitation skills.

### CTC-609 - Counseling Assessment 3.00 Credits
This course surveys counseling assessments and techniques used in educational, counseling and clinical settings. Study will include selection of appropriate instruments, administration, scoring, and interpretation. Basic statistic concepts will be discussed to provide an understanding of test rationale and construction.

### CTC-610 - Counsln Research and Evaltn 3.00 Credits
This course presents a study of basic statistics and research methods used in the social sciences and the implications and application to counseling, with predominant attention to community and trauma counseling. Students will have the opportunity to review current research and literature and evaluate its application to practice.

### CTC-611 - Career Development 3.00 Credits
This course provides an understanding of career development related to the counseling process and context. Study explores career development theory, methods of exploration and evaluation, planning and organization strategies, and resources available for career counseling. Discussion will include the examination of interrelationships between work and career, identity, family and social relationships, and psychological health.

### CTC-612 - Crisis Preventn & Interventn Strategies 3.00 Credits
With increasing prevalence rates of acute crisis situations in our society, counselors are required to have knowledge and competencies for effective crisis intervention. This course involves a study of evidenced-based applications of crisis intervention with identified at-risk populations, as well as a study of the literature on resilience and fostering growth in the aftermath of crisis. Special vulnerabilities and ethical concerns for at-risk populations will be examined. Special topics of study include suicide, sexual assault, domestic violence, substance abuse, grief and loss, and violent behavior in institutions.

### CTC-612CT - Crisis Preventn & Interventn Strategies 0.00 Credits
With increasing prevalence rates of acute crisis situations in our society, counselors are required to have knowledge and competencies for effective crisis intervention. This course involves a study of evidenced-based applications of crisis intervention with identified at-risk populations, as well as a study of the literature on resilience and fostering growth in the aftermath of crisis. Special vulnerabilities and ethical concerns for at-risk populations will be examined. Special topics of study include suicide, sexual assault, domestic violence, substance abuse, grief and loss, and violent behavior in institutions.

CTC-613 - Attachmnt Relatns & Fam Therpy  
This course couples an exploration of attachment theory and research with the study of couples and family therapy. Discussion examines historical and contemporary perspectives on attachment and the relevance for understanding the development of the individual, interpersonal relationships and family dynamics. Major approaches to family therapy are studied, and discussion includes specific application to understanding the influence of trauma on family systems and implications for trauma therapy.

CTC-614 - Addictions Theory & Practice  
Addictions Theory and Practice provides a focused presentation of theories of counseling related to addiction treatment, including research, treatment processes, and treatment issues. Discussion examines assessment and diagnosis, co-occurring disorders, trauma-related issues, and special treatment issues with specific populations. The course is oriented toward developing a practical counseling framework for utility, while being knowledge rich and flexible for diverse populations.

CTC-615 - Relatn Trauma to Childhd Dev.  
This course integrates an understanding of typical processes and stages of childhood growth and development with an appreciation for the impact interactions by caregivers can have on the development of healthy/positive physical, intellectual, emotional, social and relational outcomes for infants, toddlers and children. Exploring what can influence positive outcomes opens minds to new awareness that in turn leads to discussions around the potential for negative outcomes, such as those connected with adverse childhood experiences and other forms of trauma. Students will identify and understand some causes of trauma and the impact of trauma on the growth, development and functioning of the brain. Discussion provides an overview of practices that influence healthy growth and development to inspire and inform such practices that can lead to the prevention of adverse experiences in childhood. An additional focus is the preparation for future exploration around the causes and impact of childhood adversity, and appropriate interventions for children and families who have experienced adversity.

CTC-616 - Experiential Training Group in CTC  
This course will reinforce the learning of CTC 608, Group Work in Community and Trauma Counseling, by allowing students to experience being a process group member. This course provides a deeper understanding of the theory and practice of group counseling as students observe and reflect upon group counseling concepts related to forming groups, establishing norms, the stages of group, group membership, leadership skills, and other special considerations related to process groups.

CTC-617 - Enhancing Trauma Awareness  
This course will reinforce the learning of CTC 608, Group Work in Community and Trauma Counseling, by allowing students to experience being a process group member. This course provides a deeper understanding of the theory and practice of group counseling as students observe and reflect upon group counseling concepts related to forming groups, establishing norms, the stages of group, group membership, leadership skills, and other special considerations related to process groups.
This course provides vital information on the causes of trauma, the complexity of trauma's presentation in children, and the impact of trauma on development. Common trauma-related responses in children will be explored, and suggestions for trauma-sensitive behaviors on the part of professionals and others who serve as caregivers of children will be provided. This course aims to develop a greater awareness of the potential impact of trauma on a myriad of related developmental processes.

**CTC-618 - Applying Trauma Principles in Practice**  
3.00 Credits  
This course focuses on trauma knowledge and skill acquisition, coupled with reflective practice to enhance students' progression toward trauma competence. Special attention is paid to the application of trauma principles within real-life situations to promote transfer of training. Prerequisites: CTC 615 and 617

**CTC-619 - Counseling & Art Therapy Assessment**  
3.00 Credits  
This course will give graduate students an overview of assessment in the counseling and art therapy professions, including history, purpose, development, theory, and current applications. Students will learn about the value of assessment in practical clinical work, and will have the opportunity to give, take and write up assessments. This course is experiential and students will explore the use of assessments in clinical evaluation and treatment planning.

**CTC-620 - Adv Group, Couples & Family Art Therapy**  
3.00 Credits  
This course will give graduate students an in-depth study into the theory and dynamics of group art therapy, including approaches unique to couples and families. Students will have the opportunity to explore advanced group process including aspects of leadership and facilitation, as merged with art therapy techniques to groupwork. This course includes direct experience in which students participate as group members during in-group activities.

**CTC-630 - Enhancing App of Trauma Principle**  
3.00 Credits  
Enhancing Practical Application of Childhood Trauma Principles This course builds upon previous learning in childhood trauma, and expands upon the practical application of childhood trauma knowledge and skills through a practicum approach. Students engage in observations, planning, implementation and evaluation, and participate in Reflective Processing to enhance their development and competence.

**CTC-651 - Neurobiology of Trauma**  
3.00 Credits  
CTC 651 Neurobiology of Trauma provides an understanding of the neurobiological processes involved in trauma experiencing, processing, and post-trauma adaptation. Study includes affective neuroscience, arousal modulation, memory processes involved in trauma experiences, executive functioning, and post-trauma adaptation of these and other areas and processes. Discussion examines application of neuroscience to understanding trauma experiencing and treatment.

**CTC-651CT - Neurobiology of Trauma**  
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CTC-700 - Practicum II: Theory Prac Coun  0.00 Credits
As a continuation of CTC 602 Practicum I, CTC 700 Practicum II provides further opportunity for clinical practice and supervision at practicum field placements. Students will complete at least 100 hours on site at their practicum placement (across Practicum I and Practicum II), and will continue to develop counseling skills in a community or institutional mental health setting under the direct supervision of a mental health professional. Class discussions will entail group supervision led by University faculty. Class meetings provide students the opportunity for case processing, as well as supervision around various aspects of professional practice. Other discussion topics include an orientation toward a systems perspective, wellness and prevention perspectives, evidence-based practices, theory-driven interventions, and multicultural competence. Prerequisite:TAKE CTC-602

CTC-701 - Practicum II -Field Experience  3.00 Credits
As a continuation of CTC 602 Practicum I, CTC 701 Practicum II provides further opportunity for clinical practice and supervision at practicum field placements. Students will complete at least 100 hours on site at their practicum placement (across Practicum I and Practicum II), and will continue to develop counseling skills in a community or institutional mental health setting under the direct supervision of a mental health professional. Class discussions will entail group supervision led by University faculty. Class meetings provide students the opportunity for case processing, as well as supervision around various aspects of professional practice. Other discussion topics include an orientation toward a systems perspective, wellness and prevention perspectives, evidence-based practices, theory-driven interventions, and multicultural competence.

CTC-790 - Summer Internship Supervision  0.00 Credits
As a prelude to CTC 791 Internship I, CTC 790 Internship Supervision provides an opportunity for students to engage in clinical practice at Internship field placements and to receive the necessary faculty supervision during the summer semester. Some training sites require a summer start date, and some students' schedules require more months to meet the established requirements. Students are required to complete at least 600 hours on site at their Internship placement (across Summer Internship Supervision, Internship I and Internship II), and will continue to develop counseling skills in a community or institutional mental health setting under the direct supervision of a mental health professional. Class discussions will entail group supervision led by University faculty. Class meetings provide students the opportunity for case processing, as well as supervision around various aspects of professional practice. Other discussion topics include an orientation toward a systems perspective, wellness and prevention perspectives, evidence-based practices, theory-driven interventions, and multicultural competence.

CTC-791 - Internship in CTC I  3.00 Credits
The internship is intended to represent the comprehensive work experience of the professional counselor consistent with the program area of study. Students must complete 600 clock hours over two semesters, begun after successful completion of the practicum, and with 240 clock hours of direct service including experience leading groups. This experience is an opportunity for the student to become familiar with the routine practices and processes of the professional counselor including assessment, record-keeping, supervision, collaboration, referral, in-service trainings and staff meetings. Students will attend periodic group supervision facilitated by a faculty supervisor; these class meetings count toward the clock hours required for the course. Prerequisite:CTC-602
CTC-792 - Internship in CTC II  3.00 Credits
The internship is intended to represent the comprehensive work experience of the professional counselor consistent with the program area of study. Students must complete 600 clock hours over two semesters, begun after successful completion of the practicum, and with 240 clock hours of direct service including experience leading groups. This experience is an opportunity for the student to become familiar with the routine practices and processes of the professional counselor including assessment, record-keeping, supervision, collaboration, referral, in-service trainings and staff meetings. Students will attend periodic group supervision facilitated by a faculty supervisor; these class meetings count toward the clock hours required for the course. Prerequisite: CTC 791

CTC-793 - Internship Extension in CTC I Internship Extension in CTC II  0.50 Credits
The internship is intended to represent the comprehensive work experience of the professional counselor consistent with the program area of study. Students must complete 600 clock hours over two semesters, begun after successful completion of the practicum, and with 240 clock hours of direct service including experience leading groups. This experience is an opportunity for the student to become familiar with the routine practices and processes of the professional counselor including assessment, record-keeping, supervision, collaboration, referral, in-service trainings and staff meetings. Students will attend periodic group supervision facilitated by a faculty supervisor; these class meetings count toward the clock hours required for the course.

CTC-794 - Internship Extension in CTC II  0.50 Credits
The internship is intended to represent the comprehensive work experience of the professional counselor consistent with the program area of study. Students must complete 600 clock hours over two semesters, begun after successful completion of the practicum, and with 240 clock hours of direct service including experience leading groups. This experience is an opportunity for the student to become familiar with the routine practices and processes of the professional counselor including assessment, record-keeping, supervision, collaboration, referral, in-service trainings and staff meetings. Students will attend periodic group supervision facilitated by a faculty supervisor; these class meetings count toward the clock hours required for the course.

DMM-610 - Foundations in Emergency Mgmt  3.00 Credits
This course provides participants with a general overview of disaster events and covers the key components of disaster prevention, risk assessment and disaster management including: types of disasters, phases of disasters (preparedness, mitigation, response, and recovery), a brief history of disaster management in the US, agencies involved in disaster situations, public service disruptions and actions, the FEMA Whole Community concept, resilience, media relations, incident command systems and mass casualty triage. We focus on the practical application of management principles including the development of key tools including the emergency operations plan and the THIRA.

DMM-611 - Prin of Disaster Medicine and Management  3.00 Credits
Principles of Disaster Medicine and Management This course provides students with a general overview of disaster events and covers the key components of disaster prevention, risk assessment and disaster management including: types of disasters, phases of disasters (preparedness, mitigation, response, and recovery), agencies involved in disaster situations, public service disruptions, mass casualty triage, human resource issues, media relations, ethical considerations, communications and incident command systems.
DMM-612 - Homeland Security &Defense 3.00 Credits
The US has embraced the homeland security monolith having neither fully understood nor tamed all that it encompasses. This challenging course provides a broad overview of homeland security and homeland defense as undertaken in the United States since 9/11. The goal is to provide the generally accepted body of knowledge required of the homeland security professional. The course focuses on four areas: the enemy, animosity and potential outcomes of threats posed; the policies and procedures enacted since 9/11; federal, state and local governmental roles; and legal issues critical to the conduct of homeland security and defense activities by the military including the National Guard. The student will gain an understanding in asymmetric thinking, develop an appreciation for the growing body of literature in the discipline of homeland security, and have the opportunity to examine a key issue in depth through a term research paper.

DMM-613 - Intl & Humanita Disaster Mgmt 3.00 Credits
International and humanitarian disaster management has steadily evolved over decades. The increased emphasis on global disaster preparedness from both governmental and private sectors has widespread application across all borders. Through the exploration of disaster models, public health, principles, economic, social and political elements, students will explore the application of the disaster cycle.

DMM-615 - Hazardous Materials & Ind. Saftey 3.00 Credits
Hazardous Materials & Industrial Safety This course provides an overview of the major hazardous materials commonly encountered and their effects on humans and wildlife. Industrial waste, pollution, nuclear waste, hazardous waste transportation and the management of hazardous material accidents are all covered.

DMM-617 - Disaster Mapping 3.00 Credits
This course will provide students with an introduction into geographic information systems by infusing it into emergency management. The class will focus on the 3 major elements: 1) Fundamentals of GIS, 2) Knowledge of GIS software, and the 3) Understanding of the spatiality in emergency management situations.

DMM-619 - Natural Disasters 3.00 Credits
Natural Disasters The purpose of this course is to develop an understanding of the various types of natural disasters which plague the world. The student will study the forces of nature which cause these events to occur, the population effects of the event itself and the dynamic nature by which the event spawns further cataclysmic change in our environment.

DMM-623 - Weapons of Mass Destruction 3.00 Credits
Weapons of Mass Destruction This course introduces students to the various types of biologic, chemical and nuclear/radiologic weapons, along with the clinical manifestations and management of exposure to these. Decontamination and institutional procedures for weapons of mass destruction incident management are also covered.

DMM-624 - Org Risk and Crisis Mgmt 3.00 Credits
Organizational Risk and Crisis Management This course examines key concepts in the understanding and management of risk in an organizational environment. Aspects of risk evolution, tools and techniques, project vulnerabilities, uncertainty, modeling and risk software are included.

DMM-625 - Business Continuity-Planning for Crisis 3.00 Credits
Business Continuity - Planning for a Crisis The course explores the issues in maintaining a business in the midst of crisis and the disruption of resources. It includes planning for, responding to, and recovering from an internal or external crisis in the organization.

DMM-626 - Org. Recovery Prep and Plan 3.00 Credits
This course discusses business and organizational implications of the disaster recovery lessons taught by 9/11, the California energy crisis, the anthrax scare and other related disastrous events as they relate to emergency decision making and planning. Special emphasis is directed toward infrastructure and IT/IS implications of process continuation.

DMM-627 - Principles of Terrorism 3.00 Credits
The types of terrorism, along with the social, political and psychological motivations and ramifications of terrorism are the focus of this course. Threat risk assessment and prevention strategies are also components.

DMM-631 - Organizational Management and Communication in Disasters 3.00 Credits
Organizational Management and Communication in Disasters This course introduces students to theories of organizational dynamics and management as it pertains to crisis and disaster situations. The course also explores communication within the organization, with external agencies, and with the public and media during and after disaster events.

DMM-635 - Psychological Aspects of Disasters 3.00 Credits
Psychological Aspects of Disasters This course explores the psychological sequelae of disasters and traumatic events including acute stress disorder and posttraumatic stress disorder. The clinical presentation, assessment and management of these disorders are discussed. Clinical interventions such as post-event debriefing, short-term counseling and mental health referral in disaster situations are also covered. This course includes an intensive on-campus experience. Offered in Summer 1 only.

DMM-639 - Prin of Disaster Excercise & Drills 3.00 Credits
Principles of Disaster Exercises & Drills This course will prepare students to develop and implement effective emergency disaster drills and tabletop exercises. It will also encompass the principles of mass casualty triage. The principles of adult learning and educational assessment are also covered. This course includes an intensive on-campus experience. Offered in Summer 1 only Prerequisite:DMM-611 or 610

DMM-640 - Logistic Management for Disasters 3.00 Credits
By applying logistics, financial and supply chain principles to actual disaster and humanitarian events during the last 25 years, students will focus on what preparedness actions are necessary to ensure the adequacy of supplies and goods to citizens and emergency personnel during a disaster event. The basic principles for supply chain management for healthcare will also be reviewed. An examination of both US and international incidents will focus on planning and response. Further, we will discuss the roles of governments in delivery of logistics assistance, and the functions of Non-Governmental Organizations (NGO) in these processes.

DMM-643 - Public Health Impl. Of Disasters  
3.00 Credits

Public Health Implications of Disasters  
The purpose of this course is to develop an understanding of the concepts of public health as they relate to disaster management. The student will apply Noji's five phases of a disaster to actual disaster events during the last 25 years and will focus especially on what preparedness actions are necessary to safeguard the health of citizens and emergency personnel during a disaster event. Public health issues in disaster management that are covered include water and food supply disruption and contamination, waste disposal, environmental pollution and infectious disease outbreaks. The basic principles of epidemiology and health surveillance are also reviewed.

DMM-647 - Disaster Emergency Planning  
3.00 Credits

Disaster Emergency Planning  
This course encompasses the major aspects of a comprehensive disaster plan including: physical resources, human resource considerations, interagency interaction, communication, incident command systems, evacuation of injured, crowd control, traffic management, hospital capacity, decontamination, material management logistics, media relations, mortuary services, survivor and rescuer grief counseling, and exercises.
Prerequisite:DMM-611

DMM-648 - Emergency Preparedness  
3.00 Credits

Emergency Preparedness for Special Needs Population  
The term 'special needs' is widely used within the disaster services and the emergency management world. It generally refers to an extremely broad group of people with physical disabilities, people with serious mental illness, pregnant women, children, and the elderly. These groups represent a large and complex variety of concerns and challenges. Many of these groups have little in common beyond the fact that they are often left out of programs, services, and emergency planning. This course will introduce students to planning, responding, mitigating, and recovering from a disaster as it pertains to the special needs population. This will include specific functional roles, resource identification and response of personnel involved in disaster management. Students will be presented with problem based learning assignments and based on the assigned readings, research, and personal experiences, they will be able to analyze and apply the theories and principals pertaining to the response and recovery of an event to these special populations.

3.00 Credits

Healthcare emergency management has steadily evolved over decades but at an increased rate since September 11, 2001. The increased emphasis on disaster preparedness from both the public as well as regulatory agencies now requires a level of knowledge beyond the technical level. This course is designed to provide a foundation in hospital emergency preparedness.

DMM-651 - Appl Research Meth & Statistic  
3.00 Credits
Applied Research Methods & Statistics Basic statistics and research methods used in the medical and social sciences are covered in this course. Students will have the opportunity to review current medical research and evaluate it with regard to its application to practice.

**DMM-653 - Clinical Disaster Medicine**  
3.00 Credits

This course is designed to expose the student to the clinical aspects of disaster medicine by encouraging exploration of the roles of healthcare providers in disasters, the study of clinical situations that occur during disasters, analysis of public, occupational, and environmental health issues, and applying clinical research and epidemiology concepts.

**DMM-755 - Capstone Experience in Disaster Medicine And Management**  
3.00 Credits

Capstone Experience in Disaster Medicine and Management In this capstone experience students will complete either an: original research project; an original disaster plan; a systematic review paper on a disaster-related topic with thorough literature search, analysis and compilation; or an internship with disaster plan. All of these will involve a thorough literature search, an analysis of the current research, integration of multiple facets of disaster medicine and management and completion of a substantial written product. Prerequisite:DMM-611 or 610DMM-631DMM-647

**DMM-791 - Internship Disaster Medicine and Management**  
3.00 Credits

Internship in Disaster Medicine and Management This experience is an optional internship in disaster medicine or management at an agency involved in disaster preparedness or response. This may include international experiences when available.

**DMM-797 - Special Topics in Dmm**  
0.00 - 3.00 Credits

Special Topics in Disaster Medicine and Management This course provides an opportunity to explore topics in disaster medicine and management not developed in other courses. Examples include recent complex humanitarian emergencies, disasters, or catastrophes, new practice technology, essential health policy changes, new research findings, and other cutting edge materials. Students may take this course more than once as the topics differ each time it is offered. Prerequisite: take DMM-611 or 610;

**DMW-500 - Orientation Residency**  
0.50 Credits

During this required on-campus residency, students create a scholarly community through social and academic workshops, navigate university resources, and review the doctoral curriculum. Students examine social determinants of health and consider their impact on women, newborns and families. Using the framework of the ACNM document, Hallmarks of Midwifery, and design thinking strategies, students enter into a dialogue about important issues facing the profession related to clinical practice, policy and advocacy, education, and administration. In collaboration with faculty, students continue exploration of possible topics and scope of the Advances in Midwifery (AIM) project, through the lens of feminist or other theories.

**DMW-800 - Current Issues in Midwifery & Women Hlt**  
2.00 Credits
Students will explore current issues in midwifery and situate their doctoral project in these contexts. Current national and global agendas in midwifery translational research, education, clinical practice, and policy will be explored in depth. Students will consider emerging issues in healthcare, educations, and practice that can guide the formation of the AIM project statement of purpose.

DMW-801 - Aim Workshop I 1.00 Credits
Students will engage in an iterative process to generate clear doctoral project statements informed by course discussion, readings, and individual student goals to contribute to the advancement of midwifery. By the conclusion of this course, students will write an AIM project question in a framework approved by faculty, based on analysis of current issues in midwifery and women's health and grounded in the hallmarks of midwifery.

DMW-802 - Aim Workshop II 1.00 Credits
This course is designed to help students advance their work related to their AIM project. Through course discussion, readings, and individual work, students will refine their doctoral project statement, understand the influence that place and setting may have on the development and implementation of their project, and develop skills they need to promote their project to their key stakeholders.

DMW-802E - Aim Workshop II Extension 1.00 Credits
This course is a one credit extension for students who were unable to complete AIM Workshop II due to extending circumstances and who were awarded a grade of TH in AIM Workshop II. All expectations for AIM Workshop II must be fulfilled by the conclusion of this course. Upon successful completion of AIM Workshop II Extension, a grade will be submitted.

DMW-803 - Aim Workshop III 3.00 Credits
This course is designed to help students advance their work related to their AIM project. Through committee feedback, readings, and mentored individual work, students will finalize their doctoral project statement, create an operational plan for their project, and finalize their review article related to their AIM project.

DMW-803E - Aim Workshop III Extension 1.00 Credits
This course is a one-credit extension for students who were unable to complete the AIM Workshop 3 due to extending circumstances and who were awarded a grade of TH in AIM Workshop 3. All expectations for AIM Workshop 3 must be fulfilled by the conclusion of this course. Upon successful completion of AIM Workshop 3E, a grade will be submitted.

DMW-804 - Aim Workshop IV 3.00 Credits
This course is designed to help students complete their work related to their AIM project. With committee feedback and mentored individual work, students will implement and complete their doctoral Advances in Midwifery (AIM) project.

DMW-804E - Aim Workshop IV Extension 1.00 Credits
This course is a one-credit extension for students who were unable to complete the AIM Workshop 4 due to extending circumstances and who were awarded a grade of TH in AIM Workshop 4. All expectations for AIM Workshop 4 must be fulfilled by the conclusion of this course. Upon successful completion of AIM Workshop 4E, a grade will be submitted.

DMW-805 - Organizational Change 3.00 Credits
This course introduces students to the principles of organizational change and applies these principles to real world experiences. This course focuses on helping students understand how to integrate systems thinking into an analysis of the human, organizational, and social objectives within various types of health care organizations. It also examines how organizations assist or impede the development of healthcare quality or safety improvement initiatives and how organizations adapt or do not adapt to change.

DMW-806 - Aim Workshop V 3.00 Credits
This course is designed to help students analyze, synthesize, and write up the results of their completed AIM Project conducted during AIM Workshop 4. With committee feedback and mentored individual work, students will use appropriate qualitative and quantitative methods to describe the results of their doctoral Advances in Midwifery (AIM) project and situate their results into the body of evidence relevant to their topical area.

DMW-806E - Aim Workshop V Extension 1.00 Credits
This course is a one-credit extension for students who were unable to complete the AIM Workshop 5 due to extending circumstances and who were awarded a grade of TH in AIM Workshop 5. All expectations for AIM Workshop 5 must be fulfilled by the conclusion of this course. Upon successful completion of AIM Workshop 5E, a grade will be submitted.

DMW-807 - Data Driven Midwifery & Women's Healthcare 1.50 Credits
Increasingly, midwives and other health care providers must demonstrate the value of their work. In this class, you will become familiar with various electronic means to collect practice-level data and how to analyze it to support innovative practice. You will also use publicly available electronic data to inform health care practice, education, policy and advocacy, or administration. This is a required course for Doctorate of Midwifery students. It is open to graduate students within Jefferson with permission of the instructor.

DMW-808 - Health Policy Analysis: Part I 1.50 Credits
The focus of this course is health policy development, analysis and implementation and the role of the health care provider in influencing health policy. The student will study public health policy to understand the policymaking process and to attain knowledge of how to influence health policies. The course will focus on women's and infants' health issues as examples of broader issues in health policy. This course is the first of a two-part sequence of courses on Health Policy required for Doctorate of Midwifery Students. This course is open to other students in Jefferson with permission of the instructor.

DMW-809 - Health Policy Analysis: Part II 1.50 Credits
The focus of this course is to delve deeply into health policy development, analysis and implementation and the role of the health care provider in influencing health policy. The student will complete a health policy analysis on an issue related to Women's Health. This course is the second of a two-part sequence of courses on Health Policy required for Doctorate of Midwifery Students, who will complete the health policy analysis project started in DMW 808 Health Policy Analysis 1 in an area related to their AIM project. This course is open to other students at Jefferson who are interested in health policy in women's health with permission of the instructor.

**DMW-810 - Epidemiology for Midwifery and Women's Health**  
3.00 Credits

Epidemiology is the science of public health. In this course, students will acquire tools they can use to analyze public health problems and clinical research. These will include measures of women's and infants' health particularly relevant to midwifery including infant mortality, pregnancy-related mortality, and pregnancy-related morbidity; characteristics of health screening tests; and an understanding of such basic epidemiologic concepts as the epidemiologic transition and life course epidemiology. We will use these tools to analyze causes of racial and ethnic disparities in maternal and newborn health and begin to explore potential solutions.

**DMW-811 - Leadership in Midwifery Health**  
2.00 Credits

This is a 2 credit online course limited to students in the doctoral program in Midwifery. Students will explore a variety of leadership theories and styles and differentiate leadership from management. The inter-relationship of power and influence will be considered as well as the impact of gender, culture and race on leadership. Using case studies, students will apply theory and research to become effective healthcare leaders in real world contexts. The theoretical foundation from this course will be utilized in the further development of the AIM project.

**DMW-812 - Professional Communication**  
3.00 Credits

The most innovative and successful clinical, public policy, or research projects are of limited value if their methods and results are not disseminated for others to learn from and emulate. Students will develop skills to effectively convey results from their AIM topic to the broader community. Through the course, weekly writing exercises will refine scholarly and professional writing skills. We will discuss in depth writing for two common types of publications, the literature review and the research article, and also discuss the basics of professional presentations. At the end of the course students will present the literature review for their AIM topic, both orally and as a written article.

**DMW-813 - Case Studies in Midwifery Clinical Admin**  
2.00 Credits

The profession of midwifery is fulfilling work, because it addresses women's needs, hopes, and dreams. However, many midwives work in situations in which they lack autonomy and feel unable to provide high quality midwifery care, or else are satisfied and effective but work more hours for lower levels of pay. In this course we will explore various models of midwifery practice to identify effective staffing, compensation, and organizational structures. We will explore alternative payment mechanisms for midwifery practice that include outcomes as well as, or in place of, volume. We will address the interplay of ethical, financial and clinical issues in effective practice leadership.

**DMW-814 - Aim Workshop VI**  
1.00 Credits

This course is designed to help students disseminate the results of their AIM project. With committee feedback and mentored individual work, students will create two products, a publishable paper and a poster presentation, that describe the results of the AIM project.
### DMW-814E - Aim Workshop VI Extension 1.00 Credits
This course is a one-credit extension for students who were unable to complete AIM Workshop 6 due to extending circumstances. All expectations for AIM workshop 6 must be fulfilled by the conclusion of this course.

### DMW-815 - Grant Writing 3.00 Credits
Incorporating best practices into care is expensive and time-consuming. Often funding is needed to get access to the resources and administrative support needed to integrate innovative cutting-edge practices. This course is designed to help students understand the grant writing process and to be able to find, write, and submit grants to support their work.

### DSGN-661 - Japanese Craft Production 3.00 Credits
This is a short course for international study to explore traditional craft production in Japan. This will include: Touki (pottery), Washi (paper), Urushi (lacquer), Mokuhanga (wood block), Some/Ori (resist dyeing and woven textiles), Takezaiku (bamboo), etc. Visitation to craft studios, museums, historical gardens and traditional architectures will also provide cultural context, history of style and significance of fine hand craft production processes. Throughout the tours, the course will also emphasize the role of crafted control in mechanical/digital productions that will be utilized in students' future design developments in their major studies.

### DSL-700 - S/Leadership, Frameworks, Concepts 3.00 Credits
This course introduces theories, models and practices of strategic leadership. Students examine and discuss their own and others' epistemologies of leadership and organizational thinking and practice using analytic, systemic, cultural, religious, and value-based lenses. Students act as facilitators and consultants for a client-supported leadership development project.

### DSL-701 - Systems and Design Thinking 3.00 Credits
This course introduces concepts and methodologies appropriate to business model innovation in our complex world. Every organization has a business model whether or not explicitly stated. It is a framework of creating value that includes a broad range of formal and informal aspects including its purpose, offerings, strategies, infrastructure, organizational structures, transacting practices, and operational processes and policies. An exceptional business model will frequently prove more important in an organization's success than excellent operations and or products and services.

### DSL-702 - Applied Research Methods I 3.00 Credits
The course proceeds on three tracks: (1) basic academic skills needed to competently evaluate and conduct research - quantitative, qualitative, laboratory and field; (2) basic academic understanding to effectively evaluate research and knowledge; and (3) guidance toward helping you develop a professional niche and embark on your own research projects.

### DSL-703 - Military & Civilian S/Leadersh 3.00 Credits
This course reviews and discusses the psychological, emotional and cognitive elements within various military and civilian leadership models from the perspectives of the individual, group and organization.
DSL-704 - Complex Proj Leadership & Mgmt 3.00 Credits
This course covers the range from fundamental to complex project management and project leadership. The objective of this course is to introduce and reinforce the traditional approach, principles, tools and techniques of planning for, managing and leading projects, as well as to provide a systems framework and methodologies for planning for, managing and leading complex projects.

DSL-705 - Enabling Info Techn and Tools 3.00 Credits
This project-based, team oriented course provides a methodology for implementing enabling information technologies and tools that add value to organizations. It addresses the application of crowd sourcing, social computing, cloud computing and analytics to make better leadership decisions and to improve organizational performance.

DSL-706 - Applied Research Methods II 3.00 Credits

DSL-707 - Strategic Ldrsp Perspective: Theory of C 3.00 Credits
The purpose of this course is to introduce and enable students to apply to their organizational challenges the Theory of constraints (TOC). TOC is a systems thinking methodology based on the idea that the apparent complexity of a situation can be resolved if the constraint or rate limiting step to improved performance can be identified. The methodology has two prongs; one focused on flow systems as found in manufacturing and in supply chains, and one focused on problem mapping through which a set of symptoms or “undesirable effects” are linked to a few core conflicts. Each prong presupposes that apparent complexity can be reduced by scrutinizing the causal structure of any system. Behind complexity lies simplicity.

DSL-708 - Strategic Org Development and Change 3.00 Credits
This course introduces theories, models and practices of strategic organization development and change. We will review the research on successful organizational change and its link to organization strategy through the lens of organizational systems. We will also explore our own beliefs and experiences about organizational change, how it happens, what makes for success, and what leadership practices contribute to outcomes.

DSL-709 - Leading in the Digital Transformation Age 3.00 Credits
Increasingly rapid rates of environmental, technological and demographic changes are shifting the relationship between people, workplaces and production activities. In this evolving digital economy, business value is derived from the ability to leverage new technologies to transform the way business is conducted. Smart, configurable, on-demand workspaces, tool networks, intelligent machines, data analytics and immersive virtual presence capabilities are automating work and augmenting individual and collective abilities. Increasingly in this context, mixed global workforces comprised of permanent and contingent human and machine labor form dynamic and adaptive team structures to generate social, environmental and financial value. Learning agility, entrepreneurial risk and collaborative capability are required cultural characteristics for successful organizational outcomes. This project-based course will introduce theories, tools and practices for leading in the digital transformation era in which individuals, organizations and industries are progressing unevenly towards digital mastery. The course will predominantly utilize immersive collaboration and learning technologies to illustrate how digital tools transform work. A 3D immersive classroom environment will provide students basic experience with distributed online project work, collaborative tool ecosystems, and effective leadership practices for new ways of working.

**DSL-710 - Independent Advanced Study**  
3.00 Credits

This course supports the student's independent exploration of topics related to strategic leadership, theory, organization development, practice, and/or evaluation. Students will augment their knowledge and skills in a particular topic area by appropriate methods such as exploring the literature, interviewing experts, and/or engaging in research and/or development activities. The actual content and method(s) will be approved by a faculty supervisor and/or mentor and directed by the student. Students will demonstrate a series of competencies in an area of interest as the primary outcome of this course.

**DSL-711 - Special Topics**  
3.00 Credits

This course will introduce theories, tools and practices for leading in the digital transformation era in which individuals, organizations and industries are progressing unevenly towards digital mastery. The course will predominantly utilize immersive collaboration and learning technologies to illustrate how digital tools transform work. A 3D immersive classroom environment will provide students basic experience with distributed online project work, collaborative tool ecosystems, and effective leadership practices for new ways of working.

**DSL-712 - Strategic Interactive Planning**  
3.00 Credits

This course concerns a specific form of strategic planning appropriate for organizations operating in complex contexts and environments. This distinctive approach is prospective, informed by systems and design thinking, and is stakeholder-community-based in that it includes direct involvement of those who hold a stake (i.e., are the stakeholders) in the organization seeking a strategic plan. The course follows a set of project steps beginning with contracting with the client and collaborative project planning, and ending with delivery of the strategic plan. The course does not include plan implementation.

**DSL-713 - Patterns of Strategy**  
3.00 Credits
The purpose of this course is to provide students with a comprehensive introduction to strategic thinking and to strategy formulation and execution. A broad range of common patterns of strategy are examined and guidelines are provided on when, why and how to apply them. The course takes a systemic approach to strategy, considering it as a dynamic, adaptive process that influences and is influenced by the multiple critical relationships the organization has in the wider environment in which it operates. Particular attention is paid to understanding the benefits and pitfalls of both collaborative and competitive strategies and the trade-offs they imply. A general four-step model is proposed for implementing strategy and ensuring effective execution.

DSL-714 - Applied Survey Research Methods 3.00 Credits

The aim of this course is to provide participants with a comprehensive understanding of survey research methods. The course syllabus covers every stage of the survey process, from design to analysis. For participants who plan to design and carry out their own survey, this course provides the practical and theoretical tools that are needed to produce high quality survey data. For participants who plan to analyze these data, or data from pre-existing social surveys, it will provide the applied knowledge and skills that are required to produce high quality research.

DSL-800 - Strategic Consulting 3.00 Credits

The purpose of this process consulting-focused project-based course is to enable leader-consultants to help organizations address their complex problems. Organizations enter into an explicit or tacit educational partnership with DSL and/or DSL students with a challenge and expectations that their project will be mostly completed by the end of the semester although some continue longer. Students participate in all consulting projects but tend to focus on one by joining a project team. Activities include organizational system diagnosis, planning, designing, and implementation.

DSL-801 - Strategic Leadership Research 3.00 Credits

This course has three purposes. One is to support the student's independent exploration of an applied strategic leadership research topic related to theory, development, design, practice, opportunity, and/or evaluation. The second is to build information and knowledge, and to contribute to the literature review requirement of the doctoral dissertation/capstone. The third is to assist students in structuring a project plan to complete their dissertation/capstone. Students will augment their knowledge and skills in a topic area by appropriate methods such as exploring the literature, interviewing, and/or engaging in research, design, and/or development activities. The actual content and method(s) will be approved by a DSL faculty supervisor and/or mentor but directed by the student. Students will demonstrate a series of strategic leadership research competencies in an area of interest as the primary outcome of this course.

DSL-802 - Strategic Leadership Executive Ed. 3.00 Credits
This course has two purposes. One is to support the student's independent exploration and understanding of strategic leadership executive education to support leadership development and leadership emergence in an organizational context. Another is to build information and knowledge, and to contribute to the applied scholarship of the doctoral dissertation/capstone. Students will augment their knowledge and skills in a topic area by (1) selecting or identifying a leadership development problem or opportunity, (2) identifying and confirming an organizational context or host, (3) designing and developing an education or training curriculum including learning objectives, (4) creating and delivering the content drawn from the curriculum using a channel appropriate to the topic and organization context, and (5) evaluating the outcomes of the executive education to address the problem or opportunity for which it was created and delivered.

A DSL faculty supervisor and/or mentor will approve the design and deliverables but the student will direct and conduct the work. Students will demonstrate strategic leadership executive education competencies in an area of interest as the primary outcome of this course.

**DSL-900 - Dissertation/Capstone Proposal**

3.00 Credits

Students will select a Dissertation/Capstone Adviser and Committee Members then formally propose (a) a professional research dissertation that makes a distinctive contribution to the knowledge, understanding and practice within a profession or organizational context with which it deals; or (b) a capstone project that is a descriptive, analytic, synthetic, and reflective account of the student's leadership of and contributions to a strategic project while a DSL student.

**DSL-901 - Dissertation/Capstone Delivery**

3.00 Credits

This course is the final course required to earn the degree, Doctor of Management. Students will follow the proposal submitted in DSL 900/999 and deliver a dissertation/capstone project. The content and method(s) will be approved by a faculty dissertation advisor. Students will review and discuss with their adviser how to meet the requirements described in the Doctor of Management Student Guide for Delivery of the Doctoral Dissertation and Doctoral Capstone. Students will select a Dissertation/Capstone Adviser and Committee Members then formally propose (a) a professional research dissertation that makes a distinctive contribution to the knowledge, understanding and practice within a profession or organizational context with which it deals; or (b) a capstone project that is a descriptive, analytic, synthetic, and reflective account of the student's leadership of and contributions to a strategic project while a DSL student.

**DSL-901E - Dissertation/Capstone Extension**

3.00 Credits

This course is the final course required to earn the degree, Doctor of Management. Students will follow the proposal submitted in DSL 900/999 and deliver a dissertation/capstone project. The content and method(s) will be approved by a faculty dissertation advisor. Students will review and discuss with their adviser how to meet the requirements described in the Doctor of Management Student Guide for Delivery of the Doctoral Dissertation and Doctoral Capstone. Students will select a Dissertation/Capstone Adviser and Committee Members then formally propose (a) a professional research dissertation that makes a distinctive contribution to the knowledge, understanding and practice within a profession or organizational context with which it deals; or (b) a capstone project that is a descriptive, analytic, synthetic, and reflective account of the student's leadership of and contributions to a strategic project while a DSL student.

**DSL-999 - Dissertation/Capstone Proposal**

3.00 Credits

Students will select a Dissertation/Capstone Adviser and Committee Members then formally propose (a) a professional research dissertation that makes a distinctive contribution to the knowledge, understanding and practice within a profession or organizational context with which it deals; or (b) a capstone project that is a descriptive, analytic, synthetic, and reflective account of the student's leadership of and contributions to a strategic project while a DSL student.
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<th>Course Code</th>
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<td>FDM-601</td>
<td>Design Process Timeline: P&amp;M</td>
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<td>FDM-602</td>
<td>Fashion Design Management Elective</td>
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<td>FDM-603</td>
<td>Fashion Adv Design Studio</td>
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<td>FDM-604</td>
<td>Trend Forecasting for Fashion</td>
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<td>FDM-610</td>
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<td>to grow and impact future collections</td>
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<td>through strategic analysis, thoughtful</td>
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<td>content development and focused product</td>
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<td>positioning.</td>
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<td>FDM-617</td>
<td>Designing within Brand Parameters</td>
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<td>This course will be a simulation of the</td>
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<td>complete research and design development</td>
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<td>cycle beginning with a specific design</td>
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<td>brief and designing into a targeted</td>
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<td>existing brand aesthetic. Designers will</td>
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<td>be introduced to the broad range of</td>
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<td>parameters influencing branded product</td>
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<td>offerings. They will be challenged to</td>
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<td>create within market constraints including</td>
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<td>targeted channels of distribution, season,</td>
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<td>sku plan, delivery, targeted wholesale/</td>
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<td>cost of goods/margins, raw material</td>
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<td>sourcing and competitive landscape.</td>
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<td>FDM-621</td>
<td>Building Brand Identity</td>
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The critical relationship between design/merchandising/marketing will be explored in this course with a focus on benchmarking today's global fashion leaders. The course will integrate the distinct roles of the designer, the merchandiser and the marketing team, identifying how they are strategically intertwined. Students will move beyond product design and development by creating a design/merchandising strategy for the branding aspects of a collection including: brand name, logo, labelling, packaging, hangtags, signage and web home page layout. Approaching the collection in a broader sense, in the role of the Creative Director, students will focus on communicating a well-articulated, focused and cohesive branded message across all assets.

FDM-623 - Textile Design & Approval Process 3.00 Credits
In this course, students will learn and apply the key steps in designing an industry-ready materials presentation and concept encompassing: color palette, fabric qualities, trim, hardware, surface interest, print/pattern and design concept as the starting point for a collection. Students will learn first-hand from industry experts and onsite visits the strategic design and approval processes used in color palette development, fabric and trim development and print/pattern design and development. Students will design an industry ready fabric/trim/color/hardware concept for their portfolios as the springboard to collection development. Processes covered will include Pantone palette development and analysis, trim and hardware sourcing, CAD print design, yarn dye stripe/plaid development and knit pattern design and development.

FDM-707 - Strategic Design and Merchandising 4.00 Credits
This course gives students an overview of strategic design and merchandising processes. The students will use the unique approach of "reverse merchandising" to identify the key steps in the design development process. Step One will be to dissect a recent collection from an established luxury brand. In their collection synopsis students will learn the fundamentals of creating detailed line sheets, sku plans, fabrication plans, design concepts and targeted classification plans. They will do a deep dive into brand identifiers and then identify a white space representing growth opportunities within the existing collection. From that base they will design and merchandise into the targeted white space. Students will develop the skills to design into an established brand using a highly methodical and quantitative process aimed at the international luxury market.

GEOD-600 - 3D Modeling for Geodesign 3.00 Credits
Geodesign is a planning and design process that is based on physical and biological information, references social and economic information and is holistic and interdisciplinary. Allied design professionals need to communicate, analyze, and model the impacts of change in the built environment. In this introductory course, students will begin to apply state-of-the art 3D geospatial modeling technology to solving real-world urban planning and design problems. Various geodesign techniques, digital technologies and scenario management tools will be introduced and applied.

GEOD-602 - Geodesign Studio 2 6.00 Credits
In this intermediate design studio, students will form collaborative teams and apply geospatial analysis techniques and information modeling to a more complex urban design problem. Students will work cooperatively with the community client/partner throughout the design process. Community members will be instructed how to use one or more geospatial tools in the decision-making process. Prerequisite: take GEOD-600, and GEOD-615 or LARCH-515

GEOD-603 - La Tech: Advanced Grading 3.00 Credits
This Advanced Grading course augments what the students have learned in their first Grading course, plus covers in more depth other sustainable aspects of landform manipulation for design and stormwater management. Computer applications will be used as a learning tool. Field trips to sites that are particularly appropriate for observing, measuring, and experiencing the sculptural qualities and capabilities of landform are also an integral component of this course.

GEOD-604 - Hydrology 3.00 Credits
Hydrology examines sustainable water resource issues as they relate to landscape planning and site planning and design within the urban or urbanizing context. This includes the theory and techniques associated with soil and water conservation comprehension of the why, when and where that leads to sustainable planning or design strategies. Topics include surface water hydrology, stormwater runoff estimation, sustainable stormwater management techniques, watershed planning, flood routing and impact mitigation, and erosion and sedimentation control tools and regulations.

GEOD-605 - Geodesign Appl Research Stud. 6.00 Credits
In this culminating studio, students will work individually or in small groups on an applied research project that was developed through a previous GeoDesign design studio, a technology course, or from an outside source. The applied research outcomes will then be used and tested as part of a community outreach planning and/or design project. Prerequisite: take GEOD-602 GEOD-616;

GEOD-606 - History of Landscape Architecture 1 3.00 Credits
This survey course covers significant examples of landscapes and landscape design from the eastern, central Asian, and western regions of the world, produced from ancient times through the 19th centuries. Students will be introduced to the cultural and social history of each epoch as a means of critically analyzing key historical works of landscape design and addressing the ideas and concepts imbedded in the term landscape.

GEOD-607 - GeoDesign Explorations 3.00 Credits
In this seminar/lab course, students learn to explore cutting-edge geospatial techniques, applications, and data sources and determine whether these approaches are appropriate, useful and cost-effective in a production environment. For example, LiDAR-enabled spatial robotics allows for mobile spatial data collection within buildings, but is this an appropriate technique to build a 3D contextual basemap? And how can this technology be applied to exterior urban spaces. Prerequisite: GEOD-602 or GEOD-617

GEOD-608 - History of Landscape Architecture 2 3.00 Credits
This course is the third of a four-term sequence of history/ theory courses. It surveys key examples of landscape architecture from the mid-19th century to the present time. Students strengthen their vocabulary for analyzing and evaluating the designed landscape. Students are also introduced to the influential personalities, projects, events, concepts and thoughts that were pivotal in the philosophical and ethical development of the profession of landscape architecture.

GEOD-610 - Introduction to GIS 3.00 Credits
This course is an introductory course for Geographic Information Systems (GIS) and is a prerequisite for those in the MS in GeoDesign Program that do not have prior GIS training. GIS is a computer-based tool that uses spatial (geographic) data to analyze and solve real-world problems. Specific GIS methods and topics covered include cartography, demographics, site selection, transportation studies, land use scenarios, and environmental applications. This is a foundation course for the MS in Geodesign Program.

GEOD-612 - Local Flora 3.00 Credits
An introduction to regional native plants used in landscape architecture and ecological restoration. Characteristics, terminology and keys used in identifying plants and plant families will be taught as well as sight recognition of common species. Other topics include plant growth, development and propagation, optimal habitats, and recognition of best management practices. Field work at local/regional sites constitutes a significant part of the course.

GEOD-613 - Sustainable Planting Design 3.00 Credits
In this course students apply the ecological needs of plants to real situations such as greenroofs, xeriscaping, habitat management, brownfield restorations, meadows and highway plantings. The course stresses ecological relationships among plants and how those relationships are used in the design of these environments. In order to design and maintain these environments students need to understand planting design as well as ecology.

GEOD-614 - Construction Docs 4.00 Credits
The major emphasis is the preparation of a complete set of technical construction documents with specifications, sustainable practices, and cost estimates. Specific topics include: site demolition, layout and dimensioning, and specification writing.

GEOD-615 - Advanced GIS for Landscape Analysis 3.00 Credits
This advanced GIS course will cover topics in geospatial technology as related to landscape architecture and geodesign. The course prepares students to apply GIS within practical design processes such as site preparation and analysis; modeling terrains and hydrologic processes; integration of sustainable design criteria; and modeling the built environment in 3D. While this course will cover a broad suite of tools within the ArcGIS Desktop Platform, it will place heavy emphasis on raster-based GIS processes. This course will also feature workshops/presentations with GIS professionals working in landscape architecture and other design disciplines.

GEOD-616 - Information Modeling 3.00 Credits
Geospatial data will be used as the basis for advanced information modeling which is an integrated process for digitally exploring, defining, representing, analyzing and visualizing a project's physical and cultural characteristics during design and management. The scales of building, campus, neighborhood, and city will be studied. Principles of spatial modeling, integrated project delivery and lean design will be discussed in relation to this process. Prerequisite: take GEOD-615 or LARCH-515;

GEOD-617 - Adv GIS for Urban Planning and Devl 3.00 Credits
This advanced geospatial course will focus on analysis and modeling of urban structure and dynamics. The aim of this course is to prepare students to apply GIS processes within practical situations, such as demographic and population research; real estate development; transportation modeling; and economic analysis. While this course will cover a broad suite of tools within the ArcGIS Desktop Platform, it will place heavy emphasis on the real world context of data collection, cleaning and preparation for analytics. Exercises will include simulating and modeling urban transportation systems, analyzing and modeling urban growth, and predicting urban changes and impacts. This course will also feature workshops/presentations with GIS professionals working locally in urban planning and development.

GEOD-618 - LA Technology: Grading

This course focuses on the principles and techniques of landform manipulation for design and drainage. Students develop an understanding of contours, contour manipulation, and site-construction methodologies. Topics include topographic and grading problems in landscape engineering: drainage plans, grading plans, spot elevations, road alignment, sections and profiles and cut-and-fill calculations.

GEOD-619 - Plant Community Ecology

This course investigates how interactions within plant species, between species, and between species and their environment influences plant community structure. Questions explored include: How many species are in a given habitat type? Why these species and not others? How do they interact with each other plants? What controls their abundances in natural and urban landscapes? Students will learn how plant distributions are influenced by environmental conditions with a particular emphasis on the urban environs. In-the-field exercises constitute a significant portion of this course.

GEOD-620 - Soils

This course examines soil as a living organism and foundation for all life of earth. This course discusses factors of soil formation and the basic physical, chemical, ecological, and morphological soil properties that affect soil characteristics in managed and natural landscapes. This is an interactive lecture/laboratory course complemented by local field trips with emphasis on soils from pedon to landscape as resources for environmental quality and design.

GEOD-621 - Environmental Policy

Environmental problems are essentially social, economic and political problems. This course traces the evolution environmental policy, legislation and regulations, both in the U.S. and worldwide, including the background and context of environmental policymaking. Students will also examine the substantive problems and political process of environmental movements, and contemporary environmental thought with regard to issues of sustainability and environmental justice.

GEOD-625 - Internet GIS Tech for Design and Dev

This course introduces students to online geospatial technology tools applicable in various fields including planning, landscape architecture and real estate development. Software utilized in this course aids professionals in site analysis, land planning, urban design, real estate development, market research and feasibility analyses. Emphasis is placed on the ArcGIS Online platform, an instrument used to evaluate site potential, analyze geographic datasets, host and share impactful and informative applications. Students will utilize tools and data pertaining to landscape planning, the dynamics of neighborhood change and spatial growth modeling.
GFE-600 - Fashion Immersion 3.00 Credits
This course introduces students at a graduate level to the global fashion industry, with a particular focus on benchmarking successful organizational strategies. The course integrates textile functionalities, usages, design concepts, and apparel manufacturing. Students visit US fashion houses and participate in experientially focused workshops. Students will evaluate fashion strategies, from both the technical and business perspectives, and examine the conceptual frameworks and core disciplines within the Global Fashion Enterprise curriculum. Prerequisite: 1 group IMBF-504 IMBF-505 IMBF-508 IMBF-510 or GFEF-501 GFEF-505 TEXT-101 FASHMGT-101;

GFE-611 - Product Devel/Entrepreneurship 3.00 Credits
In the development of any apparel product, attention must be given to form, function, fit and appearance and to their interrelationship. Form involves the influence of preference and individual choices. Function includes such aspects as 'fitness for use,' taking into account levels of activity, gender and age. Account must also be taken of the influence of markets, as well as the opportunities and constraints presented by design, cost and manufacturing systems. At the managerial level, the individual is faced with constant change from original concept to the end product. Multiple adjustments to the product arise at every phase requiring tremendous ingenuity and problem-solving skills. Graduates will be faced with this kind of process in the apparel industry and need to manage and follow through with the development of a product.

GFE-612 - Technology in Fashion 3.00 Credits
This course aims at showing that state-of-the-art technology in a given field has become an essential component for strategic leadership, profitability and stable employment. The point is made by providing a broad perspective on the major technical advances experienced by the apparel industry from the 1980s and their positive impact on the national industries where they originated and/or were adopted. Analysis of the difficulties met by high wage countries failing to follow that course helps to reinforce the point. Review of the factors accounting for these advances brings out the critical importance of technology transfer and fusion in the formulation and development of basic concepts. Detailing both processes offers the opportunity to introduce the notion of systemic thinking and its growing influence on management style. It is intended that the student will gain a global perspective of the textile and apparel business and of the growing role played by advanced technology and its impact on finances and personnel.

GFE-621 - Fashion Global Mktg & Sourcing 3.00 Credits
U.S. textile and apparel companies are under siege, facing competitive threats that have been continually mounting for years. What it takes to be successful in the future is explored. The concept of 'business as usual' has long outlived its usefulness, and new and refreshing approaches are necessary. Students will be introduced to avant-garde management concepts often espoused, but seldom adopted, by most textile and apparel managements. The course is designed to introduce the student to the global perspective of today's apparel industry and to prepare the student to make critical international marketing and sourcing decisions within a complex economic environment. Students will explore the major variations which occur across international markets - economic, social, and cultural; examine the behavior of business within different marketing and manufacturing contexts; and consider the factors involved in making effective global marketing and sourcing decisions.

GFE-721 - Global Fashion Project 1 3.00 Credits
Students research, select and conduct preliminary work on a project falling either within the: (1) Product Concept Track in which they develop a fashion line consisting of apparel, accessories, or home textiles that could be produced and sold online or in traditional retail establishments, or (2) Business Concept Track in which they develop a business plan or implement an innovative concept at an existing company. Weekly and summative critiques are held with faculty and industry associates. Prerequisite: 12 credits; From Subject GFE;

**GFE-722 - Global Fashion Project 2**  
3.00 Credits  
Continuation of GFE-721. Product track students' focus on designing, merchandising, sourcing, quality assurance, and material procurement decisions related to their product. They identify product specifications, conduct a cost analysis, margin realization, and risk assessment that will form the basis for the development of a supply chain strategy. Business concept track students integrate key activities, resources, and financial requirements for a commercialization plan. Concludes with a presentation to industry critics. Prerequisite: take GFE-721;

**GFE-723 - Global Fashion Project 3**  
3.00 Credits  
Continuation of GFE-722. Students implement their product or business concept and write a formal business plan. The final strategy for a visual merchandising plan, or business plan development, will be solidified and implemented. Students will conduct pilot testing to assess the feasibility of their plans and will present their plans after interviewing clients and reviewing their plans with industry critics. Each phase of the new business lifecycle concludes in a progress presentation with industry critics. Prerequisite: take GFE-722;

**GFE-725 - Brand Driven Design & Innovation**  
3.00 Credits  
Brand Driven Design & Innovation prepares students to evaluate mass and luxury markets by conducting research on the Brand's DNA, examining the marketing mix on a global scale, preparing a situational analysis and executing innovative presentations. This course is designed to train future professionals in market analysis, market entry or exit strategy, creating perceptual positioning maps, and forecasting, while analyzing elements of the value chain to formulate a brand strategy. Brand Design & Innovation will also detail the primary methods of social research and their practical application in the field of fashion.

**GFE-727 - Omni-Channel Retail Systems**  
3.00 Credits  
This course will examine the organizing principles and strategies applied by retailers that market goods and/ or services using an omni-channel approach to generate sales and increase revenue. Emphasis will be placed on retailers involved in integrating operations of two or more channels including bricks, ecommerce, digital, catalog, vending machines, television business models, and social commerce strategies.

**GFE-729 - Product Lifecycle Management**  
3.00 Credits  
Product Lifecycle Management (PLM) has become one of the emerging technology applications in business, specifically in apparel, accessories, footwear, textiles, and other fashion-related industries. Learn how PLM software can accelerate your product development process with digital asset (image) management, tech pack management, quotation and bid management, sample and production planning and tracking, pre-concept line management, and materials management. In this hands-on course, you will develop, manage, and edit a technically accurate, complete mini-collection in GERBER comprehensive suite of PLM tools developed specifically for fashion companies.
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<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>GFE-732</td>
<td>Fashion Seminar</td>
<td>1.00</td>
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<td>This seminar course features speakers from across the fashion value chain who share their experiences and career insights. Students reflect on the implications of the topics presented for their own careers, relating concepts and insights to material covered in other Global Fashion Enterprise courses. Students have the opportunity to network informally with course speakers. Pre- or Co-requisite: GFE-600 Fashion Immersion.</td>
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<td>GFE-732A</td>
<td>Global Fashion Seminar I</td>
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<td>This seminar course features speakers from across the fashion value chain who share their experiences and career insights. Students reflect on the implications of the topics presented for their own careers, relating concepts and insights to material covered in other Global Fashion Enterprise courses. Students have the opportunity to network informally with course speakers.</td>
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<td>GFE-732B</td>
<td>Global Fashion Seminar II</td>
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<td>This seminar course features speakers from across the fashion value chain who share their experiences and career insights. Students reflect on the implications of the topics presented for their own careers, relating concepts and insights to material covered in other Global Fashion Enterprise courses. Students have the opportunity to network informally with course speakers.</td>
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<td>GFE-734</td>
<td>Fashion Supply Chain Mgmt</td>
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<td>The course provides a broad introduction to many critical facets of supply chain. Students in this course will understand existing tools utilized in managing inventory and logistics in the global supply chain. The course covers topics in inventory logistics management, network design, value of information sharing, the international supply chain, supply chain contracts, and risk management.</td>
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<td>GFE-793</td>
<td>Global Fashion Networking</td>
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<td>This course exposes students to fashion ecosystems through an international study tour, coupled with classroom and experiential instruction. Students will tour design houses, mills, apparel factories &amp; retail locations throughout the country (or countries) of focus, identifying best practices in merchandising &amp; supply chain management within these organizations. Students will gain knowledge of product development &amp; marketing, the manufacturing environment, quality assessment, and customer service. Students will acquire global competencies and understanding and will have the opportunity to hone their career aspirations and expand their professional networks through discussions with global fashion executives and hiring managers. Pre-Requisite: GFE-600 Fashion Immersion</td>
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<td>GFE-797</td>
<td>Selected Topics</td>
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<td>GFEF-501</td>
<td>Prototyping</td>
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<td>Garment Development Students will have a basic understanding of garment construction combined with flat-pattern concepts. The use of industrial equipment and basic slopers will be utilized to produce a sample book of construction details and garments.</td>
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<tr>
<td>GFEF-505</td>
<td>Apparel Production</td>
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Apparel Production Basic operations in all segments of an apparel plant are studied from the initial receipt of raw materials through storage, inspection, marker making, spreading, cutting, sewing, pressing, warehousing, shipping and customer returns. Latest technological advances in each of these areas will be discussed with marker making performed on a Gerber Accumark 300 System. Inventory management, labor issues, ergonomics and relevant public policies are also studied. Prerequisite: TAKE FASHMGT-101 FASHMGT-201;

GRINTRN-791F - Graduate Internship 3.00 Credits
3 Credits Academic internships at Jefferson aid students in professional preparation through a work experience directly related to their major and career goals. Multiple credit registration options exist in 0.5 credit, 1 credit, 3 credit increments. All are completed as academic courses, including a course syllabus focused on professional skill-building and written assignments. While the primary emphasis on the course is on the internship work experience, course assignments are incorporated to prompt reflection. This reflection is an integral component of experiential learning and students' overall career and professional development. Graduate: . Students must maintain full-time status during the regular academic year International: . Meet criteria above as relevant . Determine if eligible for Curricular Practical Training (CPT) by contacting the office for International Student Programs Note: Students not meeting minimum requirements may be considered by submitting a formal appeal and should contact Career Services for further instructions. First Offered: Spring 2018

GRINTRN-791O - Graduate Internship 1.00 Credits
1 Credits Academic internships at Jefferson aid students in professional preparation through a work experience directly related to their major and career goals. Multiple credit registration options exist in 0.5 credit, 1 credit, 3 credit increments. All are completed as academic courses, including a course syllabus focused on professional skill-building and written assignments. While the primary emphasis on the course is on the internship work experience, course assignments are incorporated to prompt reflection. This reflection is an integral component of experiential learning and students' overall career and professional development. Graduate: . Students must maintain full-time status during the regular academic year International: . Meet criteria above as relevant . Determine if eligible for Curricular Practical Training (CPT) by contacting the office for International Student Programs Note: Students not meeting minimum requirements may be considered by submitting a formal appeal and should contact Career Services for further instructions. First Offered: Spring 2018

GRINTRN-791Z - Graduate Internship 0.50 Credits
.5 Credits Academic internships at Jefferson aid students in professional preparation through a work experience directly related to their major and career goals. Multiple credit registration options exist in 0.5 credit, 1 credit, 3 credit increments. All are completed as academic courses, including a course syllabus focused on professional skill-building and written assignments. While the primary emphasis on the course is on the internship work experience, course assignments are incorporated to prompt reflection. This reflection is an integral component of experiential learning and students' overall career and professional development. Graduate: . Students must maintain full-time status during the regular academic year International: . Meet criteria above as relevant . Determine if eligible for Curricular Practical Training (CPT) by contacting the office for International Student Programs Note: Students not meeting minimum requirements may be considered by submitting a formal appeal and should contact Career Services for further instructions. First Offered: Spring 2018

HSCI-610 - Emergency Medical Technician 3.00 Credits
This course prepares students to handle emergencies using basic-life support equipment in accordance with objectives of the US Department of Transportation National Standard Curriculum. It includes training in American Heart Association (AHA) Basic Cardiac Life Support (BLS), and prepares students for the Pennsylvania Department of Health Emergency Medical Technician-Basic (EMT) examination process. Lab fee will be assessed.

IARC-601 - Design III for Interior Arch 4.00 Credits
Building on skills and knowledge introduced in Design I and Design II, this studio focuses on the process of designing multi-space facilities. Through structured, medium scale design projects, students engage in the conceptual, theoretical, functional, and aesthetic issues, integrating research and evidenced based decision making with the intuitive nature of the design process. Emphasis is placed on the fundamental processes related to the development of a complete interior, from research, programming and space planning, to the selection and arrangement of appropriate furnishings and finishes. Students will also explore the influence of behavioral, socio-economic, and cultural factors on the functional and aesthetic quality of the built environment, and will communicate their designs by applying a range of professional presentation techniques.

IARC-602 - Design IV for Interior Arch 4.00 Credits
This studio emphasizes the resolution of complex design issues in the context of health care interiors. In determining a design strategy, students research, develop and analyze the problem, relevant environment and behavioral factors, and then proceed with a completed design. Holistic development of concept, current sustainable design solutions, large-scale space planning, materials, construction details, lighting design, building systems, building codes, handicapped accessibility and furnishings are emphasized in the completed work.

IARC-603 - Hist of Design II for Int Arch 3.00 Credits
This course is an overview of the history of interior architecture and design, furniture, and the decorative arts. Lectures, readings, assignments and field trips, cover the development of period styles, major movements, and theoretical concepts of design as they relate to the complete interior. In depth discussions and site visits will focus on critical analysis and developing awareness of historical precedents.

IARC-604 - Visual Communication II 3.00 Credits
This Revit-based advanced digital imaging course focuses on the advantages of building modeling software (BIM) and related documentation techniques for integrated practice and collaboration. Students will build their knowledge of professional interior construction and specification documentation, produce a set of construction drawings for an interiors project, and explore other uses for this powerful and important type of program.

IARC-607 - Tech I for Interior Arch 3.00 Credits
This course provides an overview of basic structural principles and systems and an in-depth study of non-structural interior construction and finish materials. Lectures and assignments address how the planning of interior space is impacted by the nature of various structural systems, and examine the visual and physical properties, application, and maintenance requirements of interior materials. In addition students are introduced to interior detailing in relation to architectural woodwork, millwork, partitions, floors, ceilings, stairs, custom cabinetry, furniture and specialty elements. The influence of sustainability and building codes on the choice of materials is also covered.
IARC-608 - Tech II for Interior Arch  3.00 Credits
This second course in the Interior Architecture technology sequence introduces students to the art and science of interior illumination, energy usage, and various control systems including power, security, communications, and life-safety. Both artificial illumination and day lighting are covered with an emphasis on the architectural aspects of lighting design. Though lectures, demonstrations, and assignments, student explore various lighting design strategies, the effects of light on color, and how effective lighting can contribute to the goal of creating a sustainable interior.

IARC-610 - Textiles and Materials  3.00 Credits
This course focuses on the art and science of textiles, and other non-textile based wall coverings in the creation of safe, sustainable, and aesthetically pleasing commercial and residential interiors. Key topics include the history of textile design and manufacture, man-made and synthetic fibers, methods of construction, weaving, dying, and printing, and inherent performance characteristics. Lectures and assignments cover textile finishing and testing, as well as relevant codes, regulations and standards. Students also learn about the appropriate selection, specification, and procurement of materials and finished goods such as carpeting, upholstery, wall coverings, and window treatments and their correct installation and maintenance requirements.

IARC-612 - Advanced Visualization: Interiors  3.00 Credits
This computer-aided design course teaches advanced three-dimensional modeling, rendering, and some animation techniques with a focus on interior environments. Emphasis is placed on the accurate and realistic representation of interior space, form, materials, furniture, color, and lighting. Students will also learn to present their designs by creating virtual walkthroughs. This will increase the effectiveness of student representations and presentations of their designs. Students complete a series of specifically designed exercises and projects of increasing difficulty leading to a final project of the student's choosing from a concurrent or earlier design studio.

IARC-614 - Furniture Design  3.00 Credits
This beginning-level elective course is intended to provide students with a basic knowledge of the aspects involved in furniture design. The goal is to expose students to the various means through which one engages in product design. Emphasis is on the fabrication process in addition to prototyping, testing and revision. The course consists of readings, brief lectures, class discussions and studio projects that cover the range of information that designers need to know to be able to specify, design and evaluate furniture-related products for the built environment. A significant amount of class time will be devoted to the development, design and revision of projects.

IARC-616 - Environments for Well-Being  3.00 Credits
This course provides an introduction to a range of viewpoints, concepts, and characteristics of human behavior in existing designed spaces. Cultural, social, and psychological factors are examined, e.g., relationships to water, responses to open and enclosed spaces (both interior and exterior), roles of textures and aromas, relationships to the natural environment, etc. Various theories and methods of environmental assessment and design are studied that are based on an understanding of mutually supportive relationships between people and their physical environment. This course looks at how people use and are impacted by various environments and stimuli from a range of cultural, psychological and physical perspectives.

IARC-701 - Design - Study Away  3.00 Credits
This studio is part of the study away experience and focuses on how culture, context, history, precedent, construction technology, and human factors influence design, while exploring innovative materials and craft in the field of interior architecture. Assigned projects address how design needs may vary for different populations and how understanding social and cultural norms are relevant to making appropriate design decisions. Students consider the role of construction techniques, material selection, and ergonomics in the design process and detailing as they will apply this information to their design work.

IARC-702 - Design V for Interior Arch.  
4.00 Credits

This advanced studio emphasizes the resolution of complex interior design issues in the context of interdisciplinary collaboration. In determining a design strategy, students research, develop, and analyze the problem, relevant environment and behavioral factors, and then proceed with a completed design. Holistic development of concept, current sustainable design solutions, large-scale space planning, materials, construction details, lighting design, building systems, building codes, handicapped accessibility and furnishings are emphasized in the completed work.

IARC-703 - Theory for Design- Study Away  
3.00 Credits

This advanced history and theory seminar immerses students in both historical and contemporary examples of architecture, interiors and decorative arts. Through a combination of readings, writings, discussion and field work, students explore the relationship between culture, and building form, furnishings, and the distinctive use of materials and ornament.

IARC-707 - Technology III for IA  
3.00 Credits

This final course in the technology sequence focuses on the study of a broad range of mechanical, plumbing, HVAC, and other building systems and their integration with interior construction. Students are introduced to the issues of acoustical control, indoor air quality, and life safety in building interiors and the critical role that interior building systems and materials play in the establishment of human comfort and the protection of the health, safety and welfare of building occupants.

IARC-708 - Professional Practice/Ethics  
3.00 Credits

Students in this course learn about the managerial, financial, legal, and ethical aspects of professional practice, including types of business formations, marketing, contracts, industry relationships, and project management. Lectures and assignments cover the range of specialized services performed by design firms, and the role and responsibilities of the designer in different positions and at various stages of their career. The importance of lifelong learning, professional development, and the value and role of professional associations is also discussed.

IARC-709 - Research and Programming  
3.00 Credits

This course provides the foundation for the Master's Project for Interior Architecture course in the following semester, and covers standard and emerging methods of research and programming in the field of interior design and architecture. In consultation with faculty, students will select a project type and site, and produce in-depth research, precedent studies, programming and analysis, embracing relevant issues such as cultural, sociological, political, economic, environmental, anthropometric, human factors, life safety, and construction methods and technologies, amongst others. Students are expected to organize and synthesize this information and document their research in both written and graphic form. This information along with architectural documentation and analysis of the selected site is presented to a group of jurors with expertise in the area of research and/or project type. Prerequisite: TAKE IARC-602
IARC-710 - Master's Project for Interior Architect  
4.00 Credits

Building on the semester of research and programming (IARC-709), the Master's Project in Interior Architecture challenges students to integrate knowledge and skills acquired throughout the curriculum and can be undertaken only after successful completion of appropriate coursework. While most students will complete this course using an applied project based approach, students have an option of pursuing theoretical research. Thesis/Applied: This major culminating design experience is a self-directed, faculty monitored independent study appropriate for students interested in exploring the creative/design dimensions of Interior Architecture while exploring a significant and advanced question in the discipline. Students select one project from a range of carefully screened design projects of appropriate and comparable scope, sophistication, and complexity. Thesis/Theoretical: The thesis option is a self-directed, faculty monitored independent study appropriate for students interested in exploring theoretical dimension(s) in Interior Architecture. The thesis option will be attractive to students interested in pursuing doctoral studies and/or academic careers. Prerequisite: IARC-602 IARC-604 IARC-707

IARC-797 - Special Topics for IA  
3.00 Credits

This course provides an opportunity to explore topics in interior architecture not developed in other courses. Examples include advanced visualization techniques, human behavior studies, specialized history/theory topics, furniture design, ergonomics, environmental psychology, and more. Students may take this course more than once as the topics differ each time it is offered. Prerequisite: IARC-601 (with approval by director) or IARC-604

IARC-798 - Independent Study  
3.00 Credits

This course will allow students to pursue individual areas of interest while working closely with a faculty member. For further details, see the general description of Independent Study in the "University Academic Policies and Procedures" section of the academic catalog. See appropriate form online at the University Registrar's web page for more information. Prerequisite: Completed second year of program. Enrollment dependent on availability of faculty mentor and permission of program director.

IARCP-501 - Design I for Interior Architecture  
4.00 Credits

Design I for I.A. (Required for those with unrelated undergraduate degrees) This studio is an introduction to the world of design with an emphasis on the built environment. Focus is on fundamental design principles, vocabulary, process methodologies and problem-solving strategies, along with developing and exploring methods of visual expression. Lectures and demonstrations stress abstraction as a primary building block in addition to an emphasis on historical case-study methodologies as a means of developing successful design strategies. Course work explores questions related to seeing and understanding design through the process of making and representing real scale objects and spaces.

IARCP-502 - Design II for Interior Arch  
4.00 Credits

Design II for I.A. (Required for those with unrelated undergraduate degrees) The focus of this studio is an introduction to the elements, principles and theories of interior design. Through a series of projects of increasing size, students explore the conceptual, theoretical, functional, and aesthetic issues of designing interior space. Included are the elements of enclosure, the interrelationship of spaces, and environmental and behavior factors, as well as symbolism and socio-cultural factors. The experiential and intuitive nature of the design process is investigated as is the contributing role of finishes and furnishings in the definition of architectural space.
IARCP-503 - Graphic Representation 3.00 Credits
Graphic Representation (Required for those with unrelated undergraduate degrees) This course covers the fundamentals of freehand and mechanical architectural graphic representation, with a special focus on the interior environment, for both presentation and construction documentation purposes. Topics of include sketching and the construction of orthographic and paraline projections, including floor plans, elevations, sections, reflected ceiling plans, and one-point and two-point perspective drawings. In addition, students learn how to graphically depict furniture, to enhance their drawings through the use of shade and shadow, and the basics of architectural model building. Projects include surveying of actual sites and translating field notes into a set of coordinated drawings.

IARCP-504 - Visual Communication I 3.00 Credits
Visual Communication I (Required for those with unrelated undergraduate degrees) The primary intent of this course is to introduce students to fundamental CAD skills using AutoCad, and to establish the computer as an effective tool for architectural graphic communication and as a means for exploring, refining, and presenting design ideas. Through a series of assignments and projects, students will acquire the knowledge and skills to digitally communicate design concepts at various stages of development, and for multiple purposes.

IARCP-505 - Hist of Design I for Int Arch 3.00 Credits
History of Design I for I.A. (Required for those with unrelated undergraduate degrees) This lecture course surveys key examples of Western and non-Western architecture produced from prehistory through the 21st century. By tracing significant historical themes, students compare and contrast the various historical styles and acquire a working vocabulary for both analyzing and evaluating the built environment, and relating developments in the built environment to other forms of artistic expression such as painting and sculpture. Works are placed within a broad historical context by considering factors such as religion, philosophy, political and economic developments, as well as materials, construction methods, and local factors.

IARCP-508 - Presentation Techniques 3.00 Credits
Presentation Techniques (Required for those with unrelated undergraduate degrees) This course explores the broad array of presentation techniques available to advantageously convey a designed interior. Emphasizing the presentation of a complete interior, students will refine and expand their drawing and model building skills using a wide range of media, and integrating manual and digital techniques. This course also addresses the interrelationship of the visual and verbal components of making an effective presentation.

IDD-510 - Essentials of Interactive Des 6.00 Credits
This course will give students a foundation in the three core disciplines of interactive design: quality design skills, software competency and programming knowledge. Additionally, proper research and presentation practices will be reinforced to provide students with a structured methodology vital to their program and career success. The outcome is a well-produced and portfolio quality website with supporting documentation that demonstrates comprehension of industry-standard knowledge.

IDD-600 - Virtual Reality Design 3.00 Credits
This studio course focuses on exploring virtual reality including an understanding of virtual environments, how users interact within a virtual space, and how VR can be explored to create new & innovative user experiences. Two major components of the class are contemporary practical examples and tutorials with new and emerging technologies. Student projects will provide a space for a hands on learning experience. Graduate students are expected to research and conceptualize implementations of VR for future impact on digital media.

**IDD-601 - Cognitive Psychology for Design**  
3.00 Credits  
This course introduces students to core cognitive psychological concepts that drive strong interface design, and the subsequent user research practices that uncover the operation of these concepts. Students will analyze examples of designs (either in their portfolio or in the marketplace) to see these concepts at work, and present these examples each week in a casual setting. Students will also be exposed to different methods of inquiry and analysis, so that they understand how each method draws out explicit and implicit assumptions (i.e., the methodology).

**IDD-621N - Digital Experience Design**  
3.00 Credits  
Digital Experience Design develop the student's ability to synthesize 2D, 3D and 4D conceptions of space with knowledge and skills of interactivity to create and produce the digital experience. This studio will solidify and expand the student's vocabulary and ability to innovate within the digital context. Students will complete a project that explores spatial, emotional, informational and communicative issues. The project should reflect a high degree of conceptual, aesthetic and technical mastery for successful completion of this course.

**IDD-625 - Advanced Web Design & Strategy**  
3.00 Credits  
Web Design This course will focus on the design of the online experience. Emphasis will be given to an understanding and mastery of the design issues involved in creating user interfaces and content for low bandwidth dissemination. A semester-long project will develop the student's abilities in both the design and production of web-based media. The project will include components such as site architecture/planning, digital imaging and typography for the web, interface design, and XHTML,and CSS production.

**IDD-628 - 3-D Modeling**  
3.00 Credits  
3D Modeling This elective course exposes students to the conceptual and technical aspects of three-dimensional modeling, photo-realistic rendering and virtual environments. Students will complete a series of specifically designed exercises of increasing difficulty, leading to a final project of the student's choosing. The class will cover the basic principles of 3D modeling and animation including polygonal and NURBS modeling, texturing, lighting, and animation.

**IDD-631N - Digital Innovation Design**  
3.00 Credits  
Digital Innovation Design This second in a sequence of three studios focuses on the ability of individual designers to pursue innovation. This course is comprised of several projects which highlight the role that digital designers play in the multi-disciplinary attempt to bridge the gap between functionality and usability. Students will address current interface design issues through a series of screen-based projects, each ranging in complexity and theme, and placing particular emphasis on the visual and semantic aspects of design solutions. Students will be expected to seek new ways to navigate through 4D environments, challenging common interface paradigms. They are encouraged to build 4D spaces that are expressive, dynamic and experiential, while retaining their intuitive usefulness.
IDD-632 - Database Mgmt & Scripting  3.00 Credits
Database Management and Scripting Using PHP, students will learn fundamental server-side scripting concepts like creating arrays and functions, automating Unix commands, gathering and processing user input, and dynamically writing out HTML and JavaScript. Relational Database concepts are covered and students will learn to conceptually model data and to create, query, and manage their database using SQL. The course will culminate with the students, for their final project, creating a web application that ties HTML front-end to a MySQL database using PHP.

IDD-635 - Interactive Narrative/Drama  3.00 Credits
Since the beginning of time, storytelling has been used as a universal practice that has proven to be a powerful tool of communication for fostering understanding, social inquiry, and self-expression. Interactive narrative is an emerging interdisciplinary genre which uses interactivity, hypertext, video and film, sound, drama, videogames, literary fiction, multi-user spaces, interactive installations, live performance, and artificial intelligence to tell a story. This course will explore theoretical perspectives on both interactivity and narrative structure and provide an overview of the forms, strategies, and conventions of each while emphasizing approaches on how to integrate the two.

IDD-637 - Mobile Communication Design  3.00 Credits
As a society, our ability to communicate from anywhere on the globe has become increasingly more important. Designers today are faced with new challenges, paradigms, and habits that have been adopted due to mobile communications. Designing strictly for the desktop only is a thing of the past. In this class, students will explore a strategic process of how to design for today's multiscreen environment with a focus on mobile platforms. We will be designing interactions that happen literally within the palm of our hands and crafting unique, cutting edge user experiences for users of mobile devices. Design and development will be taught as an overall curriculum. At the end of the course, students will have an understanding of how to plan, design, develop, and market potential mobile applications.

IDD-700 - Information Architecture  3.00 Credits
This course focused on a UX designer's role in system development, specifically information architecture (IA). Students will develop, document, and present user-centered IA recommendations to create more usable products & services.

IDD-797 - Special Topics:  3.00 Credits
Generic Special Topics Description - An upper-level course designed to take advantage of resident/adjunct/visiting faculty members' expertise or a special focus wanted by the School for one or two terms. These courses might provide an in-depth treatment of recent advances in subjects of current interest in a given field whose subject matter is not necessarily needed to be offered long term. A specific "topic" may be delivered a maximum of two term. Prerequisites: Announced prior to registration.

IDD-798 - Independent Study  3.00 Credits
Independent Study & Research This course will allow students to pursue individual areas of interest while working jointly with a faculty member. Enrollment is subject to the availability and approval of both the program director and faculty member. The student must have 18 or more graduate-level credits, and a prospectus of the proposed independent study must be approved at least one month prior to registration. See appropriate form online at registrar's webpage.

**IDD-941N - UXD Thesis Project Preparation** 1.00 Credits

Digital Design Synthesis Project Preparation This course is the first step towards completing the final synthesis project. Students will be asked to identify and analyze potential projects through a number of lenses including technical feasibility, marketability and design potential. With faculty guidance, each student will select a particular project based upon individual interests and professional aspirations. In order to successfully complete this course, a final document must be submitted by the student outlining the relevant factors that will determine the route to developing a successful synthesis project.

**IDD-942 - UXD Thesis Project** 6.00 Credits

This is the third of a sequence of three studios focusing on interdisciplinary digital design. This synthesis studio will develop the ability of the digital designer to successfully bring a digital design project to completion. Students will develop a final, working prototype of a product, service, entertainment or publication of their choice that synthesizes all of their knowledge and skill from the previous semesters. The final project must demonstrate marketability and/or successful functionality within the larger community.

**IDF-500 - Drawing: Design and Development** 3.00 Credits

This is an advanced drawing course developed for designers of all disciplines who want to improve the designer's ability to apply knowledge imparted in other courses to the development of designs. Wherever possible the subject matter of the students' design studio courses will be used as the subject matter for drawing exercises.

**IDF-502 - Foundations in Web Design & Strategy** 3.00 Credits

This course will focus on the principles of raster and vector electronic imaging as a means to provide a solid foundation needed to succeed in the digital design field. This is a labbased class with specific instruction in Adobe Photoshop and Adobe Illustrator. This is a foundation course that does not count for credit toward the graduate degree.

**IDF-503 - Electronic Communications Seminar I** 3.00 Credits

Theory of Electronic Communication I This course introduces students to the theoretical understanding of the role of the interactive designer. Special focus will be placed on how our existing culture has been, and is currently being, revolutionized by the information revolution. This is a foundation course that does not count for credit toward the graduate degree.

**IDF-505 - Materials and Processes: Manufacturing** 3.00 Credits

This course is concerned with the exploration of materials used in the mass production of products, the processes used to shape these materials and the applicability of these materials to product-design solutions. Students should be prepared to visit a number of manufacturing facilities. A survey of rapid prototyping technologies completes the course.
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<tr>
<td>IDF-506</td>
<td>Application Software</td>
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<td></td>
<td>Application Software Using Windows and Mac platforms, this foundation course will focus on experiences which will familiarize students with instructional applications and personal productivity uses of microcomputers. Word processing, database management, spreadsheets, graphic tools and telecommunications will be analyzed in terms of their application to business and education. The skills presented in this course are prerequisites for all other courses offered in the Instructional Design and Technology program. This is a foundation course that does not count for credit toward the graduate degree.</td>
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<tr>
<td>IDF-507</td>
<td>Design I for Industrial Design</td>
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<td>This studio is an introduction to design for undergraduate majors in industrial design. The course will provide an intensive introduction to design as an iterative problem-solving process. It will also introduce strategies for making and analyzing form, and present basic techniques of two-dimensional visualization and documentation of three-dimensional objects and principles of design critique, testing and research.</td>
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<td>IDF-508</td>
<td>Materials and Processes Fabrication</td>
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<td>This course introduces shop techniques as they pertain to industrial design model-making and prototype construction. All industrial design students must take this course for shop equipment safety training and pass a safety test. Throughout the semester, attention is given to safety precautions for the shop, along with demonstrations of shop equipment and fabrication processes. A major portion of the course will consist of developing an understanding of the materials and machinery commonly used by industrial designers for producing both working and appearance models.</td>
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<td>IDF-509</td>
<td>Rendering for Industrial Design</td>
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<td>An introduction to the traditional techniques and materials that industrial designers use to develop and represent three-dimensional concepts and ideas. Students become proficient in the use of pencils, markers, pastels and airbrush on a variety of media. Emphasis is placed on understanding the significance of color and graphic applications for industrial design.</td>
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<td>IDF-510</td>
<td>Ergonomic Studies</td>
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<td>This course analyzes human factors as related to broad aspects of design development. It explores the issues of operator/user human factors and their impact on design. The outcome of this course will be to ascertain the relationship of basic human dimensions on product design. Subjects include systems reliability, sensory and motor processes, basic research techniques and anthropometric studies.</td>
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<td>IDF-511</td>
<td>Interactive Design III</td>
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<td>This studio will explore the translation of the three- and four-dimensional concepts into two-dimensional screen images, interactivity and animation. Students will be introduced to the theory and practice of motion graphic production. The mediums of choreography, filmmaking, architecture, performance art, and music will be discussed as potential sources of inspiration for creating new and powerful forms of digital space and experience. A series of increasingly complex projects will culminate in a more demanding final project.</td>
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<tr>
<td>IDF-512</td>
<td>Interactive Design IV</td>
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Digital Design IV This studio will develop the ability of the digital designer to successfully participate within an interdisciplinary team. Students from a variety of majors will work together to develop a final, working prototype of a product, service, experience or publication of their choice that synthesizes their knowledge and skills from the previous studios. The students will develop a final project that demonstrates marketability and successfully functions within the larger community. This is a foundation course that does not count for credit toward the graduate degree.

IDF-513 - Design V for Industrial Design 4.00 Credits
The fifth in a series of eight studios, this course focuses on ideas of designs derived from an understanding of consumer behavior. Emphasis is placed on user needs, ease of use and product culture, without ignoring the practicalities imposed by manufacturer's markets, manufacturing process constraints and investment concerns. Students will demonstrate control of the process of design to develop meaningful concepts that employ appropriate technology for their eventual realization.

IDF-514 - Drawing Essentials 3.00 Credits
This drawing course emphasizes the understanding of space and alternative approaches for recording and expressing it. Much information in regard to drawing practice will be accumulated during this semester such as mark making skills, developing sensitivity to light and shade, experimentation with media and the use of color as an introduction to figure drawing. *This course should not be taken by students who have received credit for DRAW 101 or DRAW 201 in the School of Design & Engineering or the School of Architecture*

IDF-515 - Design VI for Industrial Design 6.00 Credits
In this sixth of a series of eight studio courses, students design and develop consumer products. Students learn about the complexities of the product-development process, during which assembly requirements, marketing issues, materials and component development all affect the initial intent of their designs. Students are required to fabricate a fully functional prototype of their designs. A selected team of professionals from the industry will evaluate the final product.

IMBA-600 - Management Concepts 1.50 Credits
This course introduces students to the theory and practice of managerial functions and decision-making models in traditional and more innovative organizations. Students are familiarized with the importance of organizational communications, including verbal and written communications and the criticality of using multiple communication channels. Students explore basic negotiation techniques and methods of conflict resolution. Prerequisite: 1 group IMBF-503 IMBF-504 IMBF-505 IMBF-508 IMBF-510 IMBFX-503 IMBFX-504 IMBFX-505 IMBFX-508 IMBFX-510

IMBA-601 - Marketing Concepts 1.50 Credits
This course provides students with a broad understanding of the various organizational marketing functions including the development, positioning, pricing, distribution, and promotion of products, services, and business ideas. Attention is focused on understanding of the basic marketing concepts including strategic planning, marketing mix, market segmentation, branding, consumer research, and marketing research and applying the knowledge to formulate marketing strategies for business opportunities. Prerequisite: 1 group IMBF-503 IMBF-504 IMBF-505 IMBF-508 IMBF-510 IMBFX-503 IMBFX-504 IMBFX-505 IMBFX-508 IMBFX-510
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<tr>
<td>IMBA-602</td>
<td>Managing Innovative People and Teams</td>
<td>3.00</td>
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<td>IMBA-604</td>
<td>Business Model Innovation</td>
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<td>IMBA-625</td>
<td>Comm, Negotiation, Creative Economy</td>
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<td>IMBA-627</td>
<td>Competitive Tech Intelligence</td>
<td>3.00</td>
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<tr>
<td>IMBA-628</td>
<td>Accounting for Management Decisions</td>
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**IMBA-602 - Managing Innovative People and Teams**  
This course addresses the skills and attitudes that support leadership in complex, innovative organizations under conditions of uncertainty and change. Students will explore the concept of self-leadership, managing change, ethical decision-making, power and influence, motivation, facilitation of diverse teams, conflict resolution, and organizational culture. The course begins with creative exercises in leadership style self-assessment and relates these results to leadership in new, innovative organizational structures.  
Prerequisite: IMBF-503 IMBFX-503 or MBF-503 IMBF-504 IMBFX-504 or MBF-504 IMBF-505 IMBFX-505 or MBF-505 IMBF-508 IMBFX-508 or MBF-508 IMBF-510 IMBFX-510 or MBF-510

**IMBA-604 - Business Model Innovation**  
In this course students fully explore how an organization creates, delivers, and captures value through a customer-centric approach to business model innovation. The impact of industry disruption through business model innovation will be explored as students analyze and evaluate existing models. Using creative thinking and specific patterns, students will gain experience in planning and executing new models to address the complex challenges facing businesses from a variety of industries in the market place today.  
Prerequisite: IMBF-503 IMBFX-503 or MBF-503 IMBF-504 IMBFX-504 or MBF-504 IMBF-505 IMBFX-505 or MBF-505 IMBF-508 IMBFX-508 or MBF-508 IMBF-510 IMBFX-510 or MBF-510

**IMBA-625 - Comm, Negotiation, Creative Economy**  
This course covers the concepts and art of effective management communications and negotiations in the business environment. The total communications process – verbal, nonverbal, presentation, written and electronic – is reviewed in the context of today’s work environment. The perspectives and needs of top management, interactive teams, individual contributors, and clients are examined and translated into professional practices. Experiential exercises and class discussions will build participants’ understanding of styles and skills in negotiating. Coursework will focus on the uses of power, influence, and negotiating styles, methods of conflict resolution and means of influencing others.  
Prerequisite: 1 group IMBF-503 IMBF-504 IMBF-505 IMBF-510 IMBF-508 IMBFX-503 IMBFX-504 IMBFX-505 IMBFX-508 IMBFX-510

**IMBA-627 - Competitive Tech Intelligence**  
This course will focus on the latest technological advances for managing data and communications effectively. Students will acquire the skills and concepts necessary to use a system to handle data efficiently for large and small organizations, national or international in scope. Network technology and usage of computer networks, as well as ethical and security issues will also be addressed. The concepts of telecommunications and the costs and benefits associated with this transmission of information will be explored. Methods of instruction include hands-on/application orientation.  
Prerequisite: IMBF-503 IMBFX-503 or MBF-503 IMBF-504 IMBFX-504 or MBF-504 IMBF-505 IMBFX-505 or MBF-505 IMBF-508 IMBFX-508 or MBF-508 IMBF-510 IMBFX-510 or MBF-510

**IMBA-628 - Accounting for Management Decisions**  

This course provides students previously exposed to financial and managerial accounting principles an opportunity to study the structure and use of accounting systems designed to aid management in controlling costs and profits. The course stresses the following: financial statement interpretation as a basis for decision making, cash flow analysis, cash budgeting, cost volume profit analysis, costing and interpretation of manufacturing systems and the impact of international competition, responsibility accounting and the impact of inflation. Prerequisite: IMBF-503 IMBFX-503 or MBF-503 IMBF-504 IMBFX-504 or MBF-504 IMBF-505 IMBFX-505 or MBF-505 IMBF-508 IMBFX-508 or MBF-508 IMBF-510 IMBFX-510 or MBF-510

**IMBA-629 - Financial Policy and Planning**  
3.00 Credits

This course focuses on the investment and financing decisions of firms. Topics include capital budgeting, cash management and cash flow analysis, capital structure, dividends and international operations. Financial policy making is considered within the context of contemporary valuation and risk management theories. Various financial planning models are analyzed in the course. Prerequisite: IMBF-503 IMBFX-503 or MBF-503 IMBF-504 IMBFX-504 or MBF-504 IMBF-505 IMBFX-505 or MBF-505 IMBF-508 IMBFX-508 or MBF-508 IMBF-510 IMBFX-510 or MBF-510

**IMBA-630 - Operations from a Sys Perspectv**  
3.00 Credits

This course will focus on the mathematical models and methods available for use in formulating and analyzing business decision-making problems in industry. Areas of study include: probability theory, decision analysis, game theory, forecasting techniques, project management, queuing models, allocating scarce resources using linear programming and integer-programming techniques, and deterministic and probabilistic inventory models. Prerequisite: IMBF-503 IMBFX-503 or MBF-503 IMBF-504 IMBFX-504 or MBF-504 IMBF-505 IMBFX-505 or MBF-505 IMBF-508 IMBFX-508 or MBF-508 IMBF-510 IMBFX-510 or MBF-510

**IMBA-642 - Strategic Insight & Implementation**  
3.00 Credits

This course explores the strategic visioning, planning and implementation process, with a focus on global industries and the challenges faced by businesses in an increasingly dynamic environment. Students analyze strategic threats and opportunities that confront businesses across the globe in the 21st century. Prerequisite: IMBA-604 IMBA-627 IMBA-628 IMBA-629;

**IMBA-700 - Intl. Economic and Finance**  
3.00 Credits

This course explores interrelationships between economic growth/development theories and financial applications in global markets, emphasizing international financial management techniques and practices. Topics include international trade, balance of payments, foreign exchange markets and risk, the international financial system, and portfolio effects of capital budgets on international capital markets. Students explore current issues of concern to multinational firms such as environmental problems, organizing for optimal results, sources and uses of funds, and accounting, tax, and control issues. Prerequisite: IMBF-503 or MBF-503; IMBF-504 or MBF-504; IMBF-505 or MBF-505; IMBF-505 or MBF-505; IMBF-510 or MBF-510; IMBA-629

**IMBA-714 - New Product Development**  
3.00 Credits
This project-based, team oriented course provides a methodology for discovering and executing new business opportunities. Following a product design and development roadmap, students participate in innovation games and charrette exercises, identify customer needs, and generate product concepts. Weekly assignments focus on the business aspects and general design concepts of new product development. The course culminates in the creation of a prototyped concept and submission of a business plan. Prerequisite: MBA-6XX Marketing Concepts and MBA-6XX Business Model Development. Prerequisite: take IMBA-604;

**IMBA-720 - Data Models & Management**  
3.00 Credits

This course introduces students to operational databases and analytical databases in business environments. Topics include entity-relationship modeling, unified modeling language, relational database, SQL, data warehouse modeling, data mart modeling, and DBMS functioning. Emphases are on the understanding of data requirements for solving business problems, conceptual design of data models, logical design of databases, key elements of database management, and the differences between operational databases and analytical databases. Graphical tools for database conceptual design and modern DBMS systems are used to support the learning process of the topics.

**IMBA-721 - Business Analytics Modeling**  
3.00 Credits

This course focuses on up-to-date frameworks for successful business analytics modeling, and will cover processes, methods, techniques, evaluation, and tools. It includes overviews of text and web mining, sentiment analysis, as well as Big Data. Business analytics modeling best practices to enable timely, actionable, evidence-based decision making will be explored. Students will acquire an understanding of concepts with tutorials, case studies (both successful and failures), as well as hands-on applications.

**IMBA-722 - Business Analytics Practicum**  
3.00 Credits

The practicum provides students with an opportunity to gain real world experience by working with industry partners. Each project is sponsored by a company, allowing students to work with partner companies to gain analytics experience and reconcile theory with business practice. Student groups are supervised by a faculty member and work with the practicum company to identify, define, scope and analyze a particular business problem. Following an initial identification of project scope and purpose, students typically engage in data acquisition, data cleansing and restructuring, exploratory data analysis, feature extraction, model development and evaluation, modeling fitting and testing, remodeling and retesting, final modeling and data fitting, as well as oral and written communication of results. The ultimate learning objective is to solve a real-life business problem, improving bottom-line, and achieving business goals.

**IMBA-730 - Innovative Leadership**  
3.00 Credits

This course addresses the skills, concepts, and mind-set that support leadership in complex, innovative organizations. In the context of new business models and planning for uncertainty, topics include self-leadership, critiquing diverse models of leadership, reating vision and strategy, understanding people, managing change, ethical decision making, power and inclusion, motivation, facilitation of diverse teams, conflict resolution, and organizational culture.

**IMBA-731 - Design Thinking in Business**  
3.00 Credits
This course focuses on the intersection between design thinking and opportunity-finding for strategy development, covering theory and practice related to innovation, complexity, emergence, and systems thinking to develop strategies that drive organizational change and new value propositions. It begins with review of frameworks for strategy development and explores approaches to engaging stakeholders in that development. Students use lifecycle analysis to redesign an existing organizational strategy and develop an actionable communication rollout plan.

**IMBA-732 - Design Research & Project**  
3.00 Credits

This course covers all aspects of the entrepreneurial process, providing students with principles of design research for creating successful new ventures. This course addresses the entrepreneurial mindset, creativity and idea generation, assessing entrepreneurial opportunities, conducting feasibility studies and market research, developing marketing plans, financial preparation for new ventures, location and capacity planning, new venture team building, legal issues and risk analysis. The course focuses on the development of an effective business plan for a new venture.

**IMBA-741 - Financial Acct & Reporting I**  
3.00 Credits

An in-depth study of current accounting issues and pronouncements, including long-term debt and troubled debt restructuring, accounting for leases, pension and post-retirement, income tax accounting, price-level adjusted financial statement reporting, and accounting for partnerships (equity, admission, profit and loss sharing, and liquidation). Prerequisite: IMBA-503, 504, 505, 508 & 510

**IMBA-742 - Financial Acct & Reporting II**  
3.00 Credits

A continuation of Financial Accounting & Reporting I, including the study of accounting for business combinations (purchases and pooling of interests), accounting for the translation or remeasurement of foreign subsidiary financial statements into dollars to meet business combination reporting requirements, accounting for transactions denominated in a foreign currency (including purchases, sales, and hedges), and analysis of financial statements.

**IMBA-743 - Audit and Attestation**  
4.00 Credits

A study of the development of financial compliance and operational auditing techniques, including analysis of current issues in the auditing profession such as audit risk, ethical conduct, materiality, audit sampling procedures, and reporting issues. These areas will be studied with reference to pronouncements of the accounting profession and current literature. The study of operational, as well as financial compliance auditing, will be enhanced using case studies and examples. Prerequisite: IMBA-742 or MBA-742;

**IMBA-759 - Entrepreneurship**  
3.00 Credits
This course will provide an overview of the major elements of entrepreneurial activity including planning and evaluation of the business, financing, typical operating and administrative issues and alternatives for growth and sale. Entrepreneurial opportunities and challenges will be examined and a variety of venture opportunities will be analyzed. The course will give students a realistic look at the challenges involved in starting a viable business and help students in a personal evaluation of their own skills, talents and career potential. Utilizing business planning software, each student will prepare a comprehensive business plan for a business opportunity the student selects and perceives to be viable and practical. The plan may be utilized for presentation to potential investors. Prerequisite: IMBF-503 or MBF-503 IMBF-504 or MBF-504 IMBF-505 or MBF-505 IMBF-508 or MBF-508 IMBF-510 or MBF-510

IMBA-761 - Promotion Management 3.00 Credits
This course focuses on the promotion and communication decisions of corporations and how to employ promotion strategy to solve marketing problems and enhance opportunities. Advertising, sales promotions, publicity, public relations and personal selling are investigated. Prerequisite: TAKE IMBA-604;

IMBA-762 - Qualit & Quanti Mktg Research 3.00 Credits
This course gives students the qualitative and quantitative tools they need to find business opportunities and/or solve business problems. Students learn how to formulate the research problem, design the research, collect the data, and analyze the data. Various qualitative and quantitative research techniques will be examined and applied to identify opportunities, analyze data, and make strategic decision. Students will be required to conduct a research study using both qualitative and quantitative methods during the semester. Prerequisite: IMBA-604;

IMBA-772 - Investment and Portfolio Management 3.00 Credits
Investment and Portfolio Management This course will acquaint the student with the tools essential for sound money management. Investment management begins by considering the goals of an investor with respect to risk exposure, the tax environment, liquidity needs and appreciation versus income potentials. Strategies will be developed to satisfy these objectives. Special attention will be paid to the theories of determinants of asset prices, including the capital-asset pricing model. Prerequisite: IMBA-629 or MBA-629

IMBA-776 - Speculative Markets 3.00 Credits
Speculative Markets This course is intended to introduce students to financial futures, options and swaps. The objective of this course is to clearly explain why these securities exist and how to accurately price them. The course will present a balance of the institutional details, theoretical foundations and practical applications of this field. Prerequisite: IMBA-772 or MBA-772;

IMBA-777 - Fixed Income Securities 3.00 Credits
Fixed Income Securities This is a highly specialized course that focuses on the fixed income market with emphasis on the bond market. Topics include pricing of bonds, bond price volatility, types of fixed income securities, term structure of interest rates and bond portfolio-management strategies. Various fixed income products are analyzed in the course, including some derivative products in the context of fixed-income securities. Prerequisite: IMBA-629 or MBA-629;

IMBA-792 - International Business Innovatn 3.00 Credits
International Business Innovations: The focus of this course is visiting representatives of U.S. and non-U.S. businesses in various industries abroad. The international business trip will span approximately two weeks. Students will meet with business executives, government officials, labor leaders and academicians in specific industries abroad. Students will gain an appreciation for both the formal business aspects and informal social aspects of conducting commerce in foreign countries. Registration requires permission of the Graduate Business Programs Office. Prerequisite: IMBF-503 IMBF-504 IMBF-505 IMBF-508 IMBF-510;

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<tr>
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<td>IMBA-797</td>
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<td>Managing Innovative People &amp; Teams</td>
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<td>IMBAX-604</td>
<td>Business Model Innovation</td>
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<tr>
<td>IMBAX-625</td>
<td>Communication, Negotiation, Creative Economy</td>
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This online course covers the concepts and art of effective management communications and negotiations in the business environment. The total communications process - verbal, nonverbal, presentation, written and electronic is reviewed in the context of today's work environment. The perspectives and needs of top management, interactive teams, individual contributors, and clients are examined and translated into professional practices. Experiential exercises and class discussions will build participants understanding of styles and skills in negotiating. Coursework will focus on the uses of power, influence, and negotiating styles, methods of conflict resolution and means of influencing others.

**IMBAX-627 - Competitive Tech Intelligence**  
3.00 Credits

This online course will focus on the latest technological advances for managing data and communications effectively. Students will acquire the skills and concepts necessary to use a system to handle data efficiently for large and small organizations, national or international in scope. Network technology and usage of computer networks, as well as ethical and security issues will also be addressed. The concepts of telecommunications and the costs and benefits associated with this transmission of information will be explored. Methods of instruction include hands-on/application orientation. Prerequisite: IMBAX-503, 504, 505, 508, & 510

**IMBAX-628 - Accounting for Mgmt Decisions**  
3.00 Credits

This online course provides students previously exposed to financial and managerial accounting principles an opportunity to study the structure and use of accounting systems designed to aid management in controlling costs and profits. The course stresses the following: financial statement interpretation as a basis for decision making, cash flow analysis, cash budgeting, cost volume profit analysis, costing and interpretation of manufacturing systems and the impact of international competition, responsibility accounting and the impact of inflation. Prerequisite: IMBFX-503 IMBFX-504 IMBFX-505 IMBFX-508 IMBFX-510;

**IMBAX-629 - Financial Policy and Planning**  
3.00 Credits

This course focuses on the investment and financing decisions of firms. Topics include capital budgeting, cash management and cash flow analysis, capital structure, dividends and international operations. Financial policy making is considered within the context of contemporary valuation and risk management theories. Various financial planning models are analyzed in the course. Prerequisite: 1 group; IMBFX-503 IMBFX-504 IMBFX-505 IMBFX-508 IMBFX-510;

**IMBAX-630 - Operations Systems Perspectiv**  
3.00 Credits

This online course focuses on the mathematical models and methods available for use in formulating and analyzing business decision-making problems in industry. Areas of study include: probability theory, decision analysis, game theory, forecasting techniques, project management, queuing models, allocating scarce resources using linear programming and integer-programming techniques, and deterministic and probabilistic inventory models. Prerequisite: IMBFX-503 IMBFX-504 IMBFX-505 IMBFX-508 IMBFX-510;

**IMBAX-642 - Strategic Insight & Implementation**  
3.00 Credits
This online course will focus on the design and implementation of a strategic plan in global industries and the importance of such a plan in dealing with the many challenges facing organizations in the years ahead. Strategic planning models and research findings will be investigated. During the semester, students will analyze strategic threats and opportunities that confront corporate-level executives as well as managers of business units. Students will work in teams on the development of a strategic plan for an organization. The focus will be on developing effective strategies that clarify the future direction of the chosen organization and deal with the rapidly changing environment. This is a capstone course and students will draw from the knowledge they have gained throughout the iMBA Online program. Prerequisites: All core MBA courses must be completed or taken concurrently.

**IMBAX-700 - Intl. Economic and Finance**  
3.00 Credits

This online course explores interrelationships between economic growth/development theories and financial applications in global markets, emphasizing international financial management techniques and practices. Topics include international trade, balance of payments, foreign exchange markets and risk, the international financial system, and portfolio effects of capital budgets on international capital markets. Students explore current issues of concern to multinational firms such as environmental problems, organizing for optimal results, sources and uses of funds, and accounting, tax, and control issues. Prerequisite: IMBAX-503, 504, 505, 508, & 510

**IMBAX-714 - New Product Development**  
3.00 Credits

This project-based, team oriented course provides a methodology for discovering and executing new business opportunities. Following a product design and development roadmap, students participate in innovation games and charrette exercises, identify customer needs, and generate product concepts. Weekly assignments focus on the business aspects and general design concepts of new product development. The course culminates in the creation of a prototyped concept and submission of a business plan. Prerequisite: MBA-6XX Marketing Concepts and MBA-6XX Business Model Development. Prerequisite: IMBAX-604

**IMBAX-759 - Entrepreneurship**  
3.00 Credits

This online course will provide an overview of the major elements of entrepreneurial activity including planning and evaluation of the business, financing, typical operating and administrative issues and alternatives for growth and sale. Entrepreneurial opportunities and challenges will be examined and a variety of venture opportunities will be analyzed. The course will give students a realistic look at the challenges involved in starting a viable business and help students in a personal evaluation of their own skills, talents and career potential. Utilizing business planning software, each student will prepare a comprehensive business plan for a business opportunity the student selects and perceives to be viable and practical. The plan may be utilized for presentation to potential investors. Prerequisite: IMBFX- 503, 504, 505, 508, and 510

**IMBAX-797 - Selected Topics**  
3.00 Credits

Selected Topics Content will vary in response to current issues.

**IMBF-503 - Foundations of Economics**  
3.00 Credits

This course introduces students to basic microeconomic and macroeconomic concepts including supply and demand, economic indicators, labor economics, international trade, and fiscal and monetary policy. The course focuses on the relevance of these concepts for organizations and organizational decision-making.
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**IMBF-504 - Financial & Managerial Acct.**  
This course is designed to introduce students to the fundamentals of financial and managerial accounting. Accounting information is discussed as a basis for planning, control and managerial decision-making.

**IMBF-505 - Financial Management**  
This introductory level finance course examines the role of financial decision-makers at the corporate level. Emphasis is placed on the goals of the firm, efficient market hypothesis, discounted cash flow analysis, and the trade-off between risk and return.

**IMBF-508 - Stat. Analysis for Bus Decisn**  
This is a foundations course in Statistics for the MBA program. Descriptive statistical measures and probability theory are combined to provide the basis for statistical decision-making techniques. Areas covered include: measures of central tendency, measures of variability, hypothesis testing and confidence intervals, one- and two-way analysis of variance, Chi-squares and non-parametric statistical techniques.

**IMBF-510 - Operations Management**  
This introductory level course provides students with an understanding of the latest quantitative tools for corporate decision-making. Topics include quality-control applications, optimization techniques (including linear programming), the simplex method, the transportation model, and the assignment model. Other topics include time-series analysis, queuing theory and an introduction to total quality management. Computer applications, case analysis and problem-solving sets are used throughout the course.

**IMBFX-503 - Foundations of Economics**  
This course introduces students to basic microeconomic and macroeconomic concepts including supply and demand, economic indicators, labor economics, international trade, and fiscal and monetary policy. The course focuses on the relevance of these concepts for organizations and organizational decision-making.

**IMBFX-504 - Financial & Managerial Acct.**  
This course is designed to introduce students to the fundamentals of financial and managerial accounting. Accounting information is discussed as a basis for planning, control and managerial decision-making.

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**IMBFX-510 - Operations Management**

1.50 Credits

This introductory level course provides students with an understanding of the latest quantitative tools for corporate decision-making. Topics include quality-control applications, optimization techniques (including linear programming), the simplex method, the transportation model, and the assignment model. Other topics include time-series analysis, queuing theory and an introduction to total quality management. Computer applications, case analysis and problem-solving sets are used throughout the course.

**LARCH-614 - Intro to Horticulture Therapy**

3.00 Credits

This course introduces students to the profound interaction between people to plants and the therapeutic benefits of horticulture on mind, body and soul. Students learn the history, principles, practices, basic skills, applied research and recent development of horticultural therapy. They will become familiar with physically, mentally and emotionally challenged populations in different settings including special schools and correctional facilities through site visits.

Prerequisite: WRTG-211 WRTG-217 OR WRTG-215;

**MARCH-601 - Introduction to Design**

3.00 Credits

This intensive foundation design studio course is an introduction to fundamental design principles and vocabulary, representational methods and skills, as well as process methodologies and problem-solving strategies. Lectures and readings will stress abstraction as a primary building block for future design studios. It is also an introduction to research as a tool for understanding programming and design. Prerequisite: Permission of the M.Arch Program Director required. First offered Summer 2015

**MARCH-602 - Introduction to Visualization**

3.00 Credits

In this complementary intensive course taken with MARCH-60x, students will investigate and devise comprehensive strategies for visualizing and communicating ideas through a vast range of technologies and techniques. By integrating digital and conventional hand-drawing methods, the student will learn the appropriate tool to employ at any given point in the design process to effectively communicate to self and to others. Prerequisite: Requires permission of M.Arch Program Director.

**MARCH-611 - Design I**

6.00 Credits

This graduate-level studio concentrates on issues concerning "dwelling" and specific issues addressing residential design at multiple scales in the urban context. Emphasis is placed on designing dense, sustainable, and socially responsible housing and mixed-use urban communities as generators for urban growth and renewal. This course uses research and analysis of human patterns of occupancy and settlement as a means of exploration. Techniques of representation are further developed and refined.

**MARCH-612 - Design 2**

6.00 Credits
This foundation course focuses on building the landscape using the elements, principles and theories of architectural and landscape design. Concurrently, specific theoretical issues related to design, organization and the interrelationship of interior and exterior space are explored. A particular emphasis is placed on an experiential and intuitive design process. The importance of the building parti as a response to naturally occurring context is emphasized. Techniques of representation are developed and refined. Prerequisite: permission of the M.Arch program director.

**MARCH-613 - Urban Operations Studio** 6.00 Credits

This topical studio explores the integration between individual buildings and urban design. The course focuses on creating community within the city. Students investigate socio-cultural and environmental aspects of the city as they relate to architecture. The studio includes discussion of architectural history, theory and principles as the basis for the making of architecture and urban form.

**MARCH-614 - Design 4 for Architecture** 6.00 Credits

This tectonics studio focuses on the theories surrounding the materials and processes of making architecture. Students investigate the inherent properties of building materials to understand their roles in informing and directing the design process. They explore methods of structure, enclosure, and assembly to analyze their effect on built form. Prerequisite: MARCH-612 or permission of the program director.

**MARCH-615 - Design 5 for Architecture** 6.00 Credits

This comprehensive course requires that students work in teams integrating constructional, structural and environmental systems in the design and documentation of a large and complex building. Students will research building type and systems precedents and their resulting impact on built form, analyze material properties, specify component building systems and apply codes and standards to fulfill technical, programmatic and aesthetic needs.

**MARCH-616 - Design 6** 6.00 Credits

This required Master of Architecture course is the culmination of the design studio experience. The structure of the course is negotiated with a faculty advisor to inform student research leading to the development of an original comprehensive architectural design project within the structure of a supervised studio. This studio allows each student to pursue individual interests while requiring them to resolve formal, programmatic, and technical requirements.

**MARCH-621 - Visualization I: digital Modeln** 3.00 Credits

The primary intent of this course is to establish the computer as an effective tool in the design and presentation process. The course will focus on two primary areas in this regard: visualizing design concepts in three dimensions and communicating those concepts in a manner consistent with studio level work. Each project will explore various methods of describing two and three-dimensional objects and spaces.

**MARCH-622 - Visualization 2: Advanced Mod** 3.00 Credits
This advanced, computer-aided design, elective course focuses on complex 3D modeling, photorealistic rendering and virtual reality; with an emphasis on using 3D Studio advanced modeling and rendering software. Interactive media and digital imaging are introduced in order to increase effectiveness of student presentations. Students complete a series of specifically designed exercises of increasing difficulty leading to a final project of the student's choosing from a concurrent or earlier design studio.

**MARCH-624 - Visualization: Experimental Modeling**  3.00 Credits

This advanced digital elective course focuses on the direct correlation between digital techniques and the design process. Complex three-dimensional modeling, rendering, animation, design visualization and presentation are emphasized in the course methodology. Using a variety of softwares, students complete a series of exercises of increasing difficulty leading to a final project that demonstrates the culmination of the skills developed throughout the semester.

**MARCH-626 - Design/Build**  3.00 Credits

Through a combination of lecture and lab, students apply knowledge of building technologies and structural systems to the design and construction of a project at appropriate scale. Working under the supervision of faculty, students research, plan, and build their solution to a problem of topical interest.

**MARCH-631 - History I: Ancient to Medieval**  3.00 Credits

By tracing significant historical themes, this course spotlights canonic examples of Western and non-Western architecture, interiors, and landscape design from Ancient times to the Medieval period. Major monuments of Europe, Asia, Africa, and the Americas are examined as solutions to technical problems, utilizing available materials, and as spatial and structural embodiments of cultural belief systems. Students acquire a working vocabulary for both analyzing and evaluating the built environment and material culture.

**MARCH-632 - History II: Built Environment**  3.00 Credits

Focusing upon global changes relative to patterns of patronage, and the intersection of church and state, this course highlights significant examples of Western and non-Western architecture and interiors produced from the 14th through the mid-18th centuries. Each case study is situated within a broad historical context and understood as paradigmatic of a period's values and aspirations that are given concrete form through available materials, construction methods, and technologies. Students acquire a working vocabulary for both analyzing and evaluating architecture, interiors, and material culture.

**MARCH-633 - Hist 3:Early Modern Arc & Int**  3.00 Credits

WRITING INTENSIVE. This course chronicles the impact of Enlightenment thinking and of the shifting definitions of modernity upon architecture and interior design by tracing the transition from Historicism to the International Style. New notions of progress and evolution; industrialization and urbanization; and debates concerning the role of the machine and the meaning of ornament are set against major technological advances. Students examine key theoretical texts and accomplish archival research on an historic structure in the Philadelphia area.

**MARCH-634 - History 4**  3.00 Credits
WRITING INTENSIVE: History IV: Modern/Contemporary Architecture and Interiors (1930-Present) This course analyzes major movements and theoretical constructs that have dominated architecture and interior design from the post-World War II period until the present. Discussion focuses upon societal and environmental aspects ' politics, economics, science and technology, psychology, etc. ' that shape the greater context for architecture, interiors and the allied arts. Students examine key theoretical texts to evaluate current thinking relative to issues such as sustainability, critical regionalism, phenomenology and the role of the digital in contemporary practice.

MARCH-640 - Experimental Materials 3.00 Credits
This elective lab/seminar course is a hands-on exploration into the mechanical properties and aesthetic potential of materials in the built environment. The course encourages experimentation with both new materials and non-traditional use of existing materials toward the full-scale production of architectural objects and building components. Implications of craft and technology underscore research and production. Students complete several smaller individual projects and a larger group project of longer duration.

MARCH-641 - Tech I: Materials & Methods 3.00 Credits
This course focuses on the presentation of the technical factors of construction that affect a building's structure. Students are introduced to and compare the nature and structural characteristics of the major construction systems of wood, masonry, steel and concrete. Structural principles, as well as building and zoning codes, are introduced and their influence on form and choice of materials is emphasized.

MARCH-642 - Tech 2: Passive Syst/Bldg Encl 3.00 Credits
This lecture/lab course examines technological issues relevant to passive environmental systems and sustainable technologies. Central to the course is a students understanding of the temporal nature of program and site and their impact upon the design of natural lighting, passive heating and cooling systems, and issues of enclosure, materiality, and skin, as well as their relation to our natural and built environments.

MARCH-643 - Tech 3: Dynamic Environmental Systems 3.00 Credits
This lecture/lab course presents basic theory and application parameters associated with the dynamic building systems within the architectural environment. These include HVAC, power and data, lighting, acoustics, security, plumbing, vertical transportation, and life and fire safety. Emphasis is placed on the relationships of these systems within the building structure and envelope, as well as the integration of design processes, the implementation of sustainable design principles, and the health, safety, and welfare of users.

MARCH-644 - Tech 4: Adv Bldg Analysis 3.00 Credits
This lecture/lab is the capstone course to the Structures and Technology course sequences. This course presents advanced theory, design and application parameters associated with structures, environmental systems and enclosure within the architectural environment. These parameters are examined through the context of building form typology. Emphasis is placed on the relationships of structures, environmental systems and building enclosure within each building type, and the use of these design elements in the conceptualization and realization of architecture.
MARCH-645 - Tech 5: Documentation/Detail 3.00 Credits
This course focuses on the important role of structural, environmental, and constructional systems in the design process through the creation of technically precise computer generated drawings and models. Students systematically analyze precedence through case studies and develop their own design into a set of technical documents and details that enhance the project concept. The utilize CAD and BIM computer software to convey their technical design intentions.

MARCH-647 - Experimental Structures 3.00 Credits
This elective lab/seminar course is an exploration into the architectural potential of form-active structures (including thin-shell, tensile-membrane and fabric structures), and new and alternative materials and methods of construction. Unlike conventional structures that rely on their internal rigidity, form-active structures rely purely on their geometric shape to carry loads, thus providing a base for experimenting with form to create innovative solutions for structural-design problems.

MARCH-651 - Structures 1 3.00 Credits
This course merges structural design (form) and analysis as a simultaneous act and introduces the role of structural engineering in the architectural process. Students develop familiarity with the fundamentals of statics, gain a sense of how structures resist forces, and learn to visualize the load path and the direction of forces. Material is learned while designing actual structures and details. Structural design and analysis is taught using both numerical and graphical analyses for the preliminary shapes of cable structures, arches, and trusses.

MARCH-652 - Structures 2 3.00 Credits
Reinforcing concepts learned in Structures 1, this course presents the effect of cross-sectional properties on stresses in beams as well as the concept of bending as it is applied to beams, columns, slabs and walls in wood, steel and reinforced concrete. Also covered are the resistance of buildings and their components to lateral loads (wind and earthquake) and the introduction to structural grids and patterns for structural systems in wood, steel and concrete as they relate to gravity and lateral loads.

MARCH-661 - Professional Management 3.00 Credits
This course focuses on the nature of the architect's practice and on office proprietorship typologies, through detailed studies of legal, financial, marketing and management issues. Using individual projects, it examines the project process - from development through construction, including administrative procedures, economic systems, codes, standards and regulations - as well as various professional disciplines' responsibilities and requirements for professional registration. Contractual and ethical obligations of the architect, particularly in response to client needs and safety, as well as codes, standards and regulations are covered. Prerequisite: MARCH 615 or permission of the program director.

MARCH-670 - Issues in Contemporary Architecture 3.00 Credits
Through discussion and field trips, this seminar investigates selected topics that have dominated architectural thinking during the 20th and 21st centuries. The course focuses upon major issues that continue to influence both the meaning and practice of contemporary architecture, such as: patterns of settlement and the city; the relationship between architecture and place making; the impact of technology and the digital realms; the spatial and sensory experience of buildings; sustainable design; and the role of adaptive reuse and historic preservation, to name a few. Students will critique contemporary theory and practice to develop their own architecture and design theory.
MARCH-671 - Vernacular Architecture 3.00 Credits
This elective course provides the groundwork for the study of architecture built without architects or, in some other way, unlike the buildings that comprise the standard architectural canon. Scholars estimate that 95 percent of buildings fall into this category. Depending on faculty expertise, focus will be on national and regional traditions, non-Western traditions or a combination of the two. Examples of vernacular architecture will be examined in the context of their materials, building technology, climate and culture.

MARCH-672 - American Architecture 3.00 Credits
What makes the built environment in America unique? How has American design changed over the generations? What were architects, clients, and critics thinking? Where will American architecture go in the future? Using history, sociology, and the humanities, we will address these types of questions as we examine American architecture according to themes such as the iconic American home, public buildings, buildings for work and play, and American architectural practice.

MARCH-673 - The Great American City 3.00 Credits
The American city is examined from multiple viewpoints - historical, theoretical and critical - and with respect to specific communities, as well as to general issues. Themes include the initial founding of settlements and their growth, the architectural character of the communities and how character relates to the socioeconomic and physical environments, and the contribution of all these factors toward the specific image or reputation associated with America's best known or "most typical" cities and towns. Field trips vary by semester and are required.

MCM-600 - Constructn Estimatn & Schedn 3.00 Credits
Utilizing pertinent case studies, this course focuses upon the planning and scheduling stages of the building process, with particular emphasis upon reading construction documents and basic estimating principles applied to small-scale, residential and commercial projects. Construction site procedures, as well as techniques for estimating unit quantities and costs of materials, labor and equipment, are introduced, and given industry application utilizing building specifications and computer software.

MCM-602 - Constructn Informatn Modeling 3.00 Credits
Technological advances within the construction industry demand that today's managers possess proficiency in current building methodologies and literacy in current computer software. This course concentrates upon the use of sustainable construction methods and materials to produce cost-effective projects with emphasis upon resource efficiency, environmental protection and waste minimization. Innovative methods of documentation and digital techniques, principally Integrated Practice and Building Information Modeling (BIM) are given comprehensive coverage, relative to the application of the software to the actualization of the built form.

MCM-603 - Const Law: Roles & Responsibi 3.00 Credits
Current legal problems associated with the construction industry are investigated from management's perspective through consideration of the roles assigned to the various project participants. The entire building process from predesign to owner use is scrutinized, highlighting case law and statutory information, contractual relationships, licensing issues, design through build, bidding and procurement rules, mechanics liens, insurance and surety bonds, and liability awareness. Available methods of dispute resolution are evaluated, including negotiation, mediation, arbitration, and litigation with emphasis upon claim avoidance.

**MCM-604 - Project Finance & Cost Control**

3.00 Credits

Utilizing pertinent case studies, this course probes the economics of construction and analyzes project control systems used to effectively manage cost and time. Principles drawn from cognate business fields, specifically accounting, finance, and taxation, are given real-life application relative to construction projects of multiple types and scales. Key budgetary issues are examined in-depth, including financial statements and balance sheets, variance analysis and optimum cash flow methods, as well as efficient cost reporting systems. Additional topics include internal controls, financial analysis and presentation, contractor surety and lending, and fraud, with particular emphasis upon cost-effective methods to procure and deliver construction projects including lump sum, unit price, cost-plus, and design-build.

**MCM-606 - Construction Risk Management**

3.00 Credits

This course examines the key concepts, models, codes, tools and techniques used in managing risks within the architecture, construction and engineering industries. The course will focus on planning for the effective implementation of the risk management process, identification and qualitative and quantitative assessment of risks, appropriate strategies to respond to risks, and how to sustain the risk management process throughout the life of a construction project.

**MCM-608 - Constructn Environmental Mgmt.**

3.00 Credits

This course examines the key concepts, systems, laws, tools and techniques used in managing environmental risks within the architecture, construction and engineering industries. The course will focus on environmental issues from a construction business management perspective and include analytical techniques, management processes and business strategies that aid successful reconciliation of environmental and economic performance goals for construction operations. Through a combination of real-life cases, readings, lectures, videos, and simulations, class sessions will seek to engage students in discussions aimed at developing systems of corporate environmental management, covering compliance, environmental risk management, pollution prevention, product stewardship, supply chain management, and communication.

**MCM-610 - Constructn Estimatn & Schedn**

3.00 Credits

Utilizing pertinent case studies, this course focuses upon the planning and scheduling stages of the building process, with particular emphasis upon reading construction documents and basic estimating principles applied to small-scale, residential and commercial projects. Construction site procedures, as well as techniques for estimating unit quantities and costs of materials, labor and equipment, are introduced, and given industry application utilizing building specifications and computer software.

**MCM-612 - Ad Constn. Proj. Management**

3.00 Credits
Through detailed case studies drawn from contemporary practice, this course provides in-depth study of the principles and methods critical to the management and integration of the design and construction processes. Planning, scheduling, bidding, professional/client relationship, contractor selection and LEED accreditation are analyzed. Theoretical and practical aspects of project planning are charted, incorporating such essential steps as feasibility studies, estimating project costs, cash flows and cost control through critical path methodologies, risk analysis methods and current techniques for value engineering. Prerequisite: take MCM-600 MCM-602 MCM-603 MCM-604 MCM-606;

MCM-614 - Materials & Mthds of Construc 3.00 Credits
This course explores a management approach to evaluation and policies involving materials, assemblies and methodologies of general construction. Students are exposed to basic building materials, components, and systems and the appropriate techniques to evaluate their value, constructability, and other characteristics affecting project success. Emphasis is placed on the development of company policies regarding material selection, procurement, handling and assembly. Case studies and ongoing project examples are an integral part of the course.

MCM-616 - Real Estate Developopement 3.00 Credits
This lecture course will educate students on all aspects of sustainable development ranging from construction startup to project financing to management of green construction. Students will learn techniques of cost benefit analysis including such aspects as impact of zoning and code ordinance for green projects to understanding tax incentives for such projects. Students will complete case studies and finish the semester with a completed proposal for a sustainable project.

MCM-618 - Heavy Construction Principles & Practice 3.00 Credits
This course is intended to provide students with an introduction to the principles and practices employed in heavy/civil infrastructure and marine construction. The course content is presented from a practical perspective focusing on the management of heavy/civil construction projects. The course is designed for construction management majors as well as those majoring in related fields and is intended to provide a broad understanding of heavy construction techniques and contracting.

MCM-791 - Construction Mgmt Internship 1.00 - 3.00 Credits
To ensure competency in the field before graduation, each student must complete 400 hours of professional construction management experience with a firm in the building industry. This requirement may be waived for entering students with equal or greater professional experience. Prerequisite: MCM-600 MCM-603 MCM-604;

MCM-901 - Master's Project 3.00 Credits
Construction managers today are part of a team-oriented enterprise, working in collaboration with architects, clients, developers and sub-contractors in the conceptualization and realization of the built environment. This independent study serves as the culminating experience in the program and requires the student to translate the design intentions of the architect and the expectations of the client into sustainable built form. Working in consultation with a committee of academic and professional advisors drawn from both architecture and construction, the student must choose a specific project and produce a comprehensive manual that addresses design concerns, sustainable systems and materials, construction methodologies as well as financial, legal, and safety standards operative in each phase of the construction process. An oral defense, supported by visual documentation realized via relevant digital technologies, will be presented for review and critique by a jury of committee members, faculty and students. Prerequisite: MCM-612 & SDN-601

**MMW-712 - Introduction to Health Policy**  
3.00 Credits

The focus of this required course is federal health-policy development, analysis and implementation and the role of the health-care provider in influencing health policy in the United States. The student will study public health policy to understand the basics of the policy-making process and to attain a beginning knowledge of how to influence health policies. The course will focus on women's and infants’ health issues as examples of broader issues in health policy.

**MMW-722 - Clinical Administration**  
3.00 Credits

This elective course provides students with the knowledge to understand the factors that influence the success and viability of nurse-midwifery practices. The effects of the changing health-care environment on primary health-care providers will be explored. Particular attention will be paid to current issues in the health-care system. The course will examine the startup of a clinical practice either as an entrepreneurial entity or within an existing organization. Emphasis will be placed on a beginning understanding of financial accounting statements and business plans used in the health-care industry. Students will explore the influence of political/economic milieus within and around the practice organization. In addition, students will learn practical techniques in order to develop beginning abilities in conflict resolution and contract negotiation.

**MMW-723 - Advanced Clinical Practice**  
3.00 Credits

This elective course is a guided independent study in advanced clinical practice. In consultation with the faculty, the student will identify a specific area of clinical practice (for example, caring for women with gestational diabetes). Intensive, focused study in this content area will be facilitated. Experiences relevant to the student's area of interest will be sought in the clinical setting. Reflection on the student's own transformation from novice to expert will be included.

**MMW-724 - Introduction to Teaching Methods**  
3.00 Credits

This elective course provides an introduction to teaching methods useful for midwifery educators in academic and clinical settings. Fundamentals of adult education will be reviewed. Concepts particular to midwifery education will be explored. Examination of how to identify and reach educational goals will be included for traditional models, distance education and in the clinical setting. The process of identification of student learning issues and problem solving will be included.

**MMW-725 - Intro-Reproductive Hlth Global Contexts**  
3.00 Credits
Students will consider how differences in economic, political, and geographic conditions among low, middle, and high resource countries affect the delivery of reproductive health care. Students will explore common intervention strategies, and the critical role of health-care consultants in improving global reproductive health. The class will gain an understanding of the appropriate preparation, roles and responsibilities of international health-care consultants. As an outcome of this course, the student will be prepared to predict the potential impact of unmet reproductive health care needs and evaluate proposed interventions in a variety of global contexts.

MMW-726A - SL-Reproductive Hlth in Global Contexts 1.50 Credits
This international excursion course will enhance student learning and contribute to global efforts to improve maternal-infant health. The experience will include travel in a foreign country. Travel length will vary from 1 week to several weeks. The course includes pre-travel preparation and assignments that will encourage reflection and facilitate the development of leadership skills and cultural humility. All students will be supervised by TJU faculty during their travel experience.

MMW-726B - SL-Reproductive Hlth in Global Contexts 1.50 Credits
This international excursion course will enhance student learning and contribute to global efforts to improve maternal-infant health. The experience will include travel in a foreign country. Travel length will vary from 1 week to several weeks. The course includes pre-travel preparation and assignments that will encourage reflection and facilitate the development of leadership skills and cultural humility. All students will be supervised by TJU faculty during their travel experience.

MMW-730 - Theoretical Foundatns of Midw 3.00 Credits
This course provides an overview of health promotion and counseling from theoretical and applied perspectives. The midwifery model of care will be introduced. We will discuss how the health of women and their families are influenced by a variety of factors. We will study theories of wellness and behavior change and explore public health and the role of the midwife. The development of graduate-level writing skills will be emphasized.

MMW-731 - Evidence-Based Care:Eval Rsch 3.00 Credits
This required course provides the foundations of research and critical inquiry as it applies to the evaluation of scientific evidence. This course covers the following areas: the scientific method and its limitations; multiple ways of knowing; ethics of research; defining problems, questions, and hypotheses; conceptual analysis, constructs and theories as they pertain to clinical practice and research. The course will provide an overview of research methods and process, and the student will apply this knowledge in the preparation of a literature review relevant to midwifery practice. Midwifery contributions to the scientific literature will be highlighted as examples.

MRE-601 - Sustainable Real Estate Dev Process 3.00 Credits
This advanced survey is intended to familiarize students with the theories, practices and principles of real estate development. Topics include urban economics, real estate law, brokerage, real estate valuation, financial institutions and analysis, tax issues, investment analysis and development.

MRE-602 - Intro to Urban & Regional Planning 3.00 Credits
Tracing the evolution of modern urban and regional planning, its practice and its results, this course will discuss its development within the context of American metropolitan growth and decline. This course will show how practitioners applied elements of design, engineering, law and the social sciences to create the profession of planning. Special emphasis will be placed on how the profession of planning affected minority communities through racial zoning, segregated housing policies, and programs like Urban Renewal, Opportunity Zones, Choice Neighborhoods and HOPE VI.

**MRE-603 - Introduction to Commercial Development**  
3.00 Credits

This course will provide an introductory overview of the commercial real estate development process primarily from the perspective of the equity owner. It concentrates on the identification of important assumptions and trends related to the financial feasibility, marketability, and design of commercial real estate development.

**MRE-604 - Sustainable Affordable Housing**  
3.00 Credits

The course provides a broad overview of the affordable housing industry, including a detailed study of the techniques for financing affordable housing. The course also looks at the challenges of integrating sustainable development processes while maintaining affordability. Governmental programs such as the Low Income Housing Tax Credit program and public policies that promote the development and rehabilitation of affordable will be explored.

**MRE-605 - Case Study: Multi-Use, Commercial, Health**  
3.00 Credits

This course focuses on the challenges intrinsic to three distinct, but interconnected and overlapping, development types, with primary focus upon Mixed-Use (a blend of residential commercial, cultural, institutional and/or industrial uses), complemented by Commercial (office and retail); and Health Care facilities of multiple scales (including senior assisted living, not-for-profit neighborhood clinics, and outreach services). Students investigate "real world" case studies and assess the financial and social impact of each development type upon the community, as well as evaluate long-term fiscal and environmental outcomes in projects whose scale and density carry far-reaching social, economic, and "quality of life" consequences.

**MRE-615 - Real Estate Finance & Investment**  
3.00 Credits

This course introduces concepts, principles and analytical methods used in making sound finance and investment decisions in real estate development. Topics include pro forma analysis, tax analysis, cash flow forecasting, computer modeling, equity valuation, and risk assessment. Using an inductive approach, students gain practical experience applying financial and investment tools in a wide array of property types and development scenarios. Also investigated are capital sources and availability for sustainable planning paradigms, such as Smart Growth, Adaptive Reuse, Brownfield and Infill redevelopment and Transit-Oriented Development (TOD).

**MRE-620 - Case Study Studio: Urban Revitalization**  
3.00 Credits
Course addresses a critical issue facing the contemporary city, namely how to creatively invigorate urban communities architecturally, environmentally and fiscally. By assessing the macro and microeconomics of neighborhoods, students evaluate the social, political and financial impact of sustainable planning strategies, including Smart Growth, Brownfield and Infill redevelopment, Transit Oriented Development (TOD), New Urbanism "live, work, play," Mixed-use environments, and the Adaptive Reuse of existing buildings. Student teams investigate "real world" projects, using Philadelphia as a living laboratory. The course affords students the opportunity to visit and dissect actual development sites and measure sustainable interventions as a springboard to urban revitalization.

**MRE-625 - Real Estate Law & Ethical Practices**  
3.00 Credits

This course examines fundamental legal principles and ethical practices applicable to real estate development. Topics include: contracts, constitutional law, zoning and regulatory aspects of land use, permitting, environmental law and business ethics. Students evaluate the legal issues and ethical implications raised in current case studies and examine the rights, obligations, and liabilities of the major stakeholders in the development process.

**MRE-630 - Market Analysis and Valuation**  
3.00 Credits

This course identifies data sources and indicators used to track the demographic, sociological, technological and economic trends that impact the supply and demand for particular building types and sites within specific markets and geographic areas. Linked to market trends, valuation analysis assesses the value of an investment and utilizes income capitalization, cash equivalency, highest and best use concepts of discounted cash flow (DCF), cost approach and direct sales comparison to inform sound development decisions.

**MRE-635 - Public Private Partnerships**  
3.00 Credits

This course examines the opportunities and challenges of public-private partnerships (PPPs), the techniques employed to encourage growth, and the market and fiscal feasibility of cross-sector collaborations. In problem-based learning exercises students analyze case studies drawn from multiple contexts, with particular emphasis upon sustainable neighborhood redevelopment, rezoning of brownfields and grayfields, infill development, adaptive reuse, as well as affordable and mixed income housing. Working in teams students design and plan an affordable housing development, beginning with site selection in Philadelphia and feasibility studies, tax credit and tax exempt bond financing, community involvement, political considerations, and financial feasibility.

**MRE-638 - Case Study: Sustainable Affordable Housing**  
3.00 Credits

The course is oriented towards the issues faced by local housing practitioners and policy analysts in the challenge of providing sustainable affordable housing. Sustainable affordable housing is examined from multiple viewpoints - historical, design, finance, policy, planning, and development. Students will understand the social and cultural dynamics of housing, the sustainable development process and the economic impact housing has on the American economy. Additionally, students will learn what influences local, State and Federal policies, laws and regulations have on the housing market, and how to meet the demand for affordable housing, special needs housing and other sub-housing markets.

**MRE-640 - Capstone Project**  
4.00 Credits
The course is the culminating Capstone Project required to graduate with the Masters of Science in Real Estate Development degree from Jefferson University. Students propose a thesis; work with a dedicated advisor to develop the project; orally present the project; and submit their written documentation for final evaluation.

**MSARC-619 - High Performance Bldg Envelop**  
3.00 Credits

This course explores future possibilities for advanced building envelopes as well as the properties of interior and exterior building materials and their relation to construction methods and detailing. The building envelope will be considered using the following criteria: architectural expression, sustainability, spatial order, performance, and user experience. The goal of these investigations is to develop new building envelope systems that integrate the construction process with structure, materials, climate, energy use, transparency, surface qualities, and aesthetics. Students will participate in an integrated design process leading towards the technical and architectural design of a high performance-building envelope.

**MSARC-620 - Advanced Design Computation**  
3.00 Credits

This course provides an overview of computational approaches in architectural design and focuses both on material and computational processes for design innovation. Topics range from parametric design; algorithmic design; digital fabrication. Weekly readings offer the foundation in contemporary computational design thinking that has come at the confluence of design, and various fields from the arts and sciences. Through experimentation students investigate various computational and material techniques that can be applied to larger proposals. A series of tutorials and workshops introduce advanced scripting, programming, modeling and fabrication techniques.

**MSARC-621 - Building Science for Façades**  
3.00 Credits

This course will explore the function of building facades through the lens of building science and their specific response to dynamic internal and external loads. Understanding the performance of the building envelope including issues of local contexts, thermal and moisture control, solar exposure, day lighting, acoustics, material properties, and life-cycle requirements, is critical to understanding overall building performance. Various analysis and modeling tools, widely used in the façade construction and design industry will be introduced and discussed to provide a foundation for characterizing and assessing façade performance issues.

**MSARC-622 - Design and Health Infrastructures**  
3.00 Credits

In this lecture course, students will actively examine the collaborative role designers, healthcare professionals and communities play in human-centered development. Students will execute case-studies on healthcare and public health design interventions in developing contexts, including designs of hospitals, healthcare facilities and urban environments; and critique various methodologies of user engagement. The course concludes with students identifying funding streams and developing action proposals at the nexus of health and design in response to social indicators of health outcomes.

**MSARC-623 - Façades Construction**  
3.00 Credits
The demand for more sustainable, efficient, and highly performative building envelopes is ever-increasing, and simultaneously, design, fabrication, and construction methodologies are evolving at a rapid pace. As such, there is a demand for a higher level of specialization in the professional environment, particularly pertaining to façade design and construction. This course focuses on issues related to façade construction in the contemporary built environment. Various case studies will be presented and discussed to develop a working knowledge of materials, assemblies, detailing, specification-writing, and other issues related to contemporary facades in both new construction and retrofit conditions. Other exercises and a final project will be designed to facilitate a more in-depth knowledge of issues endemic to the façade construction continuum.

**MSARC-624 - Façade Tectonics-Design, build, prototype**  
3.00 Credits  
This course provides a step-by-step overview of the stages in design, design development, detailing, prototyping and constructing building components and building envelopes. Topics range from conceptualization of building envelopes, project planning and design, working with the development team, prototyping and the construction process. Through cases analysis and lectures presented by experts in building envelope design and construction, students investigate framing systems, glass technology, bonding technologies, building materials, fabrication methods and assembly methods.

**MSARC-631 - Architectural Research Methods**  
3.00 Credits  
This seminar is focused on understanding independent research, inquiry, analysis, design exploration and synthesis in architecture. Different approaches to research, hypothesis testing, design process, and systems for design will be presented and discussed. This course is structured around weekly seminars and workshops and interactions with faculty members to guide student research and lead to the development of a comprehensive thesis project. Students will be challenged to develop and prepare their research proposals for their thesis project.

**MSARC-771 - Independent Study & Research**  
3.00 Credits  
This course will allow students to pursue individual areas of interest while working jointly with a faculty member. Enrollment is subject to the availability and approval of both the program director and faculty member. The student must have 12 or more graduate-level credits, and a prospectus of the proposed independent study must be approved at least one month prior to registration.

**MSARC-791 - Internship and Research**  
3.00 Credits  
This course allows students to pursue direct experience in a company or organization that is actively engaged in work related to the research topic. Students augment and enrich their overall education at the University by researching through direct work experience on appropriate projects. Permission required, see program director or Career Services office for details.

**Prerequisite:** MSARC-631  
First offered Spring 2015

**MSARC-901 - Graduate Thesis Project I**  
1.00 - 6.00 Credits  
This independent research course is the first of the sequence of courses focused on independent research, inquiry, design exploration and synthesis for the graduate thesis project. The structure of the course is negotiated with your faculty advisor to inform student research leading to the development of a comprehensive thesis project. Emphasis will be placed on developing your independent research project creating a clear structure and schedule to advance toward completion of the graduate thesis project. Consent of faculty advisor required.
MSARC-901A - Graduate Thesis Project I 3.00 Credits
This independent research course is the first of the sequence of courses focused on independent research, inquiry, design exploration and synthesis for the graduate thesis project. The structure of the course is negotiated with your faculty advisor to inform student research leading to the development of a comprehensive thesis project. Emphasis will be placed on developing your independent research project creating a clear structure and schedule to advance toward completion of the graduate thesis project. Consent of faculty advisor required.

MSARC-901B - Graduate Thesis Project I 3.00 Credits
This independent research course is the first of the sequence of courses focused on independent research, inquiry, design exploration and synthesis for the graduate thesis project. The structure of the course is negotiated with your faculty advisor to inform student research leading to the development of a comprehensive thesis project. Emphasis will be placed on developing your independent research project creating a clear structure and schedule to advance toward completion of the graduate thesis project. Consent of faculty advisor required.

MSARC-902 - Graduate Thesis Project II 3.00 Credits
In this culminating course, students will work under the guidance of a faculty advisor on a research project that will focus on the continuation and completion of the thesis project begun previously while demonstrating in-depth research ability at a graduate level. Students will be required to focus on specific details and features of their project. If agreed to by the program director, students will present their final project in a public forum and generate a final “book” (using the most current Philadelphia University Guide For The Preparation Of Doctoral Dissertation And Master's Theses document) that includes all of the work completed during the graduate thesis project sequence. For a building design project, students will be required to present their project research results as part of the final requirements for graduation.
Prerequisites: MSARC 901 and consent of faculty advisor required. First offered Spring/Fall 201X.

MSARC-902E - Graduate Thesis Project II 3.00 Credits
In this culminating course, students will work under the guidance of a faculty advisor on a research project that will focus on the continuation and completion of the thesis project begun previously while demonstrating in-depth research ability at a graduate level. Students will be required to focus on specific details and features of their project. If agreed to by the program director, students will present their final project in a public forum and generate a final “book” (using the most current Philadelphia University Guide For The Preparation Of Doctoral Dissertation And Master's Theses document) that includes all of the work completed during the graduate thesis project sequence. For a building design project, students will be required to present their project research results as part of the final requirements for graduation.
Prerequisites: MSARC 901 and consent of faculty advisor required. First offered Spring/Fall 201X.

MSDAX-600 - Systems Modeling I 3.00 Credits
This course introduces the mathematical tools and techniques necessary to visually represent complex systems as a series of interconnected elements and numerically simulate dynamic system behavior using modern simulation software in order to develop insights into complex system behavior. In this course, the Stella software package will be used to assist in modeling, simulating, analyzing and interpreting the behavior of complex dynamic systems.

MSDAX-620 - Systems Modeling II 3.00 Credits
This course advances the mathematical tools and techniques introduced in MSDAX---600 by practicing the visual representation of complex systems and the numerical simulation of dynamic system behavior using modern simulation software in order to develop insights into complex system behavior. In this course, the Stella software package will be used to assist in modeling, simulating, analyzing and interpreting the behavior of complex dynamic systems. Prerequisite: MSDAX---600

**MSDAX-700 - Analytical Modeling I**

This course introduces mathematical tools and techniques and applied mathematics principles associated with quantitative analytical modeling. In this course, the Mathematica software package will be used in the development, solution and interpretation of quantitative mathematical models. Prerequisite: MSDAX---620

**MSDAX-720 - Systems Modeling I**

This course advances the mathematical tools and techniques introduced in MSDAX---700 by practicing the applied mathematics principles associated with quantitative analytical modeling. In this course, the Mathematica software package will be used in the development, solution and interpretation of quantitative mathematical models. Prerequisite: MSDAX---700

**MSID-500 - Skills & Methods for Ind Dsgn**

An intensive summer workshop for graduate students matriculating without an industrial design background. This course replicates much of the skills-based content covered in undergraduate Design I, and goes on to cover shop and prototyping issues otherwise found in Materials and Process: Shop Techniques, as well as basic materials and process selection for manufacturing. Projects are designed, but this class focuses on techniques and skills rather than the objects designed. Note: This course meets from 9-5, the last week (one week only) of the SM4W semester. Student must register for course by 1st day of the SM4W term.

**MSID-600A - Intercultur Innovatn/Stdy Abr**

During a short experience in a foreign country, students will observe and document cultural and demographic difference between countries through formal lectures, and field observations and team exercises. The work in this class is informed by the use of user-based observational research techniques, which students will adapt and propose. Documentation is brought back to the US for use in the MSID-600B Intercultrual Innovation: Interdisciplinary Project Component class. Students should plan on taking BOTH classes.

**MSID-600B - Intercultur Innovatn/Stdy Abr**

This is the second in a two-course interdisciplinary course sequence. This class builds on work done in the MSID-600A Intercultural Innovation: Study Abroad Component course. Students should plan on taking BOTH classes. In MSID-600B, students bring research by interdisciplinary teams outside the US into well-documented opportunities for new products, business platforms or systems. In a series of team meetings and design critiques, they then turn them into cohesive proposals including both design and business elements. Prerequisite: take MSID-600A;

**MSID-700 - Research & Desn Process Meths**

3.00 Credits
This course gives students the tools they need to find and frame opportunities, to construct successful design briefs and to evaluate design in progress, and to explore and document new generative and evaluative research techniques and defining basics of professional practice. Class projects will support studio work, as well as contributing to ongoing research initiatives.

**MSID-701 - Design Bus & Entrepreneurship**

3.00 Credits

This course addresses specialized topics in professional practice relevant to graduate industrial design students. These include current approaches to intellectual property, professional ethics, contracts, management practices, and structures of practice and employment in the field. In addition, students research fields within industrial design to identify potential career paths, plan and execute individual strategies for networking and interviewing, and prepare portfolio deliverables and other self-promotion materials in consultation with faculty and guest critics.

**MSID-703 - User Centered Design**

4.00 Credits

This course is the first in the MSID studio sequence. This studio concentrates on user-centered design techniques, including observational/ethnographic research methods and methods incorporating users and other stakeholders into the design process. Each studio will be expected to do extensive generative research and to publicize/archive its research and conclusions. Prerequisite: take MSID-500;

**MSID-704 - Wkshop: Interactive Prototypn**

3.00 Credits

This course addresses the need by industrial design professionals to create interactive, intelligent systems comprising both hardware and software components, and to test, iterate, assess and defend these solutions based on principles of cognitive and physical human factors. Through quick, iterative prototyping and testing of interfaces based on simple microcontrollers, this class teaches basic programming, integration of electronic sensors and outputs into tangible interfaces, and principles of testing and cognitive ergonomics for use in assessment of interactive interfaces.

**MSID-705 - Collaborative Innovatn Studio**

5.00 Credits

This course is the second in the MSID studio sequence. This studio provokes interdisciplinary activity through a project centered on designed systems, which requires industrial design but requires inputs from other disciplines. Types of projects might include: - ID + corporate brand experience, - ID + materials science product development, - Products of service/business, platform design, - Entrepreneurial design (design + business plan), - Software/hardware systems Prerequisite: take MSID-703;

**MSID-707 - Current Issues in Ind Dsg**

3.00 Credits

In this class, students map and discuss the major influences on industrial design today, as well as modeling the lifetime learning and assessment of theory that are necessary for effective professional design and critique. The class is a seminar and is thematic rather than historical in focus. The reading list is expected to include blogs and periodicals, as well as books, and will change frequently.

**MSID-791 - Internship**

3.00 Credits
This course allows students to pursue direct experience in a company or organization that is actively engaged in design-related work. Students augment and enrich their overall education at the University by learning through direct work experience on design projects. Permission required, see program director or Career Services office for details. Prerequisite: take MSID-705;

**MSID-798 - Independent Study**  
3.00 Credits  
This course will allow students to pursue individual areas of interest while working jointly with a faculty member. Enrollment is subject to the availability and approval of both the program director and faculty member. The student must have 18 or more graduate-level credits, and a prospectus of the proposed independent study must be approved at least one month prior to registration. See appropriate form available online at Registrar's website, www.philau.edu/registrar/. Prerequisite: take MSID-705;

**MSID-803 - Master's Proj I: Implementation**  
4.00 Credits  
The 2-semester capstone project sequence stresses the importance of iterative prototyping and evaluation in current design practice by devoting two semesters to the ID Capstone project. In this first capstone project semester, students begin work with a team of collaborators within and outside the University. Students have weekly progress critiques with studio faculty and other students, as well as regular meetings with outside project stakeholders. The semester concludes in a progress presentation with outside critics. Prerequisite: take MSID-705;

**MSID-804 - Master's Proj II: Dev & Eval**  
5.00 Credits  
The MSID master's project sequence includes two courses. In this second semester, students work with collaborators and critics/clients within and outside the University to develop, detail and revise designs to a professional level, and to test their performance in the real world. Activities include weekly critiques with studio faculty and other students, as well as meetings with outside project stakeholders. The semester concludes with in-person defense of the work and a display at the CDEC Spring Design Show. Prerequisite: TAKE MSID-803;

**MSSI-500 - Surface Imaging Dsgn Foundatn**  
3.00 Credits  
This course covers the basic principals of design process, design research methodologies as well as the fundamentals of material selection and printing processes for Surface Imaging. A series of short design projects are introduced throughout the semester to enhance conceptual, technical and skill development towards Surface Imaging design and production. Prerequisite: Passing portfolio review by Program Director. Senior level students at Philadelphia University can take this course as an elective by permission from the Program Director.

**MSSI-601 - Surface Imaging Design I**  
3.00 Credits  
This is the first design studio course in the MSSI program that focuses on the individual creative design process utilizing design research methodologies, printing technologies as well as executed crafted control and successful design in surface imaging. Prerequisite: MSSI-500 Surface Imaging Design Foundation or equivalent

**MSSI-602 - Intro to Material Sci for SI**  
3.00 Credits
This course will survey materials and materials-related processes associated with surface imaging applications. The science describing a wide range of solid-state materials (e.g., bulk metals and ceramics), polymeric materials (e.g., porous/non-porous substrates) and polymer solutions (e.g., inks, dyes and pigments) will be explained. The structure and properties of modern materials will be related to enhanced performance in the fields of surface imaging. Surface chemistry, including polar and non-polar surface tension and wetting phenomena will also be described from a materials science point-of-view. Some laboratory demonstrations will be included to reinforce student learning of these basic materials science concepts.

**MSSI-607 - Printing Technology for SI**

This is a lecture and lab course that focuses on the principles, techniques and chemical processes involved with printing technologies. This course covers printing mechanisms, chemistry, coloration systems and styles for impact, non-impact, additive and subtractive printing. Media preparation, post treatment (fixation) and industrial testing standards are also examined. At the same time, the course also introduce the principal of surface Imaging supply chains of surface Imaging supply chains including design, manufacturing, marketing and product distribution.

**MSSI-700 - Transdisciplinary Project I**

This is an interdisciplinary course that involves real world industry related projects as well as working collaboration with a variety of disciplines. Example of projects may include: MSSI + corporate sponsor, MSSI + corporate sponsor + MSID + GFE, MSSI + corporate sponsor + MSTE + iMBA, etc.

**MSSI-701 - Surface Imaging Design II**

This advanced studio course emphasizes innovation in surface imaging design and technology. Students will identify current industry movements-from contemporary global surface imaging industries in design, applied engineering and business-to develop innovative surface imaging projects toward future applications and systems. Prerequisite: MSSI-601 Surface Imaging Design I

**MSSI-702 - Transdisciplinary Project II**

This is an interdisciplinary course that builds upon the fundamental skills and experiences gained from Transdisciplinary Project I. MSSI-7XXX is an interdisciplinary course that involves real world industry related projects as well as working collaboration with a variety of disciplines. Example of projects may include: MSSI + corporate sponsor, MSSI + corporate sponsor + MSID + GFE, MSSI + corporate sponsor + MSTE + iMBA, etc. It is an elective course for MS in Surface Imaging program. Prerequisite: MSSI-7XX Transdisciplinary Project I This course will be first offered Spring 2016.

**MSSI-791 - Internship for Surface Imaging**

This course is one of designated elective courses for MS in Surface Imaging. The course provides real world learning context and experience though internship at the company, corporation and organization for Surface Imaging industry. Prerequisite: MSSI-601 SI Design I This course will be first offered Spring 2016.

**MSSI-798 - Independent Study Surface Imaging**

This course is one of designated elective courses for MS in Surface Imaging. The course provides real world learning context and experience through self-directed study. Prerequisite: MSSI-601 SI Design I This course will be first offered Spring 2016.
This course will allow students to pursue individual areas of interest while working jointly with a faculty member. Enrollment is subject to the availability and approval of both the program director and faculty member. The student must have 12 or more graduate-level credits, and a prospectus of the proposed independent study must be approved at least one month prior to registration. See appropriate form available online at Registrar’s website, http://www.philau.edu/registrar/pdf/IS Form.pdf Prerequisite: 12 or more graduate-level credits This course will be first offered Spring 2016.

**MSSI-800 - SI Master Project**

9.00 Credits

Master Project is the final degree project for MSSI. This course consists of (1) the final project based on a concentrated area of SI design, SI applied engineering or SI commerce and (2) a documentation of a business plan to support the project toward an entrepreneurial application in the surface imaging industry. Students are required to represent the project in exhibition format and to conduct an in-person defense of their project to faculty members and outside critics. Prerequisite: MSSI-7XX Surface Imaging Design II This course will be first offered Summer 2016.

**OCC-610 - Evolving Professional Seminar**

1.00 Credits

This course guides students in their development as occupational therapists. Concepts related to professionalism, reflection and ethical practice, and collaboration are explored. Students are introduced to the program’s leadership content and self-assessment as tools to facilitate the professional socialization process.

**OCC-611 - Foundations for Practice**

3.00 Credits

Overview of occupational therapy theory and domains of practice, including practice roles and functions, regulatory and legislative mandates and constraints, and historical and philosophical foundations

**OCC-613 - Functional Anatomy**

4.00 Credits

This course provides students with knowledge of structure and function of the human body and lays the foundation for an understanding of biomechanical and kinesiological concepts as they relate to human movement. Anatomy and movement will be discussed through stages of typical development as well as in common pathologies occurring through the lifespan.

**OCC-616 - Assistive Tech. Design**

2.00 Credits

In this course students develop collaborative partnerships with clients and professionals in the evaluation, design and application of assistive technologies to facilitate occupational performance. Course activities include applying the principles of task analysis and universal design, critically analyzing evaluation data, and representing the client's perspective. The culminating course project assists students to examine their evolving understanding of occupation, adaptation, and participation. Prerequisite: OCC-621;

**OCC-621 - Occupational Competence**

3.00 Credits

This course examines the psychological, social, cultural, biological and developmental dimensions of occupational performance across the lifespan. Students learn to operationalize the profession's practice framework by practicing activity analysis in the context of occupational performance. Impact of physical, social and cultural environments on occupational choice is explored.
OCC-623 - Applied Neuroanatomy 4.00 Credits
In-depth exploration of the neuroanatomical, neurochemical, neurophysiological, cognitive, motor and sensorimotor basis of brain function as it relates to human performance. Identification of major structures and functions of normal and abnormal nervous systems. Development of an understanding of the neurobiological substrates of behavior and learning. Particular emphasis is placed on the relationship of neuroanatomy to human movement, problem solving and executive functions. Prerequisite: OCC-613

OCC-625 - Clinical Skills A 1.00 Credits
Course includes development of competencies in safe clinical practices. Topics such as critical values, mobility devices, body mechanics and basic transfer techniques, as well as documentation for skilled service are explored. Skills are practiced in hands-on laboratory environments and then applied through Level I Fieldwork.

OCC-626 - Evidence Based Practice 3.00 Credits
This course helps students to become skillful consumers of research for the purposes of evidence-building and assessing occupational therapy outcomes. Students are introduced to the research perspective and evidence-based practice as a basis for professional competence. Course experiences include examining research designs, research ethics, and developing and answering clinical practice questions. Prerequisite: OCC-611;

OCC-628 - Intro to Evaluation 1.00 Credits
This course helps students to select, critique and project evaluation clinical utility. Course content also addresses how evaluation leads to occupational therapy intervention and outcomes measurement. Prerequisite: OCC-611;

OCC-635 - Clinical Skills B 1.00 Credits
Course includes development of competencies in safe clinical practices. Topics such as advanced transfer skills, wheelchair/cushion fitting, and amputation care are explored. Skills are practiced in hands-on laboratory environments and then applied through Level I Fieldwork.

OCC-645 - Clinical Skills C 1.00 Credits
Course includes development of competencies in safe clinical practices for physical agent modalities (PAMs), fabrication and application of splinting devices, and wound care. Skills are practiced in hands-on laboratory environments and then applied through Level I Fieldwork. Prerequisite: take OCC-613

OCC-735 - Level I Fieldwork A 1.00 Credits
The overall purpose of the fieldwork experience is to provide students with exposure to clinical practice through directed observation and active participation in selected aspects of the occupational therapy process. The opportunity to work with clients and therapists helps students to examine their reactions to clients, themselves and other personnel while integrating academic learning with clinical practice. The focus of the fieldwork experience will be the application of knowledge and skills related to the psychological and social factors that influence engagement in occupation. Prerequisite: OCC-611 OCC-621
OCC-738 - Psychosocial Interventions  
5.00 Credits
Occupational therapy assessment and intervention approaches as they apply to individuals whose lives have been affected by psychiatric illness, developmental disability, and/or trauma are examined. Students link theory to an in-depth analysis of the psychological and social factors that influence an individual's health and participation. Course content incorporates consultative models, documentation strategies, and client and caregiver teaching methods. Prerequisite: OCC-611 OCC-621 OCC-623;

OCC-741 - Interpersonal Relations and Groups  
3.00 Credits
Interpersonal skills and communication are critical for building effective professional relationships. Students explore the dynamics of collaboration including their own communication styles and how to enhance therapeutic use of self as an intervention tool. Designing occupation-based groups for therapeutic intervention will be explored, as will dynamics of implementing group strategies for education and/or advocacy. Prerequisite: OCC-611 OCC-621;

OCC-745 - Level I Fieldwork B  
1.00 Credits
The overall purpose of the fieldwork experience is to provide students with exposure to clinical practice through directed observation and active participation in selected aspects of the occupational therapy process. The opportunity to work with clients and therapists helps students to examine their reactions to clients, themselves and other personnel while integrating academic learning with clinical practice. The focus of the fieldwork experience will be the application of knowledge and skills related to clinical practice in adult physical disabilities. Prerequisite: OCC-621 OCC-623 OCC-625 OCC-635;

OCC-746 - Psychosocial Interventions  
4.00 Credits
Occupational therapy assessment and intervention approaches as they apply to individuals whose lives have been affected by mental health challenges across practice settings is explored. Students link theory to an in-depth analysis of the psychological and social factors that influence the health and participation of individuals whose lives have been affected by psychiatric illness, developmental disability, and/or trauma. Course content incorporates case management, group and individual intervention methods, documentation strategies, and client and caregiver teaching. Prerequisites: OCC-611 OCC-621 OCC-623;

OCC-748 - Asses. & Intervention: Adults  
5.00 Credits
This course examines occupational therapy assessment and intervention approaches for adults experiencing physiological, musculoskeletal, or neurological impairments, or other medical conditions that impact function, health and participation. Learning activities, designed to promote clinical reasoning and collaborative team skills, help students to develop a repertoire of strategies to assess and analyze the adult's occupational performance in context, establish goals appropriate to the individual and practice setting, and design intervention plans based on a variety of theoretical perspectives. Prerequisite: OCC-621 OCC-623 OCC-625;

OCC-749 - Children and Youth A  
3.00 Credits
This course examines occupational therapy assessment and intervention approaches for children and youth whose lives have been affected by cognitive, sensory processing and psychosocial conditions. Major theories of typical and atypical childhood development are explored through an occupational therapy perspective. Learning activities, designed to promote clinical reasoning and collaborative team skills, help students to develop a repertoire of strategies to assess and analyze the child's occupational performance in context, establish goals appropriate to the individual and practice setting, and design intervention plans based on a variety of theoretical perspectives.

**OCC-751 - Professional Issues and Trends**  
3.00 Credits  
This course examines major issues and trends affecting occupational therapy service delivery in today's practice environment. Through course discussion and activities students demonstrate an understanding of management functions, supervision and role delineation, regulations, reimbursement, advocacy, and ethics. Prerequisite: OCC-746 OCC-748 OCC-749 OCC-759;

**OCC-754 - Environmental Dimensions of Occupation**  
3.00 Credits  
This course provides an in-depth exploration of the physical, cognitive, psychological and social dimensions of the environment. The impact of the environment on behavior and the individual's ability to mount an adaptive response will be examined. Students will demonstrate an understanding of the historical and theoretical basis for physical and social adaptations. Prerequisite: OCC-616 OCC-621;

**OCC-755 - Level I fieldwork C**  
1.00 Credits  
The overall purpose of the fieldwork experience is to provide students with exposure to clinical practice through directed observation and active participation in selected aspects of the occupational therapy process. The opportunity to work with clients and therapists helps students to examine their reactions to clients, themselves and other personnel while integrating academic learning with clinical practice. The focus of the fieldwork experience will be the application of knowledge and skills related to clinical practice with children and youth. Prerequisite: OCC-621 OCC-623 OCC-625 OCC-635;

**OCC-757 - Innovative Prac in Oc Therapy**  
3.00 Credits  
This course provides an overview of emerging practice areas in occupational therapy. Students engage in program development to meet the changing political, social and health needs of society. The interrelationships of person, environment and occupation within communities and populations is examined. Students collaborate with stakeholders including local agency staff and consumers to identify and develop potential client-centered and evidence-based programs. Prerequisite: 2 courses; From courses OCC-746 OCC-748 OCC-749 OCC-759;

**OCC-758 - Assessment & Intervn**  
5.00 Credits  
This course examines occupational therapy assessment and intervention approaches as they apply to children and youth whose lives have been affected by complex developmental, physical, cognitive and neurological disorders. Learning activities, designed to promote clinical reasoning and collaborative team skills, help students to develop a repertoire of strategies to assess and analyze the child's occupational performance in context, establish goals appropriate to the individual and practice setting, and design intervention plans based on a variety of theoretical perspectives. Prerequisite: OCC-613, OCC-621, OCC-623;
OCC-759 - Children and Youth B 3.00 Credits
This course examines occupational therapy assessment and intervention approaches for children and youth whose lives have been affected by sensorimotor, neuromotor and biomechanical conditions. Major theories of typical and atypical childhood development are explored through an occupational therapy perspective. Learning activities, designed to promote clinical reasoning and collaborative team skills, help students to develop a repertoire of strategies to assess and analyze the child's occupational performance in context, establish goals appropriate to the individual and practice setting, and design intervention plans based on a variety of theoretical perspectives. Prerequisite: OCC 613, OCC 621, OCC 623

OCC-764 - Spec Prac: Upper Extr Rehab 2.00 Credits
Students learn the clinical reasoning process that guides occupational therapy upper extremity rehabilitation with a focus on assessment, goal setting, treatment planning and documentation strategies. The practical, philosophical and theoretical bases for intervention are reviewed for the following advanced practice techniques: physical agent modalities (PAMs), kinesiotaping, joint mobilization, static and dynamic splinting, post-surgical techniques, and upper quadrant interventions. The need for advanced certification as well as parameters for referral to and/or collaboration with other disciplines will be explored. Prerequisite: OCC-645 OCC-748;

OCC-765 - Clinical Applications 1.00 Credits
Students develop competencies in safe clinical practice by applying clinical skills in hands-on laboratory environments, and then to clients in a structured setting. Prerequisite: take OCC-621 OCC-625;

OCC-766 - Older Adults:Enabling Partic 2.00 Credits
This course provides an in-depth analysis of the impact of aging on health, well-being, and participation in older adults. Impact of normal aging, changing health status, role transition, memory and life review, retirement/leisure pursuits, wellness, and end of life issues are explored. Consultative models and practice domain challenges/ opportunities are reviewed. Prerequisite: OCC-611 OCC-621 OCC-623;

OCC-767 - Critical Inquiry I 2.00 Credits
In this course series students will participate in a supervised research experience to deepen critical inquiry skills. As future evidence-based practitioners, this will support the student's ability to meaningfully integrate empirical evidence into practice. This course is the first of two; the second course culminates in a presentation for a selected audience.

OCC-768 - Spec Prac: Upper Extr Rehab 3.00 Credits
Students learn the clinical reasoning process that guides occupational therapy upper extremity rehabilitation with a focus on assessment, goal setting, treatment planning and documentation strategies. The practical, philosophical and theoretical bases for intervention are reviewed for the following advanced practice techniques: physical agent modalities (PAMs), kinesiotaping, joint mobilization, static and dynamic splinting, post-surgical techniques, and upper quadrant interventions. The need for advanced certification as well as parameters for referral to and/or collaboration with other disciplines will be explored. Prerequisite: OCC-645 OCC-748;

OCC-769 - Critical Inquiry II 1.00 Credits
This is the second of two courses designed to deepen students' research skills. Students will analyze and synthesize the results of their respective research projects. This course culminates in a presentation for a selected audience.

OCC-770 - Practice Platform Seminar 2.00 Credits
This course supports students in their final culminating project of the academic program, presentation of the Master's Portfolio. During this capstone course, students describe the development of their own critical thinking, assess current practice knowledge and skills, and identify constructs for their future professional practice. Through classroom and online learning activities that involve self-reflection on collected experiences over the program, students are guided in their professional socialization. Prerequisite: OCC-626 OCC-738 OCC-748 OCC-758;

OCC-771 - Level II Fieldwork A 3.00 Credits
The fieldwork component of the curriculum provides students with an in-depth experience in the practice and application of the occupational therapy process. Students will apply the knowledge, skills and clinical reasoning gained through classroom, experiential and self-directed learning experiences to achieve entry-level practice competence. Students complete two full time, 12-week fieldwork placements following successful completion of assessment and intervention coursework. Successful completion of the fieldwork education component is a requirement for graduation from the Occupational Therapy Program. Prerequisite: OCC-738 OCC-748 OCC-758;

OCC-775 - Clinical Reasoning I 1.50 Credits
Integrated with the Level II Fieldwork experience, this course provides the foundation for the analysis of constructs that inform daily practice decisions. Students are challenged to transfer their fieldwork experiences, academic knowledge, and clinical skills to the dynamic and challenging practice environment through the process of clinical reasoning. Clinical reasoning concepts in relation to the therapeutic use of self and occupations will be defined and discussed through client stories and opportunities to observe and question expert practitioners. Students will use the literature to validate practice decisions and/or reframe client problems and therapy interventions. Emphasis will be placed on establishing routine clinical reasoning skills through the "electronic classroom", fieldwork experience, and on-line group discussions.

OCC-776 - Level II Fieldwork A Part 1 2.00 Credits
The fieldwork component of the curriculum provides students with an in-depth experience in delivering occupational therapy services to clients in practice settings. Students integrate knowledge and skills gained through classroom, experiential, and self-directed learning experiences with applied clinical reasoning assignments to achieve entry-level practice competence by the end of the fieldwork experience. Students complete two, full time, 12-week fieldwork placements following didactic coursework. This is Part 1 of a 12-week experience; students must complete Part 2 as well. Successful completion of the fieldwork education component is a requirement for graduation from the Occupational Therapy Program.

OCC-777 - Level II Fieldwork A Part 2 3.00 Credits
The fieldwork component of the curriculum provides students with an in-depth experience in delivering occupational therapy services to clients in practice settings. Students integrate knowledge and skills gained through classroom, experiential, and self-directed learning experiences with applied clinical reasoning assignments to achieve entry-level practice competence by the end of the fieldwork experience. Students complete two, full time, 12-week fieldwork placements following didactic coursework. Successful completion of the fieldwork education component is a requirement for graduation from the Occupational Therapy Program. This is Part 2 of a 12-week experience.

OCC-778 - Level II Fieldwork A 5.00 Credits

The fieldwork component of the curriculum provides students with an in-depth experience in delivering occupational therapy services to clients in practice settings. Students integrate knowledge and skills gained through classroom, experiential, and self-directed learning experiences with applied clinical reasoning assignments to achieve entry-level practice competence by the end of the fieldwork experience. Students complete two, full time, 12-week fieldwork placements following didactic coursework. Successful completion of the fieldwork education component is a requirement for graduation from the Occupational Therapy Program.

OCC-779 - Level II Fieldwork B 5.00 Credits

The fieldwork component of the curriculum provides students with an in-depth experience in delivering occupational therapy services to clients in practice settings. Students integrate knowledge and skills gained through classroom, experiential, and self-directed learning experiences with applied clinical reasoning assignments to achieve entry-level practice competence by the end of the fieldwork experience. Students complete two, full time, 12-week fieldwork placements following didactic coursework. Successful completion of the fieldwork education component is a requirement for graduation from the Occupational Therapy Program.

OCC-781 - Level II Fieldwork B 3.00 Credits

The fieldwork component of the curriculum provides students with an in-depth experience in the practice and application of the occupational therapy process. Students will apply the knowledge, skills and clinical reasoning gained through classroom, experiential and self-directed learning experiences to achieve entry-level practice competence. Students complete two full time, 12-week fieldwork placements following successful completion of assessment and intervention coursework. Successful completion of the fieldwork education component is a requirement for graduation from the Occupational Therapy Program. Prerequisite: OCC-738 OCC-748 OCC-758;

OCC-784 - Mastery 1.00 Credits

This course requires the integration of previously acquired knowledge and clinical skills. Through case discussion and self-testing, students review the domain and process of occupational therapy practice, incorporating clinical reasoning to inform decisions across the practice continuum. Prerequisite: OCC-746 OCC-748 OCC-749 OCC-759 OCC-766;

OCC-785 - Clinical Reasoning II 1.50 Credits
This course is conducted completely on-line using distance teaching methods. Content includes the analysis of critical thinking constructs that inform daily practice decisions. Students will continue to develop and utilize clinical reasoning concepts to reflect on practice decisions implemented during Level II Fieldwork. Students will use literature and evidence-based studies to validate and/or reframe client problems and therapy intervention. Emphasis will be placed on articulating the clinical reasoning process with other healthcare professionals in designated work environments.

**OCC-797 - Special Topics**  
1.00 - 3.00 Credits

**OTD-732 - Contemp. Practice Concepts**  
3.00 Credits
In this course students explore and apply contemporary practice concepts, language, and models to the practice of occupational therapy. Through a series of learning activities, students develop digital age information literacy to support scholarship and clinical reasoning development.

**OTD-733 - Research Mthds Clini Prac**  
3.00 Credits
This course will provide an overview of the theory and methods utilized in conducting clinical research. Students will learn to apply terminology and methods associated with measurement in experimental-type research including statistical analysis of quantitative data. The course will also review qualitative research, using a process-oriented approach to explore theories, approaches (Phenomenology, Ethnography & Grounded Theory), and data collection methods. Students will participate in the design of a group research study and explore potential methods for use in their own clinical settings.

**OTD-734 - Evidence Based Practice**  
3.00 Credits
This course helps students to become skillful consumers of research for the purposes of evidence-building and assessing outcomes of occupational therapy. Students are introduced to the research perspective and evidence-based practice as a basis for professional competence. Utilizing the critical appraisal process, students critique and analyze the literature to answer clinical practice questions. Course experiences include examining the basic research elements of single subject, experimental, quasi-experimental and qualitative research studies; considering ethical issues of research; developing and answering complex clinical questions; and planning, presenting and disseminating research findings.

**OTD-803 - Doctoral Inquiry Seminar**  
3.00 Credits
This course introduces students to approaches for advanced professional development. Topics include self-directed learning, online learning technologies and communities, mentoring relationships, scholarly writing and presentations, and strategies for working with the literature. Through learning assignments and online activities around contemporary professional issues, students will engage in peer review critiques, apply presentation technology, and develop a career trajectory plan.

**OTD-804 - Adv. Professional Studies**  
1.00 Credits
This course introduces students to strategies for advanced professional development. Topics include self-directed learning, online learning technologies and communities, and mentoring relationships.
OTD-805 - Doctoral Seminar 2.00 Credits
This course introduces students to scholarly writing and presentations, and strategies for working with the literature. Through learning assignments and online activities, students will discuss contemporary OT concepts, engage in peer review critiques, apply presentation technology, and develop a career trajectory.

OTD-806 - Adv. Evidence-Based Practice 3.00 Credits
In this course students will refine their skills for asking clinical questions, searching for, and critically appraising available evidence in order to form conclusions regarding best practice. Through in-depth exploration of the research process including an evaluation of research methodologies associated with hierarchies of evidence, students will formulate and answer questions about their own clinical practice.

OTD-807 - Interprofessional Partnerships 3.00 Credits
In this course students will explore the dynamics involved with forming collaborative partnerships, working in teams, and expanding one's professional network. Through course readings, activities, and assignments completed in the student's work environment, students will develop skills in teamwork, consensus building, conflict management, negotiation, and consultation.

OTD-808 - Applied Leadership 3.00 Credits
In this course students will explore leadership theories and the practice philosophies that are central to leadership effectiveness. Tools and strategies for evaluating and assessing leadership development, including personal leadership style and strengths, as well as best practices for developing leadership skills will be reviewed. Students will create a personal leadership development plan directed toward leadership and advocacy within their own practice settings or areas of interest.

OTD-811 - Educational Theory & Practice 3.00 Credits
This course provides an overview of the foundations and application of educational theory in teaching the adult learner. Teaching is considered for academic, practice, and continuing education environments. Evidence is considered from a variety of sources to develop effective educational processes and evaluation strategies. Students acquire knowledge and skills to apply scholarly evidence and knowledge of educational theory in a variety of environments with diverse adult learners.

OTD-812 - Tech & Educational Methods 3.00 Credits
This course provides an overview of theories and practices related to the use of current and emerging teaching and learning technologies. Students explore a variety of educational and instructional technologies. Educators in clinical, academic, professional, community, and other settings will gain skills in choosing appropriate technology supported by best pedagogical practices to enhance learning. Contextual issues such as financial, political, cultural, and access will be explored with consideration of the impact on availability and evaluation of instructional technologies. With the rapid rate of change in technology, strategies for considering and anticipating future technologies will be examined.

OTD-813 - Accessible Living 3.00 Credits
With the national trend toward aging-in-place, occupational therapists have an expanding role in helping older adults and persons who have disabilities to live at home and participate fully in their communities. This course explores environmental modifications and technology to address function, safety, independence and access for both the home as well as community spaces. Housing laws, universal design, technology, and environmental options and resources to support participation are examined.

**OTD-814 - Funding and Grantsmanship**

Today's programs frequently rely upon a mix of funding to support program operations and new initiatives. Professionals need to be able to effectively identify grant funding opportunities, secure funding, and manage the responsibility of grants. This course will introduce students to core components for successfully obtaining program or project funding, including identifying project, program and/or community needs, project/program development and assessment, grant seeking strategies, funding source research, proposal writing, program outcomes and evaluation, and grant stewardship.

**OTD-815 - Emerging Pract & Entrepreneurship**

This course will apply an entrepreneurial framework to developing the role of occupational therapy in health maintenance and promotion, through an awareness of individual and population-based needs in the current healthcare environment. Students will apply principles of lifestyle medicine, develop programs for non-traditional practice settings, and explore funding sources to support the inclusion of occupational therapy as a member of the health care team.

**OTD-816 - Directed Inquiry Seminar**

This seminar supports the student's independent exploration of topics related to clinical research, program development and/or evaluation. Students will augment their knowledge and skills in a particular topic area by exploring the literature, interviewing experts, and/or engaging in research and development activities. The actual content and method will be directed by the student and approved by the instructor. Students will demonstrate a series of competencies in an area of interest as the primary outcome of this course.

**OTD-910 - Capstone I: Design & Outcomes**

The capstone project will have potential for real-world application such as developing or comparing a clinical protocol, developing a product or program, or answering a clinical research question. Based on findings from Advanced EBP, students will develop a strategy to build upon existing evidence and/or generate new evidence specific to their area of interest. Course outcomes include a literature review and written capstone proposal that establishes a compelling need for a product, program or applied research project, including design and methods for measuring outcomes. Requirements of Institutional Review Boards (IRBs) and research integrity will be discussed in detail. Prerequisite: take OTD-806;

**OTD-920 - Capstone II: Implementation**

Students carry out their capstone projects, collecting data in relationship to previously identified outcomes measures and following the methods as outlined in their proposals from Capstone I. A major focus of this course is the practical application of collecting and maintaining data and the ability to analyze data using statistical software packages. Students maintain close communication with mentor(s), participate in weekly meetings to overcome any potential barriers they may encounter, and receive advice and support in the implementation process. Prerequisite: OTD-910
OTD-930 - Cap III: Analys & Presentation  3.00 Credits
Students analyze their project data, discuss how to apply the evidence derived from the project, and create and implement a plan for dissemination of findings. The culminating experience is an on-campus Doctoral Symposium in which students present their work and review the work of their peers. Prerequisite: OTD-920;

OTD-930E - Cap III: Analys & Presentation  3.00 Credits
Students analyze their project data, discuss how to apply the evidence derived from the project, and create and implement a plan for dissemination of findings. The culminating experience is an on-campus Doctoral Symposium in which students present their work and review the work of their peers.

PAS-603 - Advanced Physical Assessment  0.50 Credits
This integrative seminar course is designed to synthesize history taking and physical diagnosis skills with the medical, diagnostic and pharmacologic knowledge gained throughout the didactic phase of the PA program in order to apply it to stimulated patients presentations. Working in small groups and individually, students will interact with patient simulators and standardized patients to elicit a history, do an appropriate physical exam, order and/or interpret diagnostic tests, develop treatment plans and perform appropriate interventions. Prerequisite: PAS-612; Corequisite: PAS-612

PAS-605 - Clinical Correlations of Public Health  1.00 Credits
Clinical Correlations of Public Health Clinical Correlations of Public Health is a lecture and group discussion course that will allow physician assistant students to gain a fundamental understanding of public health, health policy, and its impact on clinical practice. In addition, this course will provide practical approaches for physician assistant students to provide appropriate patient education for patients with modifiable risk factors for disease. Prerequisite:Co Req: PAS-612 Corequisite: PAS-612

PAS-611 - Clinical Medicine  8.00 Credits
This lecture course uses an organ-system organization to present an overview of the pathophysiology, clinical manifestations, diagnostic evaluation and management of common diseases encountered in primary care. The course includes modules in: epidemiology, infectious disease, cardiology, pulmonology, gastroenterology, hematology/oncology, endocrinology, nephrology, urology, rheumatology, neurology, dermatology, ophthalmology, otolaryngology (ENT) and psychiatry. Principles of health promotion and disease prevention are also presented. Prerequisite: PASF-507PASF-513PASF-517 Corequisite: PAS-612

PAS-612 - Clinical Reasoning  2.00 Credits
Clinical Reasoning This small group seminar course uses clinical case studies and role-playing to guide students in the development of directed history and physical examination, clinical reasoning, case presentation and patient counseling skills. Application of evidenced based medicine principles to clinical scenarios will be integral as part of patient management. Finally, various forms of medical documentation will be introduced and practiced. Prerequisite: Co Req: PAS-611 Corequisite: PAS-611
PAS-613 - Pharmacotherapeutics  
This lecture and case study seminar course is designed to introduce students to the principles of pharmacology, including the absorption, bioavailability, distribution, metabolism, excretion, classification and mechanism of action of commonly prescribed medications. Additionally, this course will give students an understanding of how drugs are used in clinical practice, including the clinical indications, contraindications, dosing, side effects and monitoring of commonly used medications. Prerequisite: PAS-413 or PASF-513;

PAS-614 - Emergency Medicine  
This lecture and laboratory course encompasses emergent presentations and management of common primary care and emergency-care problems. Laboratory sessions cover procedures necessary for the delivery of emergency medical care. This course also includes limited emergency room patient exposure with written assignments. Prerequisite: PAS-413 or PASF-513;

PAS-615 - Diagnostic Medicine  
Diagnostic Medicine In this lecture and laboratory course, students will perform, order, and interpret commonly used diagnostic and laboratory studies. Topics covered will include radiologic studies, electrocardiograms, microbiology, and blood studies. Corequisite: PAS-611 
Prerequisite:Co Req: PAS-611 Corequisite: PAS-611

PAS-616 - Clinical Reasoning  
Clinical Reasoning This small group seminar course uses clinical case studies and role-playing to guide students in the development of directed history and physical examination, clinical reasoning, case presentation and patient counseling skills. Application of evidenced based medicine principles to clinical scenarios will be integral as part of patient management. Finally, various forms of medical documentation will be introduced and practiced. Prerequisite:Co Req: PAS-611 Corequisite: PAS-611

PAS-621 - Clinical Disciplines Overview  
During this lecture and workshop course, the physician-assistant student is introduced to the basic principles of diagnosis and treatment in the medical disciplines of pediatrics, surgery, obstetrics and gynecology. The female and male reproductive system examination workshop is also a component of this course. Prerequisite:PAS-611;

PAS-622 - Pharmacotherapeutics Seminar  
This course will use small-group, case-study, problem-based seminars to demonstrate the practical utilization of medications in the clinical setting. Prescription writing, dosing, titration and ongoing monitoring will be the focus of the course. Prerequisite:PAS-613 PAS-614;

PAS-623 - Adv Diagnostic Medicine Seminar  
Advanced Diagnostic Medicine Seminar This seminar course builds upon the foundation of knowledge in chest x-ray, abdominal x-ray, bone x-ray and ECG interpretation gained in Diagnostic Medicine. Other advanced radiologic studies such as CT scans of the head and MRIs are also reviewed. Students will recognize common disease patterns as seen on these studies. Prerequisite:PAS-615
### PAS-624 - Biomedical Literature and Research 3.00 Credits
Basic statistics, research methods, epidemiology, the structure of writing used in medical research and the principles of evidence-based medicine are reviewed in this course. Students will have the opportunity to review current medical research and evaluate it with regard to its application to medical practice. Prerequisite: PAS-612

### PAS-741 - Internal Medicine Rotation 6.00 Credits
The physician assistant student will complete six (5- to 6-week) rotations. Prerequisite: PAS-621;

### PAS-742 - Pediatrics Rotation 6.00 Credits
The physician assistant student will complete six (5- to 6-week) rotations. Prerequisite: PAS-621;

### PAS-743 - Women's Health Rotation 6.00 Credits
The physician assistant student will complete six (5- to 6-week) rotations. Prerequisite: PAS-621;

### PAS-744 - Psychiatry Rotation 6.00 Credits
The physician assistant student will complete six (5- to 6-week) rotations. Prerequisite: take PAS-621;

### PAS-745 - Surgery Rotation 6.00 Credits
The physician assistant student will complete six (5- to 6-week) rotations. Prerequisite: PAS-621;

### PAS-746 - Emergency Medicine Rotation 6.00 Credits
The physician assistant student will complete six (5- to 6-week) rotations. Prerequisite: PAS-621;

### PAS-759 - Primary Care 1 Rotation 6.00 Credits
Two five- to six-week preceptorships must be done in an ambulatory primary-care setting. The remaining preceptorship experiences include the Floating Medicine Block in which students do six additional weeks in a medically related specialty such as family, internal or geriatric medicine, and the clinical elective. During the elective students can spend more time in one of their rotation specialties, or gain experience in other settings such as neonatology, HIV, correctional medicine, urology, orthopedic surgery, cardiothoracic surgery and others. Prerequisite: PAS-621;

### PAS-760 - Primary Care 2 Rotation 6.00 Credits
Two five- to six-week preceptorships must be done in an ambulatory primary-care setting. The remaining preceptorship experiences include the Floating Medicine Block in which students do six additional weeks in a medically related specialty such as family, internal or geriatric medicine, and the clinical elective. During the elective students can spend more time in one of their rotation specialties, or gain experience in other settings such as neonatology, HIV, correctional medicine, urology, orthopedic surgery, cardiothoracic surgery and others. Prerequisite: take PAS-621;
PAS-763 - Medical Surgical Selective Rotation  
6.00 Credits

Two five- to six-week preceptorships must be done in an ambulatory primary-care setting. The remaining preceptorship experiences include the Floating Medicine Block in which students do six additional weeks in a medically related specialty such as family, internal or geriatric medicine, and the clinical elective. During the elective students can spend more time in one of their rotation specialties, or gain experience in other settings such as neonatology, HIV, correctional medicine, urology, orthopedic surgery, cardiothoracic surgery and others. Prerequisite: PAS-621;

PAS-764 - Elective Rotation  
6.00 Credits

Two five- to six-week preceptorships must be done in an ambulatory primary-care setting. The remaining preceptorship experiences include the Floating Medicine Block in which students do six additional weeks in a medically related specialty such as family, internal or geriatric medicine, and the clinical elective. During the elective students can spend more time in one of their rotation specialties, or gain experience in other settings such as neonatology, HIV, correctional medicine, urology, orthopedic surgery, cardiothoracic surgery and others. Prerequisite: PAS-621;

PAS-764A - Elective Rotation  
3.00 Credits

Two five- to six-week preceptorships must be done in an ambulatory primary-care setting. The remaining preceptorship experiences include the Floating Medicine Block in which students do six additional weeks in a medically related specialty such as family, internal or geriatric medicine, and the clinical elective. During the elective students can spend more time in one of their rotation specialties, or gain experience in other settings such as neonatology, HIV, correctional medicine, urology, orthopedic surgery, cardiothoracic surgery and others. Prerequisite: PAS-621;

PAS-764B - Elective Rotation  
3.00 Credits

Two five- to six-week preceptorships must be done in an ambulatory primary-care setting. The remaining preceptorship experiences include the Floating Medicine Block in which students do six additional weeks in a medically related specialty such as family, internal or geriatric medicine, and the clinical elective. During the elective students can spend more time in one of their rotation specialties, or gain experience in other settings such as neonatology, HIV, correctional medicine, urology, orthopedic surgery, cardiothoracic surgery and others. Prerequisite: PAS-621;

PAS-772 - Masters Comprehensive Experience  
2.00 Credits

This course, which takes place throughout the entire clinical year, is the capstone experience of the PA program. It consists of two components. The first is an independent project which will be developed with, and supervised by, a faculty advisor to include an extensive literature review, integration of knowledge acquired throughout the curriculum, a written assignment and an oral presentation. The course also includes a multi-faceted summative evaluation/assessment procedure consisting of: a comprehensive written examination that encompasses topics drawn from the entire PA program curriculum; a series of Objective Structured Clinical Examinations (OSCE) using standardized patients where students must demonstrate the ability to elicit a medical history, perform a physical examination, order appropriate diagnostic studies, formulate a diagnosis, develop a management plan, render patient education and document the findings, all as appropriate to the clinical cases presented. Students must successfully pass the independent project and the multi-faceted evaluation procedure in order to complete the requirements for this course and the master's degree. Prerequisite: Complete all PA professional didactic courses before registering for PAS-772
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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PASF-503</td>
<td>Evidence Based Medicine</td>
<td>2.00</td>
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<td></td>
<td>This lecture/seminar course provides a foundation for clinical decision making that will be necessary for the future practice of the physician assistant student. The course teaches the basic principles of evidence-based medicine and how to apply them to clinical decision making. Students will learn basic principles of evidence-based medicine, how to formulate a good clinical question, how to access and search the literature, how to evaluate the validity of the literature and how to apply it to answer a clinical question. After the foundational principles have been presented through lectures, students will work in small groups to practice using case based scenarios to apply the principle that they have learned.</td>
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<tr>
<td>PASF-507</td>
<td>Advanced Anatomy</td>
<td>5.00</td>
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<td></td>
<td>Advanced Anatomy This lecture and laboratory course will review basic histology along with the major anatomical structures of the human using a regional organization. Laboratory sessions utilizing microscopic examination, models and cadaver specimen dissection will augment lecture material.</td>
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<td>PASF-507A</td>
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<td>Advanced Anatomy</td>
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<td>This lecture and laboratory course will review basic histology along with the major anatomical structures of the human using a regional organization. Laboratory sessions utilizing microscopic examination, models and cadaver specimen dissection will augment lecture material.</td>
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<tr>
<td>PASF-510</td>
<td>Medical and Professional Ethics</td>
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<td></td>
<td>Medical and Professional Ethics Understanding the philosophical principles related to biomedical ethics, patient-practitioner relationships and the role of the physician assistant provider within the health care system are the main topics encompassed in this lecture and discussion seminar course.</td>
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<tr>
<td>PASF-511</td>
<td>Applied Behavioral Science</td>
<td>3.00</td>
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<td></td>
<td>Applied Behavioral Science The topics of developmental psychology, abnormal psychology, human sexuality, stress responses, behaviors related to psychological health and illness and the diagnosis and management of common psychological disorders are the focus of this lecture course.</td>
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<tr>
<td>PASF-513</td>
<td>Medical Pathophysiology Pathophysiology</td>
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<td></td>
<td>This lecture course is designed to teach the principles of human medical physiology along with the physiological mechanisms of common disease states.</td>
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<tr>
<td>PASF-517</td>
<td>Physical Diagnosis</td>
<td>5.00</td>
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</table>
Medical History and Physical Diagnosis This lecture and practical laboratory course will introduce the physician assistant student to the techniques for eliciting a medical history and performing a complete physical examination on humans. The interpretation of history and physical examination findings as applicable to physiological and disease states will also be discussed. Laboratory sessions, hospital experiences and writing assignments will enhance the learning experience.

**PASF-521 - Medical Genetics and Microbiology**
2.00 Credits

Medical Genetics and Microbiology This lecture course presents current concepts and issues in medical genetics, immunology and microbiology. It focuses on diseases of genetic origin, the function of the immune system and emerging trends in disorders caused by microorganisms.

**SDEG-600 - Prototyping Interactive Interfaces I**
3.00 Credits

This course addresses the need by design professionals to prototype interactive systems comprising both hardware and software components, and to assess these solutions based on principles of cognitive and physical human factors. Through iterative prototyping of both screen-based interfaces and tangible interfaces using simple microcontrollers, this class teaches basic programming, integration of electronic sensors and outputs into physical prototypes, and principles of human factors testing for assessment of interactive interfaces.

**SDEG-700 - Prototyping Interactive Interfaces II**
3.00 Credits

This course is the second in a series addressing the need by design professionals to prototype and assess interactive systems comprising both hardware and software components. Students will refine and build upon skills gained in Prototyping I while exploring algorithms for the capture and manipulation of data to create new modes of interaction in areas such as networked and mobile devices, kinetic sculpture, wearable circuits, and novel electronic tools.

**SDEG-770 - SDE Special Topics**
0.50 Credits

This is an upper-level course designed to take advantage of resident/adjunct/visiting faculty members’ expertise or a special focus wanted by the School for one or two terms. These courses might provide an in-depth treatment of recent advances in subjects of current interest in a given field whose subject matter is not necessarily needed to be offered long term. A specific "topic" may be delivered a maximum of two terms.

**SDEG-771 - SDE Special Topics**
1.00 Credits

This is an upper-level course designed to take advantage of resident/adjunct/visiting faculty members’ expertise or a special focus wanted by the School for one or two terms. These courses might provide an in-depth treatment of recent advances in subjects of current interest in a given field whose subject matter is not necessarily needed to be offered long term. A specific "topic" may be delivered a maximum of two terms.

**SDEG-773 - SDE Special Topics**
3.00 Credits

This is an upper-level course designed to take advantage of resident/adjunct/visiting faculty members’ expertise or a special focus wanted by the School for one or two terms. These courses might provide an in-depth treatment of recent advances in subjects of current interest in a given field whose subject matter is not necessarily needed to be offered long term. A specific "topic" may be delivered a maximum of two terms.
SDEG-776 - SDE Special Topics  
6.00 Credits
This is an upper-level course designed to take advantage of resident/adjunct/visiting faculty members' expertise or a special focus wanted by the School for one or two terms. These courses might provide an in-depth treatment of recent advances in subjects of current interest in a given field whose subject matter is not necessarily needed to be offered long term. A specific "topic" may be delivered a maximum of two terms.

SDEG-780 - SDE Independent Study  
0.50 Credits
This course will allow students to pursue individual areas of interest while working jointly with a faculty member. Enrollment is subject to the availability and approval of both the program director and faculty member. For further details, see general description of Independent Study in the "University Academic Policies and Procedures: Common Academic Policies for All students."

SDEG-781 - SDE Independent Study  
1.00 Credits
This course will allow students to pursue individual areas of interest while working jointly with a faculty member. Enrollment is subject to the availability and approval of both the program director and faculty member. For further details, see general description of Independent Study in the "University Academic Policies and Procedures: Common Academic Policies for All students."

SDEG-783 - SDE Independent Study  
3.00 Credits
This course will allow students to pursue individual areas of interest while working jointly with a faculty member. Enrollment is subject to the availability and approval of both the program director and faculty member. For further details, see general description of Independent Study in the "University Academic Policies and Procedures: Common Academic Policies for All students."

SDEG-786 - SDE Independent Study  
6.00 Credits
This course will allow students to pursue individual areas of interest while working jointly with a faculty member. Enrollment is subject to the availability and approval of both the program director and faculty member. For further details, see general description of Independent Study in the "University Academic Policies and Procedures: Common Academic Policies for All students."

SDMBA-701 - Innovative Leadership  
4.00 Credits
This course addresses the skills, concepts, and mind-set that support leadership in complex, innovative organizations. In the context of new business models and planning for uncertainty, topics include self-leadership, critiquing diverse models of leadership, creating vision and strategy, understanding people, managing change, ethical decision making, power and influence, motivation, facilitation of diverse teams, conflict resolution, and organizational culture. The course begins with creative exercises in leadership style self-assessment and extrapolates these results to leadership in new, innovative organizational structures.

SDMBA-702 - Design Research for Business  
4.00 Credits
This course provides students with the qualitative and quantitative tools they need to find and frame opportunities, construct successful project briefs, and apply the design research method to products, services and experiences by exploring and documenting new research techniques.

SDMBA-703 - Business Model Development  
4.00 Credits
In this course students explore a customer-centric approach to business models. They apply tools and skills in system and design thinking learned earlier in the program, to analyze and evaluate existing commercial and non-commercial business models, including both successes and failures. Discussion of the various models and patterns emphasizes the radically changing role of IT in organizations. Students explore and evaluate alternative business models in order to find innovative business solutions, and apply their learning to organizations from a variety of industries. Prerequisite: SDMBA-701 & SDMBA-702

SDMBA-704 - Metrics I  4.00 Credits
In this course, which integrates principles of financial and managerial accounting, students explore accounting as a design tool, becoming familiar with financial analysis for short and long-term decisions and the use of financial information for control and performance measurement. The financial accounting portion covers interpretation of financial statements and basics of transaction analysis. The managerial accounting component covers cost-volume-profit analysis, job costing, activity based costing, economic value added, the balanced scorecard, strategic cost analysis and the potential contribution of these advancements to organizational effectiveness and managerial decision-making in competitive environments. Prerequisite: SDMBA-701 SDMBA-702 SDMBA-703;

SDMBA-705 - Designed Business Systems  4.00 Credits
This course focuses takes a systems approach to the design of businesses and business networks within the context of an increasingly complex web of markets, production, and business interactions. The course examines the value-chain from the acquisition and conversion of materials to the distribution of goods and services emphasizing the relationship of operations to the vision, mission and goals of the organization. Prerequisite: SDMBA-701 SDMBA-702 SDMBA-703 SDMBA-704;

SDMBA-706 - Style and Brand Strategy  4.00 Credits
Students will learn to interpret brand strategy fundamentals as an integrative tool for strategic execution that builds reliable metrics for profitability and drives values for organizations. Style, a component of branding, will be analyzed as a competitive differentiator and contributor to firms’ value propositions. Students will explore how brands evolve and identify the fiscal value of brand investment. Students will apply a brand strategy methodology incorporating style, and culminate with a brand audit project. Prerequisite: SDMBA-701 SDMBA-702 SDMBA-703 SDMBA-704 SDMBA-705

SDMBA-707 - Metrics II  4.00 Credits
This course covers financial decision making at profit-motivated businesses including: 1) decisions about what to produce and how (investment decisions) and 2) decisions about how to finance the assets needed for production (financing decisions). Managers take a long-run perspective in making some financial decisions (capital budgeting and capital structure) and take a short-run perspective in making others (working capital management). The course focuses on methods of financial decision making requiring a long-run perspective. Prerequisite: SDMBA-701 SDMBA-702 SDMBA-703 SDMBA-704 SDMBA-705 SDMBA-706

SDMBA-708 - Strategic Foresight  4.00 Credits
This course examines the influence of external factors (social, technological, environmental, economic, political, and cultural) on business strategies and plans. Using tools such as environmental scanning, scenario planning, stakeholder analysis, and competitor analysis, students gain appreciation for organizational and environmental interdependencies and complexity. Strategic decision-making frameworks are examined, with an emphasis on organizational social, ethical, and legal responsibilities, particularly in the context of changing environmental conditions. The imperative for building organizations that are participatory, collaborative and diverse is emphasized. Prerequisite: SDMBA-701 SDMBA-702 SDMBA-703 SDMBA-704 SDMBA-705 SDMBA-706 SDMBA-707;

SDMBA-709 - Strategic Design Integration  4.00 Credits
This course focuses on the intersection between design thinking and opportunity-finding for strategy development, covering theory and practice related to innovation, complexity, emergence and systems thinking to develop strategies that drive organizational change and new value propositions. It begins with review of frameworks for strategy development and explores approaches to engaging stakeholders in that development. Students use lifecycle analysis to redesign an existing organizational strategy and develop an actionable communication rollout plan. Prerequisite: SDMBA-701 SDMBA-702 SDMBA-703 SDMBA-704 SDMBA-705 SDMBA-706 SDMBA-707 SDMBA-708;

SDMBA-710 - New Ventures  4.00 Credits
This course covers all aspects of the entrepreneurial process, providing students with the theoretical concepts and practical skills for creating successful new ventures. This course addresses the entrepreneurial mind set, creativity and idea generation, assessing entrepreneurial opportunities, conducting feasibility studies and market research, developing marketing plans, financial preparation for new ventures, location and capacity planning, new venture team building, legal issues and risk analysis. The course focuses on the development of an effective business plan for a new venture. Prerequisite: SDMBA-701 SDMBA-702 SDMBA-703 SDMBA-704 SDMBA-705 SDMBA-706 SDMBA-707 SDMBA-708;

SDN-601 - Principles & Methods of Sustainable Dsgn  3.00 Credits
Sustainability is a cultural phenomenon that is reshaping the way architects, engineers, designers and planners conceive of the built environment. This lecture/seminar course will explore changes in culture over the years that have led to the formation and adoption of contemporary sustainable design practices, technologies and processes. Current aspects of sustainability will be explored including the impact of the LEED rating system, legislation, environmental law, corporate culture evolution, integrated design process, energy modeling and economic impacts of land development. Students will complete a final paper on future directions in sustainable design at the end of the course.

SDN-602 - Adaptive Design  3.00 Credits
An introduction to quantitative criteria that define adaptive responses as instrumental characteristics of design based on human comfort, program, climate and site. Investigations will seek an understanding of the reciprocity between competing (and often contradictory) design forces, such as theoretical versus real, dynamic versus static, spatial and numerical, energy gain and loss. An awareness of the function of scientific instruments for measurements and performance assessments on buildings and outdoor spaces on real sites with the goal of achieving human comfort will be explored. Students will propose design interventions in accordance with their experimental data and use simulation tools to assess ultimate performance of the intervention.
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<tr>
<td>SDN-603</td>
<td>Sustainable Systems</td>
<td>3.00</td>
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<td></td>
<td>This course will provide a thorough understanding of sustainable building systems in order to optimize energy efficiency and minimize environmental pollution while maintaining human comfort resulting in a holistically designed building that is non-polluting and energy efficient. Students will complete a series of case studies and a final project.</td>
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<tr>
<td>SDN-604</td>
<td>Green Materials &amp; Life Assessment</td>
<td>3.00</td>
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<td>A key requirement to completing a successful sustainable design project is a careful consideration of the environmental and energy performance impacts of construction materials. Students will begin the course by learning how to complete a life cycle analysis for materials as preparation for the design and creation of their own material/construction system. During the project, students will continue to discuss the pros and cons of different materials/construction systems in the context of trying to better understand the tenants of sustainable design. Students will complete a final &quot;construction&quot; as part of the requirements for the course.</td>
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<tr>
<td>SDN-609</td>
<td>Building Info Modeling for SD</td>
<td>3.00</td>
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<td>This lecture/lab course is divided into two parts. The first part establishes skills in utilizing BIM software as an effective tool for architectural graphic communication. The second part establishes skills for exploring, analyzing, refining, and presenting sustainable design projects.</td>
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<tr>
<td>SDN-613</td>
<td>The Green Program</td>
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<td>This collaborative studio course will expose students to the consciousness, processes and metrics necessary to pursue urban regeneration in an effective and meaningful way. Upon arrival in Philadelphia, students will immediately be immersed in several sections of the city where they will use the integrated design methodology to discover, design and visualize urban regeneration solutions. The course will culminate in a final project and presentation.</td>
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<tr>
<td>SDN-615</td>
<td>The Sustainable Org. Primer</td>
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<td>The lecture/seminar course will provide a thorough understanding of the different components necessary to build and maintain a 21st century sustainable company. This course will explore the role of diversity, impact of environment, green supply chain management, and branding/rebranding strategies as core components of companies seeking to reach the triple bottom line: Environment, Equity and Enterprise. Prerequisite: take SDN-601</td>
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<tr>
<td>SDN-617</td>
<td>Sust. Abroad: Czech Republic</td>
<td>3.00</td>
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<td>This three-credit studio serves as the focus of an international sustainability experience that takes place in Southern Bohemia in the Czech Republic. Students from diverse cultures and disciplines work together with an international faculty to solve complex sustainability problems as informed by the cultural landscapes and by the larger global environmental context. Students will complete a comprehensive studio project that is supported by research and documentation of the cultural landscape; connected to the local population through integrated design charrettes, and enriched by activities of design/build and local food sourcing and preparation. Students will identify a focus for their studies from the following options: Comprehensive Planning and Design, Design Build, Technology Development, or Social Entrepreneurship.</td>
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<tr>
<td>SDN-619</td>
<td>High Performance Bldg Envelop</td>
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This course explores future possibilities for advanced building envelopes as well as the properties of interior and exterior building materials and their relation to construction methods and detailing. The building envelope will be considered using the following criteria: architectural expression, sustainability, spatial order, performance, and user experience. The goal of these investigations is to develop new building envelope systems that integrate the construction process with structure, materials, climate, energy use, transparency, surface qualities, and aesthetics. Students will participate in an integrated design process leading towards the technical and architectural design of a high performance-building envelope.

SDN-621 - Ecological Design Studio 4.00 Credits
Students will take a trans-disciplinary approach to developing a campus scale built environment project that integrates Socio-cultural, Experiential, Ecological and Performative design perspectives into a comprehensive design project. The first half of the semester will focus on the following: A comprehensive site inventory and analysis; comprehensive design requirements; guiding principles and resource benchmarks via the use of case studies. The second half of the semester focuses on the synthesizes of the work completed in the first half through the integrated sustainable design process that features collaborative design charrettes, periodic performance simulations, qualitative evaluations, calculations and costs estimates to insure a high level of performance from all design perspectives.

SDN-622 - Sustainable Design Studio 4.00 Credits
This studio will emphasize interdisciplinary teaching and learning as a fundamental core concept of sustainable design. Students will be challenged to work collaboratively on a series of design projects that foster creativity, ingenuity and innovation as key components of effective sustainable design.

SDN-623 - Exploring Landscape 2.00 Credits
This course is about exploration, various points of view and transcending disciplinary boundaries. We will traverse the ‘landscape’ and examine it through the lens of the various disciplines to understand each perspective and how it shapes our environment and culture. Through readings from leading architects, landscape architects, geographers, and historians, we will dissect the ways in which culture influences human conceptions of landscape and the environment, the effect of humans on the environment and the impact the environment and landscape has on humans.

SDN-625 - Env Imp Analysis and Sys Thinking 3.00 Credits
This three-phase course will first introduce students to the facets of global environmental change, as well as emerging sustainability paradigms and frameworks. In-class discussions and activities will draw on readings by through-leaders and foundational studies in top journals (Economist, Forbes, Scientific American) and peer-reviewed scholarship (Science, Nature, PNAS). Subsequently, in phase II students will learn problem solving approaches in the form of systems thinking modeling and life-cycle analysis, and apply them to several contemporary socio-ecological challenges. These case-studies will provide students experience in quantitative analysis that can aid in problem-definition and decision-making. The final phase of the course will offer the opportunity to apply these tools and frameworks to their own real-world sustainability challenges, in order to visualize and analyze complexity, and conduct a sustainability audit.

SDN-702 - Energy and Carbon Modeling 3.00 Credits
Intelligent sustainable design considers the impact of buildings and business processes on global energy fuel types, consumption and carbon flows. The purpose of this course is to understand building energy modeling and enterprise carbon reporting. Students will create a schematic-level energy model and generate a carbon report using commercially available software and industry standard protocols. Student teams will explain, calculate and analyze design exercises, individual and group case studies and a final design project.

SDN-710 - Green Design Build 3.00 Credits
This elective course focuses on actual design and implementation of sustainable materials and technologies on a small scale construction project. Students may plug into a real project under construction or design and create their own structures for a particular site or client. Experts from around the region will be brought in as guests to assist with the process.

SDN-797 - Special Topics in Sustainab. 3.00 Credits
Special Topics in Sustainability.

SDN-798 - Independent Study in Sustainable Design 3.00 Credits
Independent Study in Sustainable Design

SDN-900 - Thesis in Sustainable Design I 3.00 Credits
This seminar is the first of a two-term sequence of courses focused on independent research, inquiry design exploration and synthesis. Weekly seminars, interactions with faculty members help to inform student research and lead to the development of a comprehensive thesis project. This course will include class based guidance on the conceptualization, analysis and execution of an individually based thesis defined by methods of inquiry necessary to the interdisciplinary nature of sustainability. Emphasis will be placed on the reciprocal relationship between the research and design processes. Advanced building simulation tools and other quantitative measurements will be integral part of those processes.

SDN-901 - Thesis in Sustainable Design II 6.00 Credits
This studio course is the second in a two-term sequence and will focus on the continuation and completion of the project begun in the previous semester. Students will be required to focus on specific details and features of their project. If agreed to by the program director, students will present their final project in a public forum and generate a final "book" (using the most current Philadelphia University Guide For The Preparation Of Doctoral Dissertation And Master's Theses document) that includes all of the work completed during the studio sequence. For a building design project, students will be required to present their building simulation results as part of the final requirements for graduation.

SDNF-500 - Built Envn. Basics/Non-Desgn 3.00 Credits
This course provides a common foundation in the design of the built environment for on-design students. Topics include the creation of new designs for the built environment, applying graphic communication skills to create design documents, and synthesizing basic construction techniques into design projects. Students will complete multiple design projects which increase in complexity and independence.
SDNF-501 - Design of the Built Envn/Studi  
This course provides a common foundation for students without experience in the built environment. Topics include vocabulary, understanding and reading architectural and landscape drawings, how to create architectural drawings, experience in the design process, construction assemblies and the presentation of project material.

SDNX-601 - Principles & Methods of Sust. Design  
Sustainability is a cultural phenomenon that is reshaping the way architects, engineers, designers and planners conceive of the built environment. This lecture/seminar course will explore changes in culture over the years that have led to the formation and adoption of contemporary sustainable design practices, technologies and processes. Current aspects of sustainability will be explored including the impact of the LEED rating system, legislation, environmental law, corporate culture evolution, integrated design process, energy modeling and economic impacts of land development. Students will complete a final paper on future directions in sustainable design at the end of the course.

SDNX-602 - Adaptive Design  
An introduction to quantitative criteria that define adaptive responses as instrumental characteristics of design based on human comfort, program, climate and site. Investigations will seek an understanding of the reciprocity between competing (and often contradictory) design forces, such as theoretical versus real, dynamic versus static, spatial and numerical, energy gain and loss. An awareness of the function of scientific instruments for measurements and performance assessments on buildings and outdoor spaces on real sites with the goal of achieving human comfort will be explored. Students will propose design interventions in accordance with their experimental data and use simulation tools to assess ultimate performance of the intervention.

SDNX-603 - Sustainable Systems  
This course will provide a thorough understanding of ecological site systems and sustainable building systems in order to optimize energy efficiency and minimize environmental pollution while maintaining human comfort resulting in a holistically designed building that is non-polluting and energy efficient. Students will complete a series of case studies and a final project.

SDNX-604 - Green Materials & Life Cycle Assessment  
A key requirement to completing a successful sustainable design project is a careful consideration of the environmental and energy performance impacts of construction materials. Students will begin the course by learning how to complete a life cycle analysis for materials as preparation for the design and creation of their own material/construction system. During the project, students will continue to discuss the pros and cons of different materials/construction systems in the context of trying to better understand the tenants of sustainable design. Students will complete a final 'construction' as part of the requirements for the course.

SDNX-606 - Dev. of Sustainable Buildings  
This lecture course will educate students on all aspects of sustainable development ranging from construction startup to project financing to management of green construction. Students will learn techniques of cost benefit analysis including such aspects as impact of zoning and code ordinance for green projects to understanding tax incentives for such projects. Students will complete case studies and finish the semester with a completed proposal for a sustainable project. Prerequisite: take SDNX-601;
SDNX-607 - On-Line Sustainable Stu Prep.  
3.00 Credits

This is the first of two courses that will emphasize interdisciplinary teaching and learning as a fundamental core concept of sustainable design. Students in this course will be challenged to work collaboratively on the development of a comprehensive project brief that outlines and defines the ethical foundation of a sustainable design project. Prerequisite: take SDNX-601 SDNX-603;

SDNX-609 - Buildn Info Modelln for SDsgn  
3.00 Credits

This lecture/lab course is divided into two parts. The first part establishes skills in utilizing BIM software as an effective tool for architectural graphic communication. The second part establishes skills for exploring, analyzing, refining, and presenting sustainable design projects.

SDNX-611 - Sustainable Design Studio  
6.00 Credits

This studio will emphasize interdisciplinary teaching and learning as a fundamental core concept of sustainable design. Students will be challenged to work collaboratively on a series of design projects that foster creativity, ingenuity and innovation as key components of effective sustainable design. Prerequisite: SDNX-601 SDNX-603;

SDNX-621 - Ecological Design Studio  
4.00 Credits

Students will take a trans-disciplinary approach to developing a campus scale built environment project that integrates Socio-cultural, Experiential, Ecological and Performative design perspectives into a comprehensive design project. The first half of the semester will focus on the following: A comprehensive site inventory and analysis; comprehensive design requirements; guiding principles and resource benchmarks via the use of case studies. The second half of the semester focuses on the synthesizes of the work completed in the first half through the integrated sustainable design process that features collaborative design charrettes, periodic performance simulations, qualitative evaluations, calculations and costs estimates to insure a high level of performance from all design perspectives.

SDNX-622 - Sustainable Design Studio  
4.00 Credits

This studio will emphasize interdisciplinary teaching and learning as a fundamental core concept of sustainable design. Students will be challenged to work collaboratively on a series of design projects that foster creativity, ingenuity and innovation as key components of effective sustainable design.

SDNX-623 - Exploring Landscape  
2.00 Credits

This course is about exploration, various points of view and transcending disciplinary boundaries. We will traverse the 'landscape' and examine it through the lens of the various disciplines to understand each perspective and how it shapes our environment and culture. Through readings from leading architects, landscape architects, geographers, and historians, we will dissect the ways in which culture influences human conceptions of landscape and the environment, the effect of humans on the environment and the impact the environment and landscape has on humans.

SDNX-900 - Thesis in Sustainable Design I  
3.00 Credits
This seminar is the first of a two-term sequence of courses focused on independent research, inquiry design exploration and synthesis. Weekly seminars, interactions with faculty members help to inform student research and lead to the development of a comprehensive thesis project. This course will include class based guidance on the conceptualization, analysis and execution of an individually based thesis defined by methods of inquiry necessary to the interdisciplinary nature of sustainability. Emphasis will be placed on the reciprocal relationship between the research and design processes. Advanced building simulation tools and other quantitative measurements will be integral part of those processes. Prerequisite: SDNX-621; 

SDNX-901 - Thesis in Sustainable Design II  
This studio course is the second in a two-term sequence and will focus on the continuation and completion of the project begun in the previous semester. Students will be required to focus on specific details and features of their project. If agreed to by the program director, students will present their final project in a public forum and generate a final "book" (using the most current Philadelphia University Guide For The Preparation Of Doctoral Dissertation And Master's Theses document) that includes all of the work completed during the studio sequence. For a building design project, students will be required to present their building simulation results as part of the final requirements for graduation. Prerequisite: SDNX-900 

SDNX-901E - Thesis in Sustainable Design II  

TAX-660 - Individual Taxation & Planning  
This course is a study of federal tax law as it pertains to individuals. It emphasizes the determination of gross income, deductions and credits, tax accounting and timing principles, realization and recognition of gains and losses, and standards of tax practice and ethical concerns. Students gain an awareness of history and tax policy considerations behind various Internal Revenue Code provisions. 

TAX-662 - Corporation Taxation & Planning  
This course will provide students with knowledge concerning organization, capital structure, gross income and deductions, dividends, accumulated earnings tax, personal holding tax and stock redemptions. 

TAX-664 - Tax Research & Professional Responsibility  
This course enhances the student's ability to identify tax issues, locate and evaluate the legal authority relevant to those issues and effectively communicate, both orally and in written form, the conclusions and recommendations from their research. Electronic (computer) research will be taught in a hands-on setting. Students will gain an awareness of issues in federal tax practice and procedure, including ethical concerns for tax professionals. 

TAX-763 - Financial Planning  
This course will cover all aspects of financial planning including income tax planning, estate tax planning and strategies, gift tax, insurance planning, investment strategies, planning for the elderly and planning for survivors.
TAX-765 - Taxation of Flow-Through Entities
This course provides an in-depth study of flow-through entities including S corporations, partnerships and limited liability companies. Emphasis will be focused on student's understanding of the tax statutes, court cases and practice techniques related to the concept of 'choice of entity.' This course creates an awareness of the potential consequences of choosing a particular form of entity. Topics covered include formation, operation, and dissolution of S corporations, partnerships and limited liability companies.

TAX-770 - Retirement Plann & Empl Benef
This course will cover all aspects of entities, types retirement and employee benefits plans. A focus will be placed on plan selection, with an emphasis on the tax advantages and disadvantages of specific types of qualified and nonqualified plans. Plan formation, administration, compliance and termination will be examined. Social Security, Medicare, life insurance and distributions from retirement plans will be examined. Various forms of executive compensation arrangements will be covered such as deferred compensation, golden parachutes, split dollar life insurance and stock option plans.

TAX-771 - Adv Individual Taxatn & Plann
This course is a continuation of TAX660 - Individual Taxation and is intended as a comprehensive continuation of advanced topics for individuals. In addition to federal taxes, Pennsylvania, New Jersey and Delaware state tax regulations will be covered.

TAX-772 - Risk Mgmt & Insurance Planning
This course is a comprehensive examination of risk management and insurance with a focus on its role in financial planning. Topics covered include the risk management process, life insurance, disability insurance, health insurance, long-term care insurance, property and liability insurance, annuities, Social Security, Medicare and Medicaid. Risk identification, risk analysis, loss prevention and legal principles related to insurance will also be covered.

TAX-773 - International Taxation
This course focuses on the tax regime for U.S. taxpayers living abroad and the taxation of non-U.S. citizens with income earned or sourced in the United States. This course provides students with a working knowledge of the federal income tax rules applicable to international and cross-border transactions. Topics include tax treaties, foreign earned income exclusion, foreign tax credit, controlled foreign corporations, passive foreign investment companies, effectively connected (business) income, foreign investment in U.S. real estate, export transactions, Subpart F manufacturing rules and transfer pricing.

TAX-778 - Current Issues in Taxation & Accounting
This course will update students in various tax and accounting topics. Topics will include new development at the IRS and in areas such as individual taxation, business taxation, financial planning, business tax planning, multi-state tax issues, estate taxation and accounting and auditing pronouncements.

TAX-782 - Tax Accounting
This course will review accounting methods and periods, installment method, long-term contracts and changes in accounting methods.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>TAX-789</td>
<td>Real Estate Taxation</td>
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<td>This course emphasizes the income tax aspects of</td>
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<td>acquiring, operating and disposing of</td>
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<td>investment and personal real estate. Detailed</td>
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<td>consideration of deductions, conventional and</td>
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<td>creative financing techniques, foreclosures and</td>
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<td>repossessions, subdivision, sales/leaseback</td>
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<td>transactions, tax-deferred exchanges, involuntary</td>
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<td>conversions, and sale of principal residence.</td>
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<tr>
<td>TAX-791</td>
<td>Internship</td>
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<td>Internships provide students with an opportunity</td>
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<td>to apply and further develop the knowledge they</td>
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<td>have gained in the classroom. Under faculty</td>
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<td>supervision, students work in salaried positions</td>
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<td>related to their career goals. While on their</td>
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<td>assignments, students develop meaningful learning</td>
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<td>objectives, attend an internship seminar,</td>
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<td>complete challenging assignments, and write</td>
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<td>bi-weekly reports analyzing articles in academic</td>
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<td>journals and practitioner publications.</td>
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<tr>
<td>TAX-793</td>
<td>State &amp; Local Taxation</td>
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<td>Emphasis will be placed on individual and</td>
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<td>corporate tax problem areas in the states of</td>
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<td>Pennsylvania, New Jersey and Delaware. Gross</td>
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<td>receipts and sales tax will also be covered.</td>
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<tr>
<td>TAX-794</td>
<td>IRS Tax Procedures</td>
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<td>A complete review of audit, collection and appeal</td>
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<td>procedures conducted by the Internal Revenue</td>
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<td>Service will be examined by the students.</td>
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<td>TAX-795</td>
<td>Estate Planning &amp; Taxation</td>
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<td>This course will review mainly the estate and</td>
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<td>gift tax returns, such as preparation and</td>
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<td>problem areas. Deductions, income, annuities</td>
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<td>and taxable transfers will be discussed.</td>
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<tr>
<td>TAX-797</td>
<td>Selected Topics</td>
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<td>Content will vary in response to current issues.</td>
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<tr>
<td>TAX-798</td>
<td>Independent Study</td>
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<td>This course provides students with an opportunity</td>
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<td>to pursue areas of interest while working jointly</td>
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<td>with a faculty member. Subject to availability</td>
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<td>and approval of both assistant dean for Graduate</td>
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<td>Business Programs and faculty member.</td>
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<td>TAX-799</td>
<td>Financial Planning Capstone</td>
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<td>This course highlights the interrelationships</td>
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<td>among all aspects of the financial planning</td>
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<td>process with a focus on the application of the</td>
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<td>knowledge and skills that have been learned</td>
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<td>while taking the prerequisite courses in the</td>
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<td>Financial Planning curriculum. Critical thinking,</td>
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<td>analytical, research and communication skills</td>
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<td>will be emphasized and will culminate in the</td>
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<td>formulation of a comprehensive financial plan</td>
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<td>to be presented to a client.</td>
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<tr>
<td>TES-901</td>
<td>Preliminary Examination Preparation</td>
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This course is intended for Ph.D. students who have completed their coursework, but who have not yet passed both parts of the qualifying examination. Students will meet with their advisor on an independent basis and will be given guidance and practice examinations to prepare for the doctoral qualifying examination.

### TES-902 - Thesis I 6.00 Credits
Doctoral students will form the doctoral committee and complete formulation of the thesis topic. Literature review and research of the proposed topic. Oral presentation and written submission of thesis proposal will be made to the student's doctoral committee.

### TES-903 - Dissertation Research I 9.00 Credits
This course is intended only for those students who have achieved Ph.D.-candidacy status. Seminal and original research will be conducted with a goal of preparing and defending a doctoral dissertation.

### TES-903E - Dissertation Research I 9.00 Credits
This course is intended only for those students who have achieved Ph.D.-candidacy status. Seminal and original research will be conducted with a goal of preparing and defending a doctoral dissertation.

### TES-904 - Dissertation Research II 3.00 Credits
This course is intended only for those students who have achieved Ph.D.-candidacy status. Seminal and original research will be conducted with a goal of preparing and defending a doctoral dissertation. Prerequisite: TES-903

### TES-906 - Thesis II 6.00 Credits
Completion and oral presentation of thesis work to the graduate faculty of Philadelphia University. Submission of the written thesis using the most current Philadelphia University Guide For The Preparation Of Doctoral Dissertation And Master's Theses document. Prerequisite: TES-904

### TXD-600 - Nonwovens Fabrication & Design 3.00 Credits
Experimentation in the methods of nonwoven web formation, bonding, end use and expanded market potential for nonwovens are investigated. In the design studio, students will conduct market research while concurrently developing design concepts through hands on laboratory experience. Each student will create a collection of samples with a specified intention exercising knowledge of fiber and fabrication properties, aesthetic qualities and performance characteristics.

### TXD-615 - Design Studio I-A 3.00 Credits
Focuses on design research as an essential beginning for textile design studio work. Students in all concentrations will work on common projects and, toward the end of the semester, take their research work into design work specific to their concentration.

### TXD-616 - Design Studio I-B 3.00 Credits
This initial course will be delivered through lecture/studio sessions and will ensure that the student gains increasingly advanced knowledge of the technical/design aspects of knit, print or weave design. Within TXD616 and TXD617, projects will be devised to integrate the knowledge and practice gained through design and technical courses, with the development of individual creative design work in the chosen concentration (knit, weave or print).

**TXD-617 - Design Studio I-C**  
3.00 Credits  
This initial course will be delivered through lecture/studio sessions and will ensure that the student gains increasingly advanced knowledge of the technical/design aspects of knit, print or weave design. Within TXD616 and TXD617, projects will be devised to integrate the knowledge and practice gained through design and technical courses, with the development of individual creative design work in the chosen concentration (knit, weave or print).

**TXD-625 - Seminar**  
0.00 Credits  
Weekly seminars will be arranged during the first semester, to which visiting speakers will be invited to give presentations on topics covering the national and international perspectives of marketing, technology and design in textile and related activities. Student participation will be expected during these seminars.

**TXD-665 - Design Management**  
3.00 Credits  
The aim of this course is to create an awareness of the factors involved in the process of innovation and design, and the importance of establishing a policy and strategy, which will ensure that the design process is effectively promoted and managed to assist in the achievement of organizational goals. At the end of the course, students will be able to: (a) relate the process of design to corporate and product strategy; (b) describe the nature of the tasks undertaken by industrial innovators and designers; (c) prepare a brief for a design project; (d) monitor and evaluate the progress of a design project. They will also become aware of (a) the contribution made to the design process by systematic techniques such as value analysis and by specialist support staff; (b) the factors affecting creativity and innovation; (c) the link between product and manufacturing system design; (d) the legal protections offered to designers.

**TXD-742 - Design Studio II-A**  
3.00 Credits  
Studio work involving advanced-level technical/creative projects in the chosen design concentration (as in Design Studio I), and the opportunity for interdisciplinary work encouraging knit/print, weave/print or weave/knit coordination, will be carried out in the first part of the semester. Student design work at this point should progress from assigned projects to independent, student-directed work. Toward the end of the semester, reviews of student work will lead to the selection of a 'major project.' The aims and outcomes of this project will be written up in detail for submission to a faculty review committee. This project will form the basis of the final semester's design work, thesis report and student exhibit for graduation.

**TXD-743 - Design Studio II-B**  
3.00 Credits
Studio work involving advanced-level technical/creative projects in the chosen design concentration (as in Design Studio I), and the opportunity for interdisciplinary work encouraging knit/print, weave/print or weave/knit coordination, will be carried out in the first part of the semester. Student design work at this point should progress from assigned projects to independent, student-directed work. Toward the end of the semester, reviews of student work will lead to the selection of a 'major project.' The aims and outcomes of this project will be written up in detail for submission to a faculty review committee. This project will form the basis of the final semester's design work, thesis report and student exhibit for graduation.

TXD-744 - Design Studio II-C  
3.00 Credits
Studio work involving advanced-level technical/creative projects in the chosen design concentration (as in Design Studio I), and the opportunity for interdisciplinary work encouraging knit/print, weave/print or weave/knit coordination, will be carried out in the first part of the semester. Student design work at this point should progress from assigned projects to independent, student-directed work. Toward the end of the semester, reviews of student work will lead to the selection of a 'major project.' The aims and outcomes of this project will be written up in detail for submission to a faculty review committee. This project will form the basis of the final semester's design work, thesis report and student exhibit for graduation.

TXD-749 - Weave Technology II  
3.00 Credits
The variations, functions, auxiliary devices and design characteristics of dobby and Jacquard looms and the equipment used to support the weaving process will be studied. Calculations relating to production and materials will be considered, along with the accurate analysis of fabrics for weight and cover. Consideration will be given to size, texture, fiber type, weave and other fabric parameters. Advanced multilayered weaves will also be studied.

TXD-750 - Knitting Technology  
3.00 Credits
A further investigation into the construction, design and production of both weft- and warp-knitted fabrics. Lectures will be complemented with lab work involving the design, production and analysis of knit fabric upon power-knitting equipment.

TXD-756 - Advanced Jacquard  
3.00 Credits
The design and production of Jacquard fabrics will be studied. Students analyze designs and produce complex fabrics on commercial equipment using computerized design and production systems.

TXD-772 - Design Studio III-A  
3.00 Credits
(a) Project The major project worked on independently by students during this final semester will be chosen to show the student's range of creative and technical ability. It will be concerned with a specialized area within their design concentration. Each project will be required to encompass: (1) design ideas and extensive sketchbook development; (2) market research and technical notebooks; (3) print Croquis and/or fabrics in sample form, production fabrics, computer-aided designs and final product rendered designs. (b) Final Exhibit The student will be expected to mount a personal design exhibit showing the range of his/her abilities in either knit, weave or print design. The work will be professionally presented and displayed for judging by a panel of design faculty. An important outcome of this exhibit will be the opportunity for key industrial people to visit, and for possible career opportunities to result. A secondary outcome will be its inspirational impact on undergraduate design students within the University.
TXD-773 - Design Studio III-B 3.00 Credits
(a) Project The major project worked on independently by students during this final semester will be chosen to show the student's range of creative and technical ability. It will be concerned with a specialized area within their design concentration. Each project will be required to encompass: (1) design ideas and extensive sketchbook development; (2) market research and technical notebooks; (3) print Croquis and/or fabrics in sample form, production fabrics, computer-aided designs and final product rendered designs. (b) Final Exhibit The student will be expected to mount a personal design exhibit showing the range of his/her abilities in either knit, weave or print design. The work will be professionally presented and displayed for judging by a panel of design faculty. An important outcome of this exhibit will be the opportunity for key industrial people to visit, and for possible career opportunities to result. A secondary outcome will be its inspirational impact on undergraduate design students within the University.

TXD-774 - Design Studio III-C 2.00 Credits
(a) Project The major project worked on independently by students during this final semester will be chosen to show the student's range of creative and technical ability. It will be concerned with a specialized area within their design concentration. Each project will be required to encompass: (1) design ideas and extensive sketchbook development; (2) market research and technical notebooks; (3) print Croquis and/or fabrics in sample form, production fabrics, computer-aided designs and final product rendered designs. (b) Final Exhibit The student will be expected to mount a personal design exhibit showing the range of his/her abilities in either knit, weave or print design. The work will be professionally presented and displayed for judging by a panel of design faculty. An important outcome of this exhibit will be the opportunity for key industrial people to visit, and for possible career opportunities to result. A secondary outcome will be its inspirational impact on undergraduate design students within the University.

TXD-776 - Textile Printing Technology 3.00 Credits
A specialized and practical course in the principles, techniques and chemical processes involved in the printing of textiles. The chemistry and use of different dye classes and pigment systems; application printing; discharge, burnout and other styles; and the influence of thickeners, cloth preparation and fixation processes on quality and colorfastness are examined.

TXD-777 - Advanced Computer-Aided Design 3.00 Credits
This course focuses on both the conceptual and technical aspects of digital portfolio presentation for the textile designer. Students will use interactive media to create both a CD-ROM portfolio and a personal website. Course projects provide an in-depth exploration of Adobe Photoshop, Adobe Illustrator and multimedia design software. Students must have a clear understanding of Adobe Photoshop and Adobe Illustrator before enrolling in this course. Prerequisite:TXF-510

TXD-780 - Avd Drawn: Materials & Technq 3.00 Credits
This course is designed to further develop the design student's drawing abilities and creative thought process, while encouraging conceptual development and a deeper understanding of contemporary issues in art and design. This course will provide an in-depth exploration of line, color and materials using a variety of drawing tools while introducing a more conceptual approach to drawing. Students will participate in off-campus trips to galleries and museums. Prerequisite: take DRAW-101 or VSDRW-101;

TXD-791S - Internship 3.00 Credits
Internships provide students with an opportunity to apply and further develop the knowledge they have gained in the classroom. Under faculty supervision, students work in salaried positions related to their career goals. While on their assignments, students develop meaningful learning objectives, attend an internship seminar, complete challenging assignments and write bi-weekly reports analyzing articles in academic journals and practitioner publications.

**TXD-797 - Selected Topics:** 3.00 Credits

**TXD-798 - Independent Study** 3.00 Credits
Students may select an independent project or research topic with the approval of the dean of the School of Engineering & Textiles.

**TXD-975 - Thesis** 1.00 Credits
The design work encompassed through the major project needs to be submitted in thesis form, three copies of which are to remain at the University. The thesis should contain written material relative to the design inspiration, technical development and production process, and yet students are encouraged to include visual imagery relevant to their work and design development as evidence of their design capabilities. This course will assist final-semester students working toward the production of their thesis document using the most current Philadelphia University Guide For The Preparation Of Doctoral Dissertation And Master's Theses document. In addition to the bound thesis, other media presentations of their final project will be explored.
Prerequisite:TXD-744

**TXD-993 - European Textile Print** 3.00 Credits
A two-week study tour in the textile printing areas of France, Switzerland and Northern Italy introduces textile majors to the expertise of important European printers, screen engravers and studios in the areas of printed textile design, style, color and printing technology. Visits to the two important French historic textile museums and other related textile plants are also included.

**TXD-994 - European Knitting Study Tour** 3.00 Credits
A guided visit to the textile machinery producers and textile industry in Europe (Germany and Switzerland). During the 10 to 14-day stay, students will have the opportunity to see some of the leading knitting machine manufacturers, tour the production plants, attend demonstrations, use design equipment and participate in presentations regarding the projected targets of this industry.
Prerequisite:TXF-502TXE-712TXE-752

**TXE-601 - Fiber and Yarn Studies** 3.00 Credits
This course advances the knowledge of fibers and yarns. In the case of cotton and wool, a detailed study of how fibers are produced is made and how the properties and structure of fibers vary in relation to variability in growing conditions is explored. For man-made fibers, the length and fineness can be changed during manufacture depending on the type of system on which the yarn is to be produced. Yarn-processing systems are covered in detail along with faults that can result from various causes, in either the fiber or the machines. Quality-control procedures are emphasized at each stage of processing, along with methods for analyzing test results. Typical products are discussed from the point of view of type of fiber used and type of yarn structure.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>TXE-602</td>
<td>Textile Sustainability</td>
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<td>This course will examine sustainability</td>
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<td>efforts in textiles and in the world as</td>
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<td>it relates to textiles. It will begin with</td>
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<td>an overview of waste generated in the US,</td>
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<td>a brief history of recycling in the textile</td>
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<td>industry, legislation addressing</td>
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<td>hazardous materials, and delve into</td>
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<td>organizations involved in creating a more</td>
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<td>sustainable textile industry and their</td>
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<td>regulations for compliance. Critical</td>
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<td>issues in the world involving textiles,</td>
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<td>such as release of fibers from care of</td>
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<td>textiles, care of textiles, and life cycle</td>
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<td>analyses will be studied. Confusion</td>
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<td>about sustainability and greenwashing will</td>
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<td>be explored. Textile fibers and potential</td>
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<td>new fibers and their influence on</td>
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<td>sustainability will be examined. Fiber,</td>
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<td>finishing processes and the materials used</td>
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<td>will also be explored. The course will</td>
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<td>conclude with a study of sustainable</td>
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<td>textile products and efforts to make those</td>
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<td>products.</td>
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<td>TXE-603</td>
<td>Adv Integ Engg Product Develop</td>
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<td>The AIEPD course introduces the student to</td>
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<td>product development activities from</td>
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<td>identifying a market opportunity to the</td>
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<td>successful delivery of a product to the</td>
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<td>customer. Throughout the course students</td>
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<td>will be working in groups to design,</td>
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<td>develop, prototype and analyze technical,</td>
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<td>economic and marketing aspects of</td>
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<td>engineered products. The focus will be on</td>
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<td>discrete, engineered and physical products</td>
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<td>using fibrous materials. Opportunity to</td>
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<td>work on sponsored projects in a</td>
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<td>multidisciplinary group exists.</td>
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<tr>
<td>TXE-622</td>
<td>Mechanics of Textiles</td>
<td>3.00</td>
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<td></td>
<td>Hierarchical mechanical-dependency</td>
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<td>relationships in textiles are discussed.</td>
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<td>Included are the role of fiber and yarn</td>
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<td>twist, yarn crimp, finishes, and coatings</td>
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<td>to mechanical response of textiles. Dynamic</td>
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<td>and static response to various types of</td>
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<td>loading are investigated. Tearing, abrasion,</td>
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<td>and wear properties as a function of textile</td>
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<td>form are presented.</td>
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<td>TXE-624</td>
<td>Advanced Textile Composites</td>
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<td>The objectives of this course will be to</td>
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<td>expose the student to the textile materials</td>
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<td>and processes used in composite applications</td>
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<td>and to introduce methods of analyzing and</td>
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<td>predicting the behavior of the resultant</td>
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<td>products. Fiber architecture of textiles</td>
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<td>used for composites is reviewed along with</td>
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<td>manufacturing processes. Tools for predicting</td>
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<td>elastic properties will be introduced along</td>
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<td>and geometric considerations.</td>
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<td>TXE-625</td>
<td>Biomaterials Technology</td>
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<td>General introduction to the uses of</td>
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<td>artificial materials in the human body for</td>
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<td>the purposes of healing, correcting</td>
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<td>deformities and restoring lost function</td>
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<td>are presented. Topics include biocompatibility,</td>
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<td>techniques to minimize corrosion, and</td>
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<td>specific uses of materials in various</td>
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<td>tissues and organs.</td>
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<td>TXE-721</td>
<td>Analytical Methods</td>
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<td>Statistical process-control theories and</td>
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<td>methods are discussed, and applications</td>
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<td>toward optimizing both process and product</td>
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<td>quality in modern textile operations are</td>
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<td>considered. The objective of these studies</td>
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<td>is to develop a process/product control</td>
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<td>system for the progressive textile plant of</td>
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<td>today. Another major segment of this course</td>
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<td>will be the review and employment of various</td>
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<td>methods of analysis of experimental data.</td>
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<td>Various techniques, and their advantages</td>
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<td>and disadvantages, will be considered and</td>
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<td>studied using textile applications.</td>
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</table>
TXE-751 - Advanced Woven Structures Product Development 3.00 Credits

Independent pursuit of goals in the development of woven fabrics is emphasized. The student will complete three projects, with product-development skills enhancement as a primary goal. Each project will require a search of current literature, the use of CAD, selection of equipment, production of a prototype fabric and submission of a technical report. Two of the projects will be selected by the course advisor and the third will be student-selected.

TXE-752 - Advanced Knitted Structures 3.00 Credits

This course is an in-depth study of weft- and warp-knitting technologies, fabric constructions, and apparel, home furnishing and industrial products/applications/markets. Weft-knit fabric technologies studied include single flat and tubular, double knit, fully fashioned, electronic, etc. Warpknit fabric technologies studied include tricot and raschel, weft inserted, double needle bar, multiaxial, etc. Students are exposed to a variety of weft- and warp-knitting machines, stitch constructions and mechanical and electronic design/pattern mechanisms. Knit fabric geometry is analyzed on the machine, off the machine and after finishing. The relationship and interactions between the knitting yarn and knitting elements are well established. Knitting productivity and quality factors are emphasized.

TXE-753 - Advanced Nonwoven Structures Product Development 3.00 Credits

Nonwovens have a vast range of physical properties and end-use applications with an exceptionally high performance-to-price ratio. Such remarkable characteristics are possible due to the range of fiber type, bonding methods, and finishing methods possible at an exceptionally low cost. This course is intended to give a broad range of knowledge in nonwoven manufacturing methods cost and end-use applications and consumption. This will be accomplished by lecture, laboratory experiments, literature searches, research, cost analysis, statistical comparisons and modeling.

TXE-754 - Indstrl, Specialty Fab Product Development 3.00 Credits

Industrial fabrics are used in a variety of applications other than consumer apparel and home furnishing products. For example, industrial fabrics are used in automotive trim, architectural fabric structure, awnings/outdoor furniture, aerostats, camping products, commercial/institutional interior trim and furnishings, composites, conveyor belts, filtration, geotextile and geomembrane applications, hazardous occupational products, marine products, military products, passive solar systems, sails, tarpaulins, tents, tires and window energy systems. This course is concerned with the study of major industrial-fabric applications and constructions. The performance requirements for each major industrial application will be related to the selection of specific fabric constructions. Trends in industrial fibers, yarn structures, fabric constructions, fabric finishing/coating/laminating and in fabrication of industrial products are reviewed for each major application. Each major application/market will be covered, wherein specific requirements and qualified fabric construction will be reviewed. The historical development of each application will be emphasized to demonstrate the impact of new materials/material forms/processing techniques on the dynamic nature of the industrial fabric business.

TXE-755 - Advanced Yarn Studies 3.00 Credits

This course allows for an independent pursuit of advanced knowledge through a literature search in a selected area of research. Further, the course is structured toward an advanced study of the newer methods of yarn manufacture and the latest developments in processing, computerized control and testing methods. Relationships between yarn properties and product properties are investigated.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>TXE-759</td>
<td>Product Evaluation</td>
<td>3.00</td>
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<tr>
<td>TXE-783</td>
<td>Chem of Fibrous Matrls</td>
<td>3.00</td>
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<td>TXE-790</td>
<td>Quality Management</td>
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<tr>
<td>TXE-797</td>
<td>Selected Topics</td>
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<tr>
<td>TXE-798</td>
<td>Independent Study</td>
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<tr>
<td>TXE-941</td>
<td>Research Thesis</td>
<td>9.00</td>
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<tr>
<td>TXF-501</td>
<td>Foundation Fiber and Yarn Studies</td>
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</table>

**TXE-759 - Product Evaluation**

The processes for the evaluation of fabrics and products are examined. The use of product assessment as a tool for process and product improvement is emphasized. The complexity of the fiber, yarn, fabric and product-forming systems is such that it requires careful evaluation at each stage of the manufacturing process. A comprehensive understanding of the interrelationships of the fabric and product forming stages as related to their evaluation is developed. Established and innovative methods of evaluation are explored.

**TXE-783 - Chem of Fibrous Matrls**

The course is designed to introduce modern methods of instrumental analysis and related technologies to fibrous materials. This course is concerned with the study of spectroscopic methods such as: UV-Spectroscopy, FTIR, NMR, EPR, GC, HPLC, microscopy, DSC and some microbiological methods, etc., applied to material science and technology. In addition, this course will introduce students to related fields of fibrous materials and polymers such as gels and sprays, and the technology of production of delivery systems for drugs and medications. Introduction to adhesion processes and superabsorbsents (e.g., diapers, incontinence products and biotextiles) will also be covered. Lectures are complemented with laboratory work and seminars.

**TXE-790 - Quality Management**

Quality has emerged as a formal management function. No longer restricted to manufacturing and operations areas, it now includes the design, purchasing and marketing processes. Through lecture, discussion and experiential activities, this course examines quality theory and practice how a more sophisticated understanding of quality can lead to a strategic approach to utility management which is necessary to compete in today's world marketplace. Factors required for creating and maintaining a corporation's strategic and competitive edge are thoroughly analyzed.

**TXE-797 - Selected Topics**

Selected Topics

**TXE-798 - Independent Study**

Students may select an independent project or research topic with the approval of the dean of the School of Engineering & Textiles.

**TXE-941 - Research Thesis**

In consultation with the thesis advisor, the student will select an area for concentrated study. The elements of the study will include, but not be limited to, literature searches, experimental design, research, thesis preparation (using the most current Philadelphia University Guide For The Preparation Of Doctoral Dissertation And Master's Theses document) and oral thesis presentation. This project is the culmination of a rigorous preparation in one or more areas of specialization and leads to the establishment of expertise in a chosen field. (20 hours minimum per week)

**TXF-501 - Foundation Fiber and Yarn Studies**

3.00 Credits
This course introduces the basic knowledge of fiber and yarn technology. Included are the proper use of fiber/yarn terms and definitions, the construction parameters of the various fiber and yarn types and detailed analysis of performance properties for each. This information is then used in the proper selection of fibers and yarns for various fabrics and ultimately for various end-use textile products in apparel, household and industrial applications. This is a foundation course that does not count for credit toward the graduate degree.

**TXF-502 - Foundation Fabric Studies**

Provides a comprehensive introduction to weaving and knitting technologies including terminology, process flow, fabric structures, products, markets and fabric properties. Fabric geometry is emphasized in order to establish the interdependence of fabric properties and behavior on fabric structure and construction. Assignments include a substantial laboratory experience in which fabric samples made in the lab are analyzed and mounted with descriptive parameters in a research notebook format. This is a foundation course that does not count for credit toward the graduate degree.

**TXF-503 - History of Textiles & Costumes**

A multi-faceted survey of textiles and costumes from ancient cultures to the present, technical-and visual-design aspects of the textile arts, the influence of trade on design trends, styles in period costume and the sociological implications of dress are all incorporated. This is a foundation course that does not count for credit towards the graduate degree.

**TXF-505 - Design I**

This foundation design course explores the basic elements and principles of 2D and 3D form and their application in the design process. Line, shape, mass, space, texture and gray value are introduced as fundamental and interrelated components necessary in structuring solutions to problems in design. Projects are introduced which encourage students to express ideas in a visual/tactile context, while exploring the interaction of ideas and materials.

**TXF-506 - Design II**

Color is introduced in this foundation design course with an emphasis placed on its practical application in the design process. Projects done by students, using a variety of media, will explore the interaction of color in design with both formal, biophysical and psychological implications and goals. This is a foundation course that does not count for credit towards the graduate degree.

**TXF-507 - Design III**

In-depth studies emphasizing the use of color and varied media in both 2D and 3D forms are undertaken in this foundation course. The interrelationship of the elements and principles of design are addressed through solving a variety of visual problems. Processes of abstraction are explored in projects using a wide variety of media. Students will be expected to develop their abilities for critical analysis of their own work, as well as design processes and products in general. This is a foundation course that does not count for credit towards the graduate degree.

**TXF-510 - Intro to Digital Imaging**

3.00 Credits
This course focuses on increasing the student's individual level of computer literacy through the exploration of the basic structure of the operating system, general Internet skills and the fundamentals of 2D image making and web-design programs. Course projects provide hands-on experience with Adobe Photoshop, Adobe Illustrator and web design software. This is a foundation course that does not count for credit towards the graduate degree.

**TXF-511 - Knit Technology I**  
4.00 Credits

The understanding of both weft- and warp-knit fabrics through an investigation of knit construction, machinery, principles and knit fabric analysis. Lectures are complemented with a series of lab exercises on hand-flat equipment and fabric-analysis projects designed to fully acquaint the student with the principles of knit-fabric design and production.

**TXF-512 - Knit Design Studio I**  
3.00 Credits

Students will learn through individual development how to create a range of texture and color effects within knit design. Independent needle selection and the use of the presser foot will be explored within design areas involving Jacquard, held-stitch and tuck-stitch structures. Design ideas will be developed through to swatch/sketch proposals suitable for sweater production.

**TXF-513 - Knit Design Studio II**  
3.00 Credits

A knit design studio elective for Textile or Fashion majors specializing in the knit-design area. Original design ideas will be developed through technical sketches and specifications into completed sweaters.

**TXF-514 - Print Design Studio I**  
3.00 Credits

Techniques, materials, tools and basic information needed for the design on paper of printed fabrics for the apparel and home furnishing fields are studied. Hands on approaches with gouache and watercolor are used to prepare colorway and repeats. Students prepare a portfolio and learn to keep a sketchbook. A brief introduction to printing methods is included.

**TXF-515 - Print Design Studio II**  
3.00 Credits

This course focuses on creative use of CAD in surface patterning, which integrates with hands-on design applications that students acquired in PRINT-303 Print Design I. Digital workflow, which includes scanning croquis, designing pattern on CAD, digital color matching and color ways will be introduced. At the same time, strong emphasis is placed on making croquis, which develop from drawings and paintings in the sketchbook. Students will create printed textile designs and patterns for Jacquard designs on paper with digital printers for apparel and home furnishing fields. Throughout the semester, sketchbook study will also be required to document the working process, as well as drawings and paintings.

**TXF-516 - Dyeing and Finishing**  
4.00 Credits

This course presents an overview of the wet processing of fibers, yarns and fabrics. Included are the preparation, dyeing and finishing of textiles. Some emphasis is placed on the chemistry and technology involved in these operations. Dyes are studied by their method of application and the primary substrates to which they are applied. Chemical, thermal and mechanical processes are discussed for both preparation and finishing of fabrics.
TXF-517 - Weave Technology I  
4.00 Credits
The structures and analysis of woven fabrics will be studied utilizing CAD, pick outs and laboratory assignments on industrial equipment. Weave structures will include plain, twills and satins (with their derivatives), color effects, textural effects (cords, piques, etc.) and pile weaves. Fabric will be mathematically analyzed for weight, yarn size, fabric count and yarn crimp to specify fabric structure. Necessary loom controls (draw, chains and reed plans) will be used to relate lectures and laboratory work on dobby looms.

TXF-518 - Weave Design Studio I  
3.00 Credits
This course focuses on the effects and interactions that yarn, color, texture and structure play in woven design. Working with multi-harness floor looms and dobby looms, students create warps and chains, and weave prototype cloth for various end uses.

TXF-519 - Weave Design Studio II  
3.00 Credits
The study of elements of woven design is brought to the problems of multi-layered cloth, compound weaves, block designs and other advanced structures. Students use several CAD programs in conjunction with AVL compu-dobbies to increase their design capabilities. Multi-harness floor looms and dobby looms are also used to develop cloth from concept to actuality.

TXF-542 - Color, Dyeing and Finishing  
3.00 Credits
This lecture course presents an overview of color science and wet processing of fibers, yarns and fabrics. Included are the preparation, dyeing and finishing of textiles. Some emphasis is placed on the chemistry and technology involved in these operations. Dyes are studied by their method of application and the primary substrates to which they are applied. Chemical, thermal and mechanical processes are discussed for both preparation and finishing of fabrics. This course may not be taken for credit by anyone who previously received credit for TEXTCHM242, TXF516 or C501. (First offered Fall 2014) Prerequisite: CHEM-101 or CHEM-103

TXF-542L - Color, Dyeing & Finishing Lab  
1.00 Credits
This hands-on laboratory-based course highlights concepts covered in Color, Dyeing and Finishing Lecture. Emphasis is placed on developing laboratory skills and to reinforce the concepts covered in the weekly lecture throughout the term. Experiments include color measurement, color mixing, dyeing of various classes and finishing using both chemical & mechanical techniques. This course may not be taken for credit by anyone who previously received credit for TEXTCHM242, TXF516 or C501. (First offered Fall 2014) Prerequisite: CHEM-101 or CHEM-103