IMM 110/Introduction to Digital Media   **1 course unit**
(fall)
An introduction to digital media for interactive multimedia through the study of state-of-the-art methods of creating digital media: painting programs, digital image editing, and time-based authoring programs. Computer graphics and digital media combine to make building images and editing graphics easy and effective. Digital media have led to new methods of communications that affect how we work, play and see ourselves and our environment. Through studio and seminar sessions, students will explore ways of constructing types of digital media and consider the aesthetic, technical, and social effects of this work. Critiques of student work, readings, and discussion will examine the evolving formal criteria and social implications of this work. (Core)

IMM 120/Introduction to Interactive Computing   **1 course unit**
(same as CSC 101)
(fall)
A first course in computing languages for interactive multimedia. Students are introduced to the art of programming through state-of-art multimedia technologies (e.g. *Processing*) Through intensive laboratory experience students learn the programming fundamentals (e.g., variables, functions, control structures and logic, persistent storage and networking). Problems related to interactivity are emphasized. Students will understand the distinction between mark-up languages, scripting languages and general purpose programming languages and develop proficiency in the first two. Efficiency, data structure organization and objects are introduced within the context of interactive computing problem solving. (Core)

IMM 130/Design Fundamentals for the Web   **1 course unit**
(spring)
This course allows students to develop and practice specific, foundational skills in web production, while simultaneously developing an understanding of and strategies for effective visual communication in general. Students will develop an understanding of when and how to use tools such as HTML, CSS and Javascript. Through readings, lectures and demonstrations, students will also develop an appreciation for fundamental issues of graphical communication, including color, typography and composition. Throughout the course we will compare and contrast traditional approaches to design with similar approaches on the web, examining the differing constraints and additional considerations of designing for a digital and interactive medium. (Core)

IMM 140/Writing for Interactive Media   **1 course unit**
(spring)
Introduces students to the reasoning, rigors and routines of writing for business and professional markets. Students will broaden their conceptual understanding of the relationships between journalism, public relations and marketing while acquiring or improving proficiency in creating multimedia content. (Core)

IMM 211/Computer Animation I   **1 course unit**
(same as ADA 210)
(fall)
Prerequisite: IMM 110
Surveys traditional and computer animation history, techniques, and terminology. Students will learn basic concepts and skills of 3D digital imaging, animation, rendering, and principles of motion and continuity. The student will produce three-dimensional animation. (In-major option)

IMM 220/Physical Computing   **1 course unit**
(spring)
Prerequisite: IMM 120
(In-major option)
This intermediate-level course explores the computational aspects of interactivity. The evolution and history of user interaction, with an emphasis on effective communication is explored .

Topics include but are not limited to: simple question/answering; teletype, and text-based computer communication; dialog and turn taking; cursor driven menus; graphical user interfaces and events; hypermedia; integration of multimedia and streaming. Modern techniques will be mastered using HTML, javascript, and Flash providing students with practical skills to support the conceptual framework of the course. Projects will require students to apply design skills to integrate textual and graphical media in order to achieve a range of communicative goals. ((In-major option)

IMM 230/Dynamic Web Applications   **1 course unit**
 (fall)
Prerequisite: IMM 130
This course provides students with advanced web development skills and strategies to build dynamic web applications. Students will develop an understanding of how to use server-side technologies such as PHP and MySQL to collect, organize and distribute information. In addition, students will utilize client-side frameworks such as jQuery Mobile and PhoneGap to assist in the delivery of data-driven applications on mobile devices. Through workshops and presentations, students will explore topics related to information architecture, social interface design, cloud computing, security, copyright and identity management. (In-major option)

IMM 240/Technical Writing   **1 course unit**
(occasionally)
Prerequisite: IMM 140
This course teaches students the writing, scripting and document design skills needed to create training materials, technical reports, and technical or business proposals in print, online or interactive formats. (In-major option)

IMM 250/ Electronic Music Skills and Literature   **1 course unit**
(same as ADA 345 and MUS 345)
(every semester)
Prerequisite: IMM 110
This course introduces students to electronic music studio techniques, including MIDI, sequencing, sound synthesis, sampling, mixing, and audio production. It also covers theoretical and historical developments in the field of electronic music, including a review of compositions, styles, and technologies. Students create their own musical compositions in the computer lab. Open to students of any major. (In-major option)

IMM 270/ Topics in Interactive Multimedia   **1 course unit**
 (Occasionally)
Focuses on current or specialized topics in interactive multimedia. May be repeated for different topics. (In-major option)

IMM 280/Design Perspectives in Interactive Multimedia   **1 course unit**
(spring)
Prerequisites: IMM 110, 120, 130, 140
This class is interdisciplinary, bringing together the various bodies of knowledge that inform the field of interactive multimedia, such as storytelling, interaction design, interface design, project management and user testing. The class provides an overview of concepts necessary both to create and evaluate interactive multimedia projects. Students apply these ideas to a series of individual writing and production assignments, and ultimately to a collaborative project that spans most of the semester. This writing-intensive course is the last of the five core courses for the Interactive Multimedia major, and is a prerequisite for all 300-level and above courses. (Core)

IMM 311/Computer Animation II   **1 course unit**
Same as ADA 310
(spring)
Prerequisites: IMM 211 and IMM 280

This course builds on the foundation in 3D computer animation begun in IMM210. It develops the student's basic animation skills with additional emphasis on 3D object creation and animation techniques (model building, rendering, animating). Creative and conceptual development are emphasized throughout the course and students will develop individual or group animation projects. (In-major option)

IMM 320/Information Retrieval   1 course unit
(same as CSC 320)
(occasionally)
Prerequisites: CSC 230 or CSC 250 or IMM 280
This course will discuss theory and practice of searching and retrieval of text and bibliographic information. Topics covered include automated indexing, statistical and linguistic models, text classification, Boolean and probabilistic approaches to indexing, query formulation and output ranking, information routing and filtering, topic detection and tracking, as well as measures of retrieval effectiveness, including relevance, utility, miss/false-alarm. Techniques for enhancing retrieval effectiveness including relevance feedback, query reformulation, thesauri, concept extraction, and automated summarization. Experimental retrieval approaches from relevant state-of-the-art conferences as well as modern Internet search engines are discussed in detail. (In-major option)

IMM 342/Interactive Storytelling   1 course unit
 (occasionally)
Prerequisites: IMM 280
This course will explore existing and experimental methods for telling interactive stories. Interactive stories are defined as stories that allow the audience, listener, or reader to participate in the shaping of the narrative. Students will be able to articulate the differences between linear, non- linear, multilinear and meta-linear narratives. Students will analyze stories, they will create their own interactive stories using multimedia technologies, and they will hypothesize about the potential usefulness and social utility of new storytelling technologies under development. (In-major option)

IMM 350/Interactive Music Programming   1 course unit
(same as MUS 336)
(spring)
Prerequisites: IMM 250 and IMM 280
This course will help students develop interactive music programming skills using the Macintosh operating system (OSX). We will use the MAX/MSP development environment to send and receive MIDI messages and process audio streams in real-time. External controllers and sensors will be used to shape and perform musical selections. Final projects will demonstrate both technical and musical skills in composition, interactivity, and/or improvisation. (In-major option)

IMM 351/Studio Composition and Signal Processing   1 course unit
Same as MUS 335
(fall)
Prerequisites: IMM 250 and IMM 280
Students will learn how to use audio production software on the Macintosh platform, through musical tasks such as score notation, orchestration, and composing. They will also develop quantitative skills in digital signal processing, through technical tasks such as analyzing, filtering, and synthesizing audio data. Software packages include Pd, Finale, Logic, and Audacity. (In-major option)

IMM 360/ Games I: Design and Architecture   **1 course unit**
Same as CSC 365
(fall)
Prerequisite: IMM 280
This is a multidisciplinary course that invites students from a variety of disciplines to participate in the development of a game design while learning about the underlying architecture of a game engine. Students will customize a broad set of learning goals to their own needs, ranging from the purely artistic to the purely technical. Lecture and workshops will provide a full range of exposure to game development including game engine design, story telling, interactivity, networking for multi-user, 3-D pipeline for games, sound, music and dialog. Each semester will focus on a particular type of game, including but not limited to 'role playing,' first person shooter,' 'immersive learning, 'real world simulation.' Students will also address issues of gender and racial equity in the games industry as well as social, ethical and health concerns. (In-major option)

IMM 370/Topics in Interactive Multimedia   **1 course unit**
(occasionally)
Prerequisite: IMM 280
Focuses on current or specialized topics in interactive multimedia. May be repeated for different topics.(In-major option)

IMM 386/Video Art I: Single Channel   **1 course unit**
(same as ADA 386)
(occasionally)
Prerequisites: IMM 280 and permission of coordinator
Video Art I builds on time-based knowledge and skills learned in ADA 285/Digital Arts: Time-Based. It advances student's technical and conceptual understanding of video with an emphasis on editing and building a personal vocabulary. Students will focus on production skills (using different sound sources, lighting, and advanced framing) and post-production skills (codex, complex editing, and compositing) while further developing a conceptual approach to this medium. This course will look at the digital medium of the QuickTime movie as a turning point of video/film in an art context; works by innovators in the field of single-channel video artists are studied. Required reading and writing assignments will investigate video art history and current theories and practices with the medium. The course will be taught by demonstration, lecture, presentations, and critiques. (In-major option).

IMM 387/ Video Art II: Install/Perform   **1 course unit**
(same as ADA 387
(occasionally)
Prerequisites: IMM 386 and permission of coordinator
An exploration of the advanced aesthetic, conceptual, and technical aspects of digital video in relation to performance and installation art. This course focuses on themes such as gesture, movement, space, and body; site-specific work; architecture and definitions of space; uses of light and material; and the formation of an event or situation. Gallery and museum field trips, as well as attendance at artist lectures, required. (In-major option)

IMM 388/Web Design II: Dynamic Web Design   **1 course unit**
(same as ADA 388
(occasionally)
Prerequisites: IMM 280
This course focuses on creating dynamic or database-driven websites and the production of streaming media, extending the student's technical and creative skills beyond design to the construction of web applications. Students learn to integrate front-end design with multimedia content and dynamic data. The course includes instruction in a diverse set of scripting languages and applications. The course is oriented toward technical students with creative aspirations as the use of the internet as an expressive social medium is explored. (In-major option)

IMM 391/Independent Study in Interactive Multimedia   **variable course units**
every semester)
Prerequisites: IMM 280 and permission of coordinator
Individual, in-depth study of an area in interactive multimedia developed in consultation with a
faculty mentor. May be repeated for different topics. (In-major option)

IMM 399/Internship in Media   **variable course units**
(every semester)
Prerequisites: IMM 280 and permission of coordinator
An opportunity to work with interactive multimedia professionals in consultation with a faculty
mentor. (In-major option)

IMM 410/Time Media: Video Effects and Compositing   **1 course unit**
(occasionally)
Prerequisites: IMM 211 and IMM 280
An advanced course in digital media that combines 2D and 3D still and motion image creation
with video editing, compositing, and sound in order to produce dynamic media. It explores the
way that images, sound, and narrative elements combine to produce significant and meaningful
visual effects extending through time. The class looks at the history, aesthetics, and current
practice of time-based media. Students will design, produce, and present advanced media
projects based on appropriate computer and digital media technologies. Students will use high-
end desktop software integrating digital paint, tracking, masking, keying, particles with 2D and
3D composition and special effects. Students will cover the structure, interface, workflow, and
techniques used to create sophisticated and complex shots, scenes, and graphic sequences. (In-
major option)

IMM 443/Computer-Assisted Reporting   **1 course unit**
(same as JPW 301)
(annually)
Prerequisites: IMM 280
The course teaches basic skills associated with investigative reporting. Students will learn to
mine and interpret official data, to use technology commonly employed in computer-assisted
reporting, and to formulate and test a journalistic research hypothesis. Particular attention will be
given to issues of ethics, privacy and freedom of information. (In-major option)

IMM 460/ Games II: Implementation and Project Management   **1 course unit**
(same as CSC 465)
(spring)
Prerequisites: IMM 360 or permission of coordinator
This is a multidisciplinary course that invites students from a variety of disciplines to participate
in the implementation of a robust demonstration video game. Programmers, software engineers,
digital artists , sound specialists and musicians work collaboratively to create a single game
(designed in Games I). Each student defines a personal role in the process so that no two students
will complete the same set of course requirements. All students, however, participate in learning
about and implementing a project management structure to plan and execute the sequence of
activities that must take place to complete the game. Each semester will focus on a particular
type of game, including but not limited to 'role playing', 'first person shooter', 'immersive
learning', 'real world simulation'. Students will also address issues of gender and racial equity in
the games industry as well as social, ethical and health concerns. (In-major option)

IMM 498/ Senior Thesis: Research and Innovation   **1 course unit**
(fall)
Prerequisites: Senior standing and IMM 280
The first of two courses in the IMM thesis sequence, to be followed by IMM 498. This course
requires students to conduct rigorous research into an area of interest within Interactive
Multimedia, and to devise a project that demonstrates that research. Students implement a series

of proofs-of-concept and ultimately write a thorough proposal for the project they will execute in the second semester of the IMM sequence, IMM 499. (Capstone)
Prerequisite: IMM 380

IMM 499/ Senior Thesis: Process and Promotion   **1 course unit**
(spring)
Prerequisite: IMM 498
The second of two courses in the IMM thesis sequence, preceded by IMM 498 In this capstone course, students work closely with faculty to implement, test and refine the project they devised in the earlier semester. This course is writing-intensive, requiring students to extensively document their research, their process and their results. (Capstone)