

# Film and Media Arts (FMA)

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Course information contained within the Bulletin is accurate at the time of publication in June 2025 but is subject to change. For the most up-to-date course information, please refer to the Course Catalog.

**FMA 5241. Cinematography Workshop. 4 Credit Hours.**

The art, theory, and technology of film production with special attention paid to location lighting, location sound, cinematic composition, and film structure. This is a dual level course, intended for both the experienced filmmaker and the media-aware but inexperienced graduate student ready for intensive, accelerated study in the design and solution of cinematographic problems. Note: This course is required for the fall semester of the first year of the MFA program.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 5242. Videography. 4 Credit Hours.**

Lectures, demonstrations and practical exercises in the art, theory, and technology of video and electronic media production. Note: This course is recommended for the spring semester of the first year of the MFA program.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 5243. Audio Production and Aesthetics. 4 Credit Hours.**

A production workshop on audio as a form of aesthetic expression. Students will explore theoretical concepts as they use digital audio recording and editing systems to complete projects. Lectures, demonstrations, hands-on instruction, exercises, critiques and discussions.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 5244. Lighting for Film & Video. 4 Credit Hours.**

**Repeatability:** This course may not be repeated for additional credits.

**FMA 5248. Introduction to 3D Modeling. 4 Credit Hours.**

This course introduces the concepts and techniques of three-dimensional digital graphics, using Lightwave3D software. The first half of the semester introduces a broad palette of techniques and formal ideas, while the second half is spent on a major project of your own design. Previous experience with graphics or animation software is not required. The course offers a unique skill set and formal perspective.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 5249. Introduction to 3D: Animation. 4 Credit Hours.**

This course introduces the concepts and techniques of three-dimensional digital imagery and motion graphics, using Lightwave3D software. The first half of the semester introduces a broad palette of techniques and formal ideas, while the second half is spent on a major project of your own design. The course offers a unique skill set and formal perspective for upper level students. Open to juniors and seniors, including non-majors and upper-level students from other colleges, with the specific aim of fostering an interdisciplinary, collaborative workshop environment.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 5341. Scene Analysis for Writers and Directors. 4 Credit Hours.**

Analysis and exercises dealing with the conventional language of mainstream narrative film, including how this language, traditionally presented as the only way to organize narrative films, actually serves to circumscribe the kinds of stories that may be told.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 5344. Adaptation and Docudrama: Screen and Television Writing from Pre-Existing Source Material. 4 Credit Hours.**

This will be an exercise course leading to a final written project. It will focus on screenplays for film and television based on literature, drama and historical events. Because the material pre-exists, the course will be able to focus on the nuances of translation to screen including the visual representation of internal life, time, levels of reality, "voice," historical context, and social change.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 5361. Writing for Media I. 4 Credit Hours.**

A seminar and workshop exploring various approaches to screenwriting, including documentary treatment, experimental appropriation, performative conceptions, and narrative screenplays. Through weekly exercises and a final project, each student will begin to develop a personal integration of these approaches leading to a "voice" of his/her own. Note: This course is required for the fall semester of the first year of the MFA program.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 5362. Serial Writing. 4 Credit Hours.**

This is a writing workshop focusing on dramatic serial writing in which students learn to work in close collaboration with other class members. In preparation for the class, students will be required to read or view several dramatic serials as well as read several pilot scripts. The class itself will hear "pitches" for a serial, select one story, and then begin to develop it.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of B- in FMA 5361.

**FMA 5440. Topics in Production. 4 Credit Hours.**

A workshop in film, video, audio, or emerging new technologies. The course will address a particular production issue (an aspect of technology or an aesthetic approach) each time it is offered, such as color correction, 3-D computer animation, special effects, digital audio applications, and multimedia.

**Repeatability:** This course may be repeated for additional credit.

**FMA 5451. Animation Workshop. 4 Credit Hours.**

A creative workshop exploring the concepts, aesthetics, and techniques of independent animation in a number of media from cards and cels to digital design and manipulation. Note: Offered summer only.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 5452. Digital Animation, Compositing and Modeling. 4 Credit Hours.**

Animation, image compositing and object modeling have facilitated the crossover between animation and photographic imaging, mingling the fictive and the realistic image in digital film and videomaking. This workshop explores the techniques and effects of processing and layering the moving image within film/video language and within non-linear structures. Primary focus is on 2D animation and compositing using Adobe AfterEffects with other software packages introduced as time permits.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 5453. Interactive Design Workshop. 3 to 4 Credit Hours.**

This workshop explores the use of interactive media for the public exhibition of historical and artistic materials in libraries, museums, or other cultural institutions. Students have direct access to an archival museum collection, and will be guided in elaborating the themes, cultural significance, and aesthetic value of these historical materials, with the challenge of transforming them for the real, online and virtual spaces that are accessible to contemporary audiences. The course will teach interactive applications such as video motion tracking, projection design, interactive VR environments, and mobile Augmented Reality. Thematically, the course will explore the challenges of cultural visibility and access and aim for critical forms of public engagement with cultural production and presentation.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 5462. Video Game Theory and Writing. 4 Credit Hours.**

This course will look at both the critical literature that has developed around video games and other interactive environments, as well as the practice of writing video games. Student's work will combine critical essays and written game or interactive creation that explores some of the theories addressed in the course. The course will look at some of the major issues in video game studies, such as simulation, representation, play, narrative, the ergotic, cut-scenes, and interactive space and time, as well as considering how video games may engage some long-standing aesthetic and philosophic questions that predate these games themselves.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 5468. Art-Culture-Technology Seminar. 4 Credit Hours.**

This seminar introduces a broad array of theories and critical perspectives on cinematic arts and alternative media. The course explores how the emergence of differing media technologies such as cinema, video and computing have shaped paradigms of cultural and political organization as well as personal, physical and cognitive self-understanding. Topics include spectatorship and viewer participation, the gaze and identity construction/deconstruction, transmedia documentary, rhizomatic narrative, multiple screen installations, video art, sound art, interactivity, spatiality and new urbanisms, networked and geolocated media, net art and hacktivism, user-generated media, virtual worlds, and game theory. The course explores interdisciplinary approaches to scholarly and creative inquiry, with research and readings traversing fields of the arts, humanities and sciences.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of B- in FMA 5674.

**FMA 5471. Media Arts Projects at the Kimmel: The Virtual City. 4 Credit Hours.**

Graduate and undergraduate students will work with Prof. Roderick Coover and visiting artists at the Kimmel Center to create works using emerging cinematic technologies including virtual reality (VR). The course aims to produce highly experimental and collaborative media arts works oriented around themes of the city. The course will take place at main campus, center city campus and at the Kimmel Center. This course is open to students from across the arts and it encourages interdisciplinary and cross-genre collaborations of image, sound, movement and performance.

**Repeatability:** This course may be repeated for additional credit.

**FMA 5473. Moving Camera Workshop. 4 Credit Hours.**

Moving Camera Workshop is a graduate level workshop course that explores the art and practice of moving camera media production. The course covers the range of techniques including hand-held, dolly, jib, virtual/motion sensors and Steadicam operation. Class time will be spent on group discussions/exercises, lectures/screenings, lab instruction and critiquing work. Through a series of production projects, students will work through the aesthetics of moving camera and gain the technical and physical expertise necessary for successful projects. This course will also explore the theory and history of camera movement as well as blocking and directing techniques. Locative and mobile media projects extend the work outside the classroom. Research on new camera movement technologies is used to move toward innovative student media projects.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of B in FMA 5242.

**FMA 5551. Editing I. 4 Credit Hours.**

This course introduces graduate students to the theories and techniques of digital video and computer based post-production. Students will learn the ins and outs of Adobe Premiere Pro, focusing on media management, efficient editing practices, sound and image manipulation, codec preferences and conversion, and uploading files to the web. This will primarily be a technical class, focusing on proficiency with the Adobe Premiere application; however, we will also cover fundamental editing craft, and key editing terminology and techniques. Projects will include scripted and non-fiction material.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 5553. Color Correction. 4 Credit Hours.**

Advanced Color Correction is a graduate level workshop that explores the aesthetic considerations and technical aspects of color in modern postproduction and cinematography. Color has a subconscious influence on emotion in storytelling. With the advent of modern digital cinema, every film and television production undergoes some level of color grading. Cinematographers must understand the process to maintain creative control of the images they produce. Editors must understand the process to perform basic color correction on low budget productions. This class is a combination of lecture and workshop with each student striving to efficiently navigate the art and practice of color correction.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of B in (FMA 5241 or FMA 5242)

**FMA 5670. M.F.A. Colloquium. 1 Credit Hour.**

Wide variety of discussions, screenings, and lectures from guest image makers, exploring and integrating a range of theoretical, conceptual, and pedagogical aspects of film and video production. This course must be taken a second time for fulfillment of the MFA degree in FMA. Note: This course is required for the fall semester of the first year of the MFA program.

**Repeatability:** This course may be repeated for additional credit.

**FMA 5671. Film Theory Seminar. 3 Credit Hours.**

This seminar explores major theoretical approaches to the study of cinema and related media arts. Readings will present key debates and concepts for understanding the aesthetics, meaning, ideology, and cultural role of the medium. Note: Prior to Fall 2023, the course title was "Film History and Theory."

**Repeatability:** This course may not be repeated for additional credits.

**FMA 5672. History of Documentary Film. 4 Credit Hours.**

An international, historical survey of the factual film, including creative documentary, anthropological film, television news film, direct cinema, and cinema verite.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 5673. Time-Image Arts/Cinema Praxis. 4 Credit Hours.**

This screenings-oriented seminar examines how writers such as Deleuze, Taussig, and Robbe-Grillet and media makers such as Antonioni, Frampton, and Viola expand our ideas about time-based images and the production of space in a globalizing technological era. Students respond to readings and screenings through short biweekly papers that launch seminar discussions. Students conclude the course with a paper (M.A./Ph.D. students) or project (M.F.A. students) and a cross-disciplinary critique of each other's works. Note: Cross-listed with Philosophy and Art History.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 5674. Media Arts Thry-Practice. 4 Credit Hours.**

**Repeatability:** This course may not be repeated for additional credits.

**FMA 5676. Anthropological Film/Media. 3 Credit Hours.**

Anthropological perspectives on media studies in terms of both cultural organization and anthropological research tools; includes anthropological and communication theory, history of ethnography, and research methods with special emphasis on visual recording modes.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 5680. Topics in Film Study. 4 Credit Hours.**

Lectures and screenings on a special topic arranged each semester. Topics may include: Advanced Film Theory, Third Cinema, Soundtracks, Exile Cinema, The Idea of Art Cinema, Hollywood Cinematographers, Hybrid Cinema, Gender and Sexuality. Please consult with the instructor.

**Repeatability:** This course may be repeated for additional credit.

**FMA 5770. Topics in Producing. 3 Credit Hours.**

A workshop in film and media art producing. The course will address a particular producing issue each time it is offered, such as budgeting, scheduling, project development, or entertainment law.

**Repeatability:** This course may be repeated for additional credit.

**FMA 5771. Producing. 4 Credit Hours.**

An overview of the processes of financing, managing, promoting, and distributing a documentary, fiction, or experimental production. Emphasis is on projects produced independently, outside the commercial mainstream, and without institutional sponsorship or governance. Students will produce a comprehensive proposal for a viable film or videotape project.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 5772. Fundraising for Independent Media. 3 Credit Hours.**

This course is a workshop class where students must come prepared with a project around which they will create a fundraising campaign. During the course of the semester students will be exposed to information on grant writing, non-profit and for-profit media entities and the legalities of media producing. At the conclusion of the course, students will have a full funding proposal ready for dissemination to various funding sources.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 5773. Entertainment Industry Perspectives. 4 Credit Hours.**

This course explores career paths and current trends in the entertainment industry through weekly guest lecturers who are working professionals in a variety of related fields. Students also study and learn professional skills and industry conventions relevant to their future careers. Writing assignments will include critical responses to trade journal articles about the student's chosen field as well as a series of student-conducted case studies of and interviews with practitioners in the student's area of focus. NOTE: Student must be a graduate participant in the FMA LA-Away program.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 8240. Special Problems in Film and Media Arts. 1 to 4 Credit Hour.**

Special seminars typically taught by distinguished visiting faculty. Inquire at departmental offices for details, since these seminars often are scheduled on short notice.

**Repeatability:** This course may be repeated for additional credit.

**FMA 8241. Advanced Cinematography. 4 Credit Hours.**

Advanced theory and practice in the making of films with personal vision and crewing each other's productions in Super 16mm, 35mm or High Definition 24P digital video, along with technical and aesthetic exercises deconstructing cinematographic/videographic moviemaking.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 8242. Experimental Media Wksp. 4 Credit Hours.**

An advanced workshop to develop projects in experimental, documentary, or narrative forms using portable video, TV studio, and computerized image and editing facilities.

**Repeatability:** This course may be repeated for additional credit.

**FMA 8243. Film Sound. 4 Credit Hours.**

A production workshop on audio recording, editing and mixing of dialogue, foley, effects and music for film and electronic media. Lectures, demonstrations, hands-on instruction, exercises, critiques and discussions.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 8244. Experimental Methods. 4 Credit Hours.**

An introduction to formal concepts and experimental methods of film production with a workshop emphasis on optical printing, hand painting on film, manipulating the film image and exploring the material nature of the film medium. The course includes readings in the theories and history of experimental film and media arts production.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 8245. Documentary Workshop. 4 Credit Hours.**

Design, pre-production planning, production, and subsequent evaluation of individual documentary projects.

**Repeatability:** This course may be repeated for a total of 8 credit.

**FMA 8246. Advanced Documentary/Fiction Workshop. 4 Credit Hours.**

Designing and executing individual documentaries, dramatic projects, or works that intermix the strategies of documentary and fiction while dealing with socially significant material. Each project will involve one month of planning and scripting, one month of field production in film or video, and a final month of editing and postproduction. Lectures, demonstrations, critiques, and crew assignments on each other's projects will accompany the intensive fieldwork.

**Repeatability:** This course may be repeated for additional credit.

**FMA 8340. Topics in Production. 1 to 4 Credit Hour.**

**Repeatability:** This course may be repeated for additional credit.

**FMA 8341. Screen Directing Theory and Practice. 4 Credit Hours.**

Theories of directing, dramatic form, and acting are examined through lectures, demonstrations, readings, and applied exercises to establish a theoretical and practical foundation in film and television directing.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 8361. Writing for Media II. 4 Credit Hours.**

The preparation of a scenario and complete television or motion picture script.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 8362. Joint Writing Workshop 1. 4 Credit Hours.**

This is an advanced workshop course designed for students in the Film and Media Arts MFA in Screenwriting. It will be offered in conjunction with a similar Writing Workshop offered by the Theater MFA in Playwriting. Students will complete the first draft of a feature screenplay or serial bible.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of B- in FMA 8361.

**FMA 8363. Joint Writing Workshop 2. 4 Credit Hours.**

This is an advanced workshop course designed for students in the Film and Media Arts MFA in Screenwriting. It will be offered in conjunction with a similar Writing Workshop offered by the Theater MFA in Playwriting. Students will polish and complete the final draft of a feature screenplay or serial bible.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of B- in FMA 8362.

**FMA 8450. Topics in Media. 1 to 4 Credit Hour.**

**Repeatability:** This course may be repeated for additional credit.

**FMA 8451. Digital Animation. 4 Credit Hours.**

**Repeatability:** This course may not be repeated for additional credits.

**FMA 8452. New Technology Laboratory. 4 Credit Hours.**

Exploration, study, design, production, and implementation of hypermedia projects including interactive and computer controlled video, computer graphics, digital sound, videodisc, virtual reality, and other emerging technologies. Interdisciplinary collaborations will be encouraged between FMA, Computer Sciences, Engineering, Architecture, Art, and Music.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 8461. Interactive Narrative. 4 Credit Hours.**

A creative course within a critical frame in which students make and study interactive narratives; textual, audio and graphics/video based stories that incorporate explicit user choice. Weekly exercises and readings, followed by a substantial final project.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 8462. Documentary Arts and Visual Research. 3 to 4 Credit Hours.**

Students examine theories, methods and interdisciplinary approaches to nonfiction representation and depiction in order to develop documentary research and/or documentary projects. Students are expected to complete highly developed papers and/or documentary projects that are directly related to their thesis topics, methods, and goals. The course is open to graduate students from across the university with permission of the instructor.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 8551. Digital Post-Production. 4 Credit Hours.**

Advanced tools and concepts of digital non-linear editing of film and video with emphasis on fine-cut preparation, file management, ProTools, foley, looping, multi-track mixing, compositing, titling, EDL generation, and film matchback.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 8670. Topics in Media Studies. 1 to 4 Credit Hour.**

**Repeatability:** This course may be repeated for additional credit.

**FMA 8673. Historical Film Research. 4 Credit Hours.**

Major trends in theatrical film history and the methods and issues in the writing of film history.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 8674. Critical Studies Seminar. 3 Credit Hours.**

This seminar explores topics in the critical study of cinema or media arts to introduce students to the process of deeper scholarly inquiry into a given area of film or media arts study. Topics will rotate by semester, and students will watch and read widely on the theoretical concepts or historical periods under consideration. The course may be repeated with different topics.

**Repeatability:** This course may be repeated for additional credit.

**FMA 8675. Seminar: International Film. 4 Credit Hours.**

A critical and historical examination of the films of a particular country or world region. Topics vary per semester. May be repeated (as long as the specific topic is not duplicated).

**Repeatability:** This course may not be repeated for additional credits.

**FMA 8680. Advanced Topics in Media Arts Studies. 4 Credit Hours.**

Advanced Topics in Media Arts Studies is a variable-content topics history/theory course in such media art topics as new technologies, sound, interactive video, mobile media, visual ethnography and other areas of interdisciplinary media art. This is a media arts studies course for graduate students.

**Repeatability:** This course may be repeated for additional credit.

**FMA 8771. Exhibition/Distribution. 3 Credit Hours.**

The objective of this course is to expose students to methods and approaches for exhibition and distribution of independent media. Students will investigate popular media outlets such as film/video festivals, microcinemas and internet exhibition possibilities, to name only a few. The course will serve dual functions in that it will prepare students to distribute their own work while also exposing them to industry opportunities in exhibition and distribution.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 8870. U Penn Critical Studies. 4 Credit Hours.**

Recipient of the Temple (FMA)-UPenn Exchange Award that is given to one student per year to engage in studies in the University of Pennsylvania Program in Cinema Studies. The exchange has been officially approved by the Temple University and the University of Pennsylvania.

**Repeatability:** This course may be repeated for additional credit.

**FMA 8985. Teaching in Higher Education, Arts. 3 Credit Hours.**

This course focuses on the research on how people learn and best teaching practices, with the aim of preparing students for effective higher education teaching in the arts.

**Repeatability:** This course may not be repeated for additional credits.



**FMA 9085. Professional Field Experience. 1 to 4 Credit Hour.**

Field work on an outside professional production or media presentation with a position of creative, curatorial or managerial responsibility. May be repeated. Up to four credits may count toward the MFA degree.

**Repeatability:** This course may be repeated for additional credit.

**FMA 9086. Study-Away Internship. 1 to 4 Credit Hour.**

Students apply for and perform internships in wide variety of entertainment industry fields. Students also study opportunities available to emerging professionals in their areas of specialty. Students submit weekly journals related to their internship experiences and assigned readings, as well as a final written reflection on their field experience, personal growth, and knowledge gained. NOTE: Internship placements subject to student qualifications and availability of openings. Must be admitted into Film and Media Arts LA-Away Program. Contact FMA's internship director.

**Repeatability:** This course may be repeated for additional credit.

**FMA 9245. Thesis Development Workshop. 4 Credit Hours.**

This writing intensive workshop is designed to aid in the conceptualization, development and preproduction phases of the final thesis production. Through a diverse range of creative exercises, writing assignments and visiting lecturers, students will complete their thesis proposal with clear plans for executing their thesis film.

**Repeatability:** This course may be repeated for additional credit.

**Pre-requisites:** Minimum grade of B- in FMA 8674.

**FMA 9246. Thesis Production Workshop. 4 Credit Hours.**

This production workshop is designed to support the production of final thesis projects. Through a diverse range of workshops and visiting lecturers, the course is designed to support the production phases of final thesis projects with the goal of completing production by the course's end.

**Repeatability:** This course may be repeated for additional credit.

**Pre-requisites:** Minimum grade of B- in FMA 8674.

**FMA 9282. Directed Projects. 1 to 4 Credit Hour.**

Individual production projects proposed by advanced students under the tutorial supervision of a faculty member.

**Repeatability:** This course may be repeated for additional credit.

**FMA 9346. Methodologies and Praxis. 4 Credit Hours.**

This seminar offers core training in doctoral research methods across film and media arts and related fields. Drawing upon scholarly traditions in visual research in the humanities and social sciences, the course is designed to help students gain deep understanding of differing research approaches to develop research methods best suited to their dissertation projects. Student learn to systematically develop their research projects, combine research from archival, data and field sources, and integrate quantitative and qualitative research materials into their arguments. Students learn to develop annotated bibliographies, contrast research approaches to their potential thesis questions, and position their work for differing audiences. In developing strategies of implementation, students are instructed in IRB and other research protocols and engage readings on ethics and academic standards.

**Repeatability:** This course may not be repeated for additional credits.

**FMA 9683. Directed Readings. 1 to 4 Credit Hour.**

Individual research/theory projects proposed by advanced students under the tutorial supervision of a faculty member.

**Repeatability:** This course may be repeated for additional credit.

**FMA 9994. Doctoral Comprehensive Exam Study. 1 to 6 Credit Hour.**

Open only to PhD candidates in Film and Media Arts for preparation for their doctoral comprehensive examination. A maximum of six credit hours will be counted toward the degree.

**Repeatability:** This course may be repeated for additional credit.

**FMA 9995. M.F.A. Project. 1 to 4 Credit Hour.**

Open only to MFA candidates in Film and Media Arts for their final project. May be repeated for credit during all semesters the final project is in progress, although only a maximum of six hours will be counted toward the degree.

**Repeatability:** This course may be repeated for additional credit.

**FMA 9998. Doctoral Dissertation Proposal. 1 to 3 Credit Hour.**

Open only to PhD candidates in Film and Media Arts for their doctoral thesis proposal research, writing and presentation. A maximum of six credit hours will be counted toward the degree.

**Repeatability:** This course may be repeated for additional credit.

**FMA 9999. Doctoral Dissertation. 1 to 3 Credit Hour.**

For PhD students actively completing thesis work.

**Repeatability:** This course may be repeated for additional credit.

**Pre-requisites:** Minimum grade of B- in FMA 9998.