Digital Media - CPS (DGM)

Courses

DGM 6105. Visual Communications Foundation. (4 Hours)
Introduces the basic principles and concepts inherent in visual language systems. Covers fundamentals such as visual perception, composition, spatial relationships, color, form, repetition, texture, structure, abstraction, and figure-ground relationships. Student projects focus on visual problem solving with an emphasis on understanding of context, content, and the development of original forms.

DGM 6108. Programming Foundations for Digital Media. (4 Hours)
Offers students an opportunity to learn the fundamentals of programming in a multimedia environment. Emphasizes planning and production for interactive digital media. Using a scripting language as a base, covers how scripting relates to design and programming fundamentals that link logic to action. Topics include graphical user interfaces; user interaction; and algorithmic manipulation of text, graphics, sound, and video.

Corequisite(s): DGM 6109

DGM 6109. Lab for DGM 6108. (2 Hours)
Accompanies DGM 6108. Covers topics from the lecture course through various tutorials and problem-solving exercises.

Corequisite(s): DGM 6108

DGM 6122. Foundations of Digital Storytelling. (4 Hours)
Introduces the fundamentals of character and story development through practical applications in a variety of digital media, from text and storyboarding to sound, moving image, and interactive environments. Offers students an opportunity to become familiar with narrative sequencing and story development, experience the critical role of narrative in linear media, and apply these skills in nonlinear and experimental forms. Students work both individually and collaboratively to develop projects that explore creative storytelling.

Prerequisite(s): DGM 6105 with a minimum grade of C- ; DGM 6501 with a minimum grade of C-

DGM 6125. Time-Based Media. (4 Hours)
Introduces the creative potential of time-based media—data that changes with respect to time. Explores concepts of sequencing, transformation, and motion through time and space. Offers students an opportunity to explore the potential of video, 2D, animation, motion graphics, and sound design through hands-on assignments.

Prerequisite(s): DGM 6122 with a minimum grade of C-

DGM 6140. Sound Design. (4 Hours)
Explores the history, theory, and practice of sound design, the creation of aural environments, special effects, dialogue, and music for a variety of traditional and digital media, including film, TV/video, animation, theatre, radio, interactive games, and the Internet. Films such as *The Matrix, Citizen Kane,* and *Star Wars* serve as the basis for developing a core knowledge of sound design concepts, particularly the development of critical listening skills. Topics cover "spotting," digital audio editing and recording, sample libraries, aesthetics of design, music composition, script interpretation, critical listening, professional collaboration, sound and music technology, digital audio production, and production organization. Offers students an opportunity to master core skills, enabling them to communicate effectively with directors, producers, and/or creative artists in the media and entertainment industries.

DGM 6145. Information Technology and Creative Practice. (4 Hours)
Explores interdisciplinary methodologies that promote creativity and stimulate innovative thinking. Information technology (IT) has formed a powerful alliance with art and design to establish the existing new domain of information technology and creative practices (ITCP). The result is an astonishing variety of significant cultural and economic forms ranging from innovative product designs to interactive art installations. Uses case studies and emphasizes the design, planning, and implementation of innovative prototypes.

DGM 6168. Usability and Human Interaction. (4 Hours)
Surveys the theory and practice of human-computer interaction and the development of user interfaces. Through both analysis and design projects, students have an opportunity to learn cutting-edge approaches to usability research and evaluation, testing methods, and how to design systems that meet end-user needs. Topics covered include behavioral and cognitive foundations of interaction design, principles of good design for interaction, basic user research techniques, and the process of user-centered design.

DGM 6217. Typography for Interactivity. (4 Hours)
Explores the basic principles of typographic design, particularly as applied to screen-based media. Topics include screen legibility and resolution, hierarchy and scale, and typographic form and style.

Prerequisite(s): DGM 6105 with a minimum grade of C-

DGM 6230. Digital Media Entrepreneurship. (4 Hours)
Focuses on the personal characteristics necessary to become a successful entrepreneur, as well as on the processes of evaluating an idea, assessing the market, and implementing a new venture, whether inside an organization or as an independent startup. Teaching methods include case study, guest speakers with entrepreneurial experience, lectures, and team projects that develop feasible business plans. Offers students an opportunity to evaluate their potential as entrepreneurs by learning how to identify and evaluate business opportunities, develop a business concept and marketing plan, assess and obtain the required resources, manage the growth of new ventures, and plan for exit strategies.

Prerequisite(s): DGM 6280 with a minimum grade of C-

DGM 6268. Usable Design for Mobile Digital Media. (4 Hours)
Offers students an opportunity to apply the user-centered, human-computer interaction (HCI) skills covered in DGM 6168 to mobile digital media experiences such as game, entertainment, and social media applications. Considers digital media design, aesthetics, and user behavior in mobile-based environments in the creation of a satisfying and engaging experience. Offers students an opportunity to understand best design practices on a mobile platform by applying HCI methods such as iterative design and the evaluative methods of heuristic evaluation and play testing.

Prerequisite(s): DGM 6168 with a minimum grade of C-

DGM 6279. Project Management for Digital Media. (4 Hours)
Introduces the project management life cycle for technology-based products and applications. Beginning with project initiation and assembling a team, offers students an opportunity to apply project management principles to all aspects of planning and managing a project, including scheduling and budgeting. Major topics include managing a team, including setting goals for creatives; managing assets; documentation; deadlines and client expectations; and balancing continuous improvement and rapid prototyping against the need to manage the scope of work.

DGM 6280. Managing for Digital Media. (4 Hours)
Surveys evolving best practices in creative industry management. Begins with the recognition that managing in an environment of innovation and creative media requires a radical rethinking of traditional managerial paradigms. Agile response to technological change requires strategic alternatives in company goals, priorities, and direction. Intellectual content and creativity are difficult to value within classic financial models. New devices and social networks demand responsive action in internal and external communications. Correctly valuing the performance of highly creative people can be key in maintaining or gaining a leadership position. Uses case studies, presentations, and team-based analysis to examine these challenges and discuss effective responses.

DGM 6285. Interactive Marketing Fundamentals. (4 Hours)
Introduces the exploration of messaging in current and evolving media outlets, the digital marketing mix, the growing promise of mobility, and the possibilities and pitfalls of marketing in social media. Marketing has been deeply challenged by the move from traditional to digital channels, as print and TV give way to Web sites and mobile devices as primary centers of information and entertainment. Explores Web analytics, in particular search engine marketing (SEM) and search engine optimization (SEO).

DGM 6290. Social Media and Brand Strategy Implementation. (4 Hours)
Offers students an opportunity to develop the context for working with marketing professionals to implement strategy in a variety of social media, from blogs to social networking sites, and from game worlds to content communities. Social media environments have become a prime target for product and personal marketing, advertising, and supporting a brand image. But their differences from passive media and even standard websites have made it more difficult to apply traditional thinking to these digital media channels. Utilizes lectures, research, projects, and case studies.

DGM 6308. Intermediate Programming for Digital Media. (4 Hours)
Offers students an opportunity to extend the basic proficiency in scripting languages gained in DMG 6108 to more sophisticated programming tasks using an industry-standard scripting language such as JavaScript. Covers the use of arrays and objects to structure data and apply object-oriented and event-driven programming principles to create sophisticated interactivity.

Prerequisite(s): DGM 6108 with a minimum grade of C- or DGM 6501 (may be taken concurrently) with a minimum grade of C-

DGM 6317. Screen-Based Publication Design. (4 Hours)
Introduces the theory and practice of designing books, magazines, and interactive hybrid narratives for touch screens. Offers students an opportunity to become familiar with grids, style sheets and templates, and output to a variety of e-publishing tools as they explore the differences in designing content for the Web, tablets, and smartphones.

DGM 6322. Advanced Digital Storytelling. (4 Hours)
Builds on concepts introduced in DGM 6122. Explores the ideation and production of more complex, nonlinear interactive narratives. Working intensively in a team setting, offers students an opportunity to explore ways to further integrate a variety of narrative elements into immersive experiences.

Prerequisite(s): DGM 6122 with a minimum grade of C-

DGM 6400. Game Design Fundamentals. (4 Hours)
Provides the foundation for all of the other courses in the graduate specialization and/or certificate in game design. Offers students an opportunity to learn the basic principles of game design through the creation of board and card games, and through video-game prototyping. Also offers an opportunity to develop skills, including graphic and written communication, rules logic, group dynamics, and basic programming logic.

DGM 6403. Game Engine Fundamentals. (4 Hours)
Offers students an opportunity to apply their prior experience in DGM 6400 to multiplatform game development and rapid prototypingusing an industry-standard game design engine. Game engines provide quick-start platforms and industry-standard solutions for developing video games.

Prerequisite(s): DGM 6400 with a minimum grade of C

DGM 6405. Game Development. (4 Hours)
Introduces video game programming using a game engine. Building on their work from DGM 6400, students have an opportunity to create single-player computer games using industry-standard scripting languages. Projects focus on sound design, two-dimensional design and animation, or three-dimensional design and animation. Students can develop projects as individuals or as part of a team.

Prerequisite(s): DGM 6403 with a minimum grade of C-

DGM 6410. Game Design Technology Lab. (4 Hours)
Offers students an opportunity to explore recent technological advances in game design, including networked multiplayer gaming, 3D gaming, and alternative user interfaces such as cameras and motion/location-sensing devices. Student teams are encouraged to round out their game-design portfolios by developing a sophisticated videogame demo that focuses on a specific theme and technology.

Prerequisite(s): DGM 6405 with a minimum grade of C-

DGM 6435. Digital Video Production. (4 Hours)
Using digital video cameras, students are introduced to field production skills and basic content editing. Students are encouraged to implement and experiment with ideas developed in DGM 6122 as they complete short videos. Through hands-on practice and discussion, as well as the viewing of classic documentary and fiction film/video examples, students have an opportunity to further explore composition of the frame and meanings produced from inter-shot and sequence relationships.

Prerequisite(s): DGM 6506 (may be taken concurrently) with a minimum grade of C-

DGM 6440. Editing in the Digital Studio. (4 Hours)
Uses virtual studio spaces to introduce and develop student comfort with non-linear digital editing. Offers students an opportunity to understand the basic principles of composition, pacing, titling, timecodes and video effects. Working with their own material, existing video clips, animations, still images and audio feeds, students are encouraged to experiment with different styles, methods, and output to gain a comprehensive understanding of the medium. DGM 6506 or prior experience with digital video editing is strongly recommended.

Prerequisite(s): DGM 6435 with a minimum grade of C-

DGM 6450. Animation Basics. (4 Hours)
Explores the creative potential of animation. Exposes students to animation processes and techniques through lectures, demonstrations, and hands-on assignments. Provides a historical survey of animation art. Emphasizes using the computer to creatively develop concepts while learning the fundamental skills of constructing images and forms. Students collaborate on projects during the first half of the course and work individually on final projects.

Prerequisite(s): DGM 6105 (may be taken concurrently) with a minimum grade of C-

DGM 6451. Web Development. (4 Hours)
Focuses on intermediate to advanced concepts and techniques for development of professional Web environments. Offers students an opportunity to explore different development strategies, including client-side interactions using AJAX libraries (such as JavaScript, PHP, and MySQL) compared with client/server methods, webpage presentation layer vs. interactive layer, and the use of WYSIWYG (what you see is what you get) tools vs. plain-text coding.

Prerequisite(s): DGM 6108 with a minimum grade of C- ; DGM 6521 with a minimum grade of C-

DGM 6461. Interactive Information Design 1. (4 Hours)
Focuses on the fundamental principles of interactive design to develop meaningful interactive experiences. Offers students an opportunity to develop skills in structuring and organizing information, recognizing and establishing content relationships, and building usable navigation. Explores a variety of tools and technologies to deliver varied media material for screen-based use.

Prerequisite(s): DGM 6168 (may be taken concurrently) with a minimum grade of C- or TCC 6120 (may be taken concurrently) with a minimum grade of C-

DGM 6463. Interactive Information Design 2. (4 Hours)
Builds on the content and explorations of DGM 6461. Explores complex information organization and delivery problems while seeking to advance the students' experience with interactive design and programming environments.

Prerequisite(s): DGM 6461 with a minimum grade of C- ; DGM 6217 with a minimum grade of C-

DGM 6471. Designing Infographics. (4 Hours)
Explores a variety of methods that help to translate raw data into accessible visual presentations that can inform, clarify, educate, and persuade. A powerful aspect of Internet technologies is how readily they provide access to information. However, that information often resides in opaque technical formats, making it hard to understand and disseminate.

Prerequisite(s): DGM 6461 with a minimum grade of C- ; DGM 6217 with a minimum grade of C-

DGM 6501. Web Creation Boot Camp. (2 Hours)
Offers students an opportunity to gain basic competency in the design and coding of an attractive, effective, static website. Covers basic web design technology, including webpage structure, markup languages (HTML and CSS), basic rules for image preparation, and site development and management using an industry-standard text editor. This course is an intensive workshop.

DGM 6506. Introduction to Digital Video. (2 Hours)
Uses industry-standard software to introduce editing and compression techniques critical for effective participation in digital video production and editing courses. Offers students an opportunity to become comfortable editing a short video for content, preparing it for posting on the Web, and/or including it in an interactive media project.

DGM 6510. 3D Modeling. (4 Hours)
Introduces the fundamentals of three-dimensional computer animation. Class lectures and demonstrations are followed by substantial hands-on exploration. Offers students an opportunity to gain fundamental skills for polygon modeling and UV surfacing. Projects progress from creating simple geometric objects to realistic organic characters.

Prerequisite(s): DGM 6505 (may be taken concurrently) with a minimum grade of C- ; DGM 6450 with a minimum grade of C-

DGM 6515. Introduction to After Effects. (2 Hours)
Introduces the creation and manipulation of motion graphics and time-based visual effects using the After Effects environment. Offers students an opportunity to acquire the basic knowledge required for DGM 6540.

DGM 6516. Virtual and Augmented Reality (VR/AR). (2 Hours)
Explores trends and technologies driving virtual reality and augmented reality (VR/AR) video production. Through a blend of class discussions and hands-on practice, offers students an opportunity to conceptualize, produce, and deliver high-quality immersive VR videos, apply AR in video production, and understand applications of this technology for a variety of fields.

Prerequisite(s): DGM 6506 with a minimum grade of C-

DGM 6520. Lighting for the Camera. (4 Hours)
Emphasizes essential lighting theory and techniques. Understanding lighting is the key to a professional photographic or video shoot. Topics include lighting equipment; lighting sources and arrangement; color temperature; lighting for indoor, outdoor, and location shooting; as well as the editorial use of lighting to create tone and communicate narrative. Offers students an opportunity to create projects in different lighting environments and for different purposes to experience a wide range of lighting problems and solutions.

DGM 6521. Web Creation for Content Management Systems. (2 Hours)
Expands on the foundations of web creation with an emphasis on developing for content management systems such as WordPress. Offers students an opportunity to work intensively to use web technologies to build on these open-source software models' core capabilities. Requires basic knowledge of cascading style sheets (CSS) and beginner knowledge of PHP.

DGM 6525. Research Methods for Global User Experiences. (4 Hours)
Focuses on a structured approach to user research methodology for the design of interactive applications. Emphasizes user research and interpretation for products and services that will be marketed to individuals spanning cultures with radically different customs and communication. Applies field methods such as interviewing, observation, and questionnaire design through the lens of intercultural psychology and communication patterns, cultural neutrality, and culture-centric design.

Prerequisite(s): DGM 6168 with a minimum grade of C-

DGM 6530. Character Animation. (4 Hours)
Provides an in-depth investigation of 3-D animation. Offers students an opportunity to continue development of realistic characters created in DGM 6510 and to develop intermediate skills for weight mapping and rigging, as well as midlevel proficiency with animation editors. Projects focus on creating animations that emphasize realistic deformation and movement.

Prerequisite(s): DGM 6450 with a minimum grade of C-

DGM 6535. Rigging Principles and Techniques. (4 Hours)
Offers animation students the opportunity to apply realistic motion effects to a complete, intuitive character rig. Convincing animation of 3D characters and objects requires rigging—the setup and scripting of a range of structural controls. Explores character preparation and motion control; kinematics; realistic motion effects, including textures such as fur and hair; and environmental elements, such as fluids, fire, and explosions.

Prerequisite(s): DGM 6540 with a minimum grade of C-

DGM 6540. Compositing. (4 Hours)
Investigates compositing and special FX techniques. Student teams have an opportunity to utilize green screen studio to capture live-action video footage that is seamlessly combined with computer-generated environments and characters that they create. Offers students an opportunity to develop original narratives that are suitable for exploring course objectives.

Prerequisite(s): DGM 6440 with a minimum grade of C- or DGM 6515 (may be taken concurrently) with a minimum grade of C-

DGM 6545. Documentary and Nonfiction Production. (4 Hours)
Offers students interested in documentary filmmaking an opportunity to learn the research, story structure, and production skills necessary to bring a nonfiction video narrative from preproduction through postproduction and refine their work from rough to final cut. Using scenes and examples from notable documentaries to inspire and illustrate technique, students research topics, find subjects, conduct interviews, practice techniques of cinema verité and B-roll, and work with archival footage to complete one major nonfiction project.

Prerequisite(s): DGM 6440 with a minimum grade of C-

DGM 6550. Search Engine Optimization: Strategy and Implementation. (4 Hours)
Connects the search engine optimization (SEO) process to marketing and social media strategy by introducing students to the concepts behind consumer search behavior, search engine algorithms, and SEO analysis using tools such as Google Analytics. A website's frequency ranking in a content search critically impacts its visibility and, ultimately, viability. Seeks to provide foundational guidance on topics such as organic search tactics, website optimization, and keyword research and selection.

Prerequisite(s): DGM 6461 with a minimum grade of C- or DGM 6285 with a minimum grade of C-

DGM 6890. Thesis Proposal Development. (2 Hours)
Offers students an opportunity to understand thesis goals and process, with a view toward developing strong project ideas, an effective and realistic development path, and a well-written preliminary proposal.

DGM 6892. Capstone Project Preparation. (2 Hours)
Offers students an opportunity to understand capstone goals and process. Emphasizes developing strong team skills; identifying and leveraging individual strengths; and managing stakeholder relationships, project scope, and deliverables.

DGM 6962. Elective. (1-4 Hours)
Offers elective credit for courses taken at other academic institutions. May be repeated without limit.

DGM 6983. Topics. (1-4 Hours)
Offers students the opportunity to study, through research and experimentation, in a specified discipline. May be repeated up to four times.

DGM 6995. Project. (1-4 Hours)
Focuses on in-depth project in which a student conducts research or produces a product related to the student's major field. May be repeated up to five times.

DGM 7962. Elective. (1-4 Hours)
Offers elective credit for courses taken at other academic institutions.

DGM 7980. Capstone. (6 Hours)
Offers students an opportunity to demonstrate competency in core digital media topics and concentration-based learning outcomes through the development of a research-based project.

DGM 7990. Thesis. (4-6 Hours)
Offers students an opportunity to complete a digital media project, researched and proposed by the student and directed by one or more members of the faculty. The thesis project can be an individual endeavor or the result of a collaboration involving two or more students in the program.

DGM 7996. Thesis Continuation - Half-Time. (0 Hours)
Offers continuing thesis supervision by members of the department.