Armstrong Institute for Interactive Media Studies

AIMS is the Armstrong Institute for Interactive Media Studies. AIMS empowers students, faculty, and industry to innovate through digital disruption and emerging technology. AIMS is a "horizontal program" that crosses all of Miami University, with faculty, students, and labs in all of the divisions: Arts & Science, Business, Creative Arts, Education, Engineering, and Libraries. AIMS offers a major in the College of Creative Arts, a co-major and minors, including a game minor in the College of Arts and Science as well as a number of graduate offerings.

AIMS emphasizes cross-functional knowledge and places a heavy emphasis on making. Students in AIMS develop depth in areas as diverse as web and app design/development, user experience design, social media, digital marketing, design thinking, visualization, game design and development, games and learning, digital and algorithmic art, robotics, mechatronics, mobile development, and digital entrepreneurship.

- Interactive Media Studies- Bachelor of Arts in Interactive Media Studies

Interactive Media Studies Courses

IMS 171. Humanities and Technology. (3) (MPF, MPT)
Introduction to methods of thinking used in humanities disciplines (literature, history, philosophy, classics, etc.), computer technologies, and their relationship. Practical skills (web page making; research on the Internet) and analytical skills (how to tell good information from bad) combined with theories about the Information Society. IIB, CAS-B.
Cross-listed with ENG.

IMS 177. Independent Studies. (0-5)

IMS 201. Information Studies in the Digital Age. (3) (MPT)
Explores what it means to be information literate in today's digital world. Students will not only learn about the latest technological advances but will also reflect on ethical and legal issues created by the information age. Intended for students wishing to become competent in the fields of Information Literacy and Information Technology. Course includes all aspects of the research process from the definition of the research problem to the acquisition and critical analysis of information, to the adaptation of that information for a digital environment.

IMS 203. Scholarship in the Digital Age: Introduction to the Digital Humanities. (3)
Explores how digital technologies are transforming scholarly practice. Course is intended for students wishing to develop theory and skills in the use of technology to answer scholarly questions and build scholarly resources on that foundation. Students will collaboratively plan, develop and create a digital scholarship project over the course of the class and will build a broad technical foundation in current methods in digital scholarship.

IMS 211. The Analysis of Play. (3)
Offers an introduction to key historical and contemporary research in game studies and theories of play with particular attention paid to the digital video game. The course surveys current debates and issues in the field of game studies, introduces various methods for interpreting games and cultivates a deeper understanding of the importance of games and play in contemporary social, political and cultural contexts.

IMS 212. The Design of Play. (3)
An introduction to the many philosophies of ludology, the study and design of play.

IMS 221. Music Technologies. (3) (MPF)
Introduces students to the fundamentals of music technology in the context of its historical and cultural use. Scientific foundations of acoustics, digital audio, and audio engineering as well as technical skills for music production and notation will be addressed. Participants will learn the skills-based foundations of music technology through hands-on projects. Critical discussion will consider the social impact of contemporary and historical systems of recording, notation, and dissemination. Applications in the fields of interaction design, music entertainment, game design, digital signal processing, electrical engineering, music education, acoustics, and mass communications will be explored. IIA, V.
Cross-listed with MUS.

IMS 222. Web and Interaction Design. (3)
This course is an opportunity to investigate interactive design as it relates to a variety media types. Using industry standard tools, students will learn to design, implement and refine interactive media for specific audiences. For the purpose of this class, interactive media includes websites, menu systems, and the variety of software and hardware solutions that intersect the domain of human-computer interaction. Effective interactive design is often achieved by the creative application of sometimes disparate disciplines. Students should expect to incorporate their understanding of art theory, psychology, commercial business practice and creative problem solving.

IMS 224. Digital Writing and Rhetoric: Composing with Words, Images and Sounds. (3) (MPT)
Students will analyze and produce digital multimodal compositions that integrate words, images, and sounds. No prior web or digital writing experience required. ADVW.
Cross-listed with ENG.

IMS 225. Games and Learning. (3)
Surveys and assess the role of gaming within educational research. Topics covered include: games and literacy, designing games for schools, and the learning implications of gaming culture. ADVW.
Cross-listed with EDP.

IMS 238. Narrative and Digital Technology. (3) (MPF, MPT)
Applies to digital games those notions about narrative structure and character development that have evolved in literature. Students will explore digital art as literary critics, asking whether games are "art" and analyzing how postmodern literary/digital art participates in globalization. Students compose narratives in writing as well as 3D graphics. IIB. CAS-B-Other-Humanities.
Cross-listed with ENG.
IMS 253. Building Interactive Objects. (3)
Building Interactive Objects lays the skills groundwork for creating physical prototypes of interactive objects. The course will provide familiarity with varied materials and methods of working with them, providing a vocabulary for designing physical objects, as well as many points of departure for future exploration. Basic interactive electronics will be introduced. We will execute small projects in wood, paper and plastic, using hand tools, power tools and digital rapid prototyping equipment, along the way discussing the strengths and limitations of each in relation to the others.

IMS 254. Design Principles Applied. (3)
An understanding of design principles is central to the creation of digital solutions and interfaces. This course introduces students to the principles of design in a seminar format with some simple exercises to apply various principles. Whether it be the design of a system/organization or the creation of an application like a website, a design solution is the unification of various elements. This multidisciplinary approach explores various forms of design and how principles are used to create a holistic solution. No prior design experience required.

IMS 257. Web Interaction Programming. (3)
This course covers the basic coding patterns and practices present in all programming languages with an emphasis on those languages most common in web and mobile application platforms. It will take students through the fundamentals of algorithm design and then move on to expressing those designs in several popular languages. Because of the focus on web environments, this course will also explore the difference between presentation (such as with HTML) and interactivity (such as with JavaScript). The web and mobile focus will also lead to rudimentary discussions on client/server architectures and what content delivery choices are available when a mobile device such as a smartphone or a tablet have such strong technical capabilities. No prior experience in web authoring is required.

IMS 259. Art and Digital Tools I. (3)
This course builds a solid foundation for making and manipulating digital images and graphics, and for thinking about the cultural nature of visual materials produced with these processes and software tools. Students will critically engage with a variety of related imagery, from fine art to marketing. Technical theory is coupled with projects to provide hands-on mastery of fundamental ideas, techniques, and specific software tools. Cross-listed with ART.

IMS 261. Information and Data Visualization. (3)
Introduction to both static and interactive information and data visualization, 3D simulations, and virtual reality. Includes basic statistical and design principles for data visuals and diagrams. The course covers the history, context, ethics and theory of analytical design. Includes application and creation of static and interactive visuals. Recommended prerequisite: IMS 222 or IMS 257.

IMS 277. Independent Studies. (0-5)
IMS 285. Inside the Game Developers Conference. (2)
This Sprint course takes place during the GDC (Game Developers Conference). Students collaboratively prepare for & attend the conference along with their Professor, meet with industry and academic presenters, and return for reflective study and debriefing.

IMS 303. Online Journalism. (3)
Theory and practice of online journalism. Topics include current forms and social impact of online news, and the creative potential of the Internet as a news medium. Students will also develop online multimedia news projects.
Prerequisite: JRN 202.
Cross-listed with JRN.

IMS 304. Electronic Music. (3) (MPT)
Electronic music history, literature, styles, and studio techniques with emphasis on original expression using digital, editing, multitrack recording, and basic synthesis concepts. Designed for the undergraduate junior or senior, but open to all students. Formal music training not required.
Cross-listed with MUS 303.

IMS 319. Foundations in Digital 3-D Modeling and Animation. (3) (MPT)
Provides knowledge in the underlying concepts and practical skills in the design and development of computer generated 3-D imagery. Examines 3-D modeling; animation, lighting and rendering; character animation; and other related topics.

IMS 333. Digital Innovation and Entrepreneurship. (3) (MPT)
Focuses on building new interactive/digital ventures, venture capital, and private equity with respect to networking technologies in both existing and emerging industries based on opportunity and assembling the resources required.

IMS 340. Internship. (0-20)
IMS 351. Introduction to Mobile Application Development. (3)
Examination of the critical issues related to development of mobile applications; creation of application non-native mobile applications using graphical and script-based programming languages; ethics of mobile applications; mobile media and user interfaces for mobile devices; problem analysis for assessing applicability of mobile solutions.

IMS 355. Principles and Practices of Managing Interactive Projects. (3)
Students will prepare themselves for life beyond Miami by learning about leadership, client management, digital project organization, and teamwork. This course teaches lightweight methods of running an interactive project of any kind, allowing the student to apply what he/she learn through actual project-management and team work. Emphasizing the latest Agile project management techniques, the course teaches how to manage complex interactive media projects using a leadership philosophy that encourages teamwork, self-organization and accountability.

IMS 356. Interactive Animation. (3) (MPT)
Moving beyond static HTML, exploration of web-based animation, motion graphics and video. Students explore this powerful application as a means of personal expression and as an applied development tool with a focus on usability and how motion enhances understanding and increases user engagement.
Prerequisites: experience with a raster-based imaging application such as Adobe PhotoShop, as well as a vector-based application such as Adobe Illustrator or Freehand software (basic HTML/CSS skills recommended).
IMS 359. Art and Digital Tools II. (3)
A continuation of methods introduced in Art & Digital Tools I (ART/IMS 259). Personal methods will further develop while greater technical proficiency is pursued. Projects may include digital photo manipulation, video, electronics, computer programming and digital fabrication.
Cross-listed with ART.

IMS 377. Independent Studies. (0-5)
IMS 390. Special Topics in Interactive Media Studies. (3; maximum 6)
This course offers a rotating series of topics to meet the changing needs and interest of students and faculty, specifically focusing on the varying applications and theories of interactive media. Though designed for those who live in a world of digital media, this course does not teach mechanical skills (PowerPoint, Fireworks, Flash, or Photoshop).

IMS 390C. Special Topics in Interactive Media Studies. (3)
This course offers a rotating series of topics to meet the changing needs and interest of students and faculty, specifically focusing on the varying applications and theories of interactive media.

IMS 390I. Special Topics in Interactive Media Studies. (3)
This course offers a rotating series of topics to meet the changing needs and interest of students and faculty, specifically focusing on the varying applications and theories of interactive media.

IMS 390S. Special Topics in Interactive Media Studies. (3)
This course offers a rotating series of topics to meet the changing needs and interest of students and faculty, specifically focusing on the varying applications and theories of interactive media.

IMS 390V. Topics in IMS: Visualization. (3)
IMS 404/IMS 504. Advanced Data Visualization. (3)
Communicating clearly, efficiently, and in a visually compelling manner using data displays. Identifying appropriate displays based on various data characteristics/complexity, audiences, and goals. Using software to produce data displays. Integrating narratives and data displays. Critiquing visualizations based on design principles, statistical characteristics, and narrative quality. CAS-QL. Prerequisites: at least one of the following: STA 261, 301, 368, 671; IMS 261; ISA 205; or by permission of instructor.
Cross-listed with JRN/STA.

IMS 404Y. Mind and Medium. (3)
Courses in three of the primary curricular areas: communication process; history and theory; environmental systems. Offerings vary. May include: housing, contemporary architecture theory and practice, vernacular architecture, urban studies, architectural theory, exploration of graphic media, advanced work in building systems, etc. Seminar descriptions available at departmental office during preregistration each semester.
Cross-listed with ARC.

IMS 407/IMS 507. Interactive Business Communication. (3)
Writing and communicating effectively within business contexts, with an emphasis on researching, reporting, proposing, and maintaining relationships using digitally networked interactive technologies.
Cross-listed with ENG.

IMS 411/IMS 511. Visual Rhetoric. (3) (MPT)
Provides an introduction to the theory and techniques of visual rhetoric used by professional communicators. Covers elements of layout, design, and typography, giving students practice with short and longer print texts and non-print media.
Cross-listed with ENG.

IMS 413/IMS 513. Usability and Digital Media Design. (4)
Digital media present marketers with a tremendous range of new branding vehicles, many of which are only now being implemented into marketing communications. In this class we will explore the role that these media play in stand-alone branding campaigns and as part of integrated marketing communications campaigns. To do this, we will also consider how traditional branding theory has evolved to accommodate theories of human-computer interaction.

IMS 414/IMS 514. Web and Social Media Analytics. (3)
Examines and develops analytical ability with respect to the variety of information provided by web and social media behaviors. Students will learn about the mechanisms for observing behavioral and consumer generated information and the leading-edge technologies that aid in the collection and analysis of these data. We will focus on strategic and practical ways to provide radical personalization, improve consumer relationships, and develop effective and value-driven online marketing activities.

IMS 416/IMS 516. Writing for Global Audiences. (3)
This course focuses on how to write effectively in print and digital media for global audiences. Students will research cross-cultural written communication, including networked communication, and they will develop intercultural literacy skills necessary for writing to global audiences. Through frequent writing assignments, students will learn and enact the theories and strategies for targeting print and digital communications to international and culturally diverse audiences.
Cross-listed with ENG.

IMS 418/IMS 518. Social Media Marketing and Online Community Management. (3)
Traditional advertising and marketing models are being increasingly challenged by a world in which content creation, transmission, and aggregation are being decentralized. Markets are now conversations - some very short. Social media are living conversations that present marketers with the challenge of how to understand and participate in those conversations in an authentic and value-based manner. Moreover, these conversations don't happen in a vacuum. The connected nature of different social (and physical) relationships define a community of interest. The community manager uses this entire space to help bring value to this community. This class examines the variety and taxonomy of social media and the strategies and tactics associated with social media marketing and community management. Recommended prerequisite: IMS 201.

IMS 419/IMS 519. Digital Branding. (3) (MPT)
Survey course emphasizing a hands-on immersion into ECommerce; studies the impact this technology has on the basics of the marketing mix and effective and efficient marketing strategies. Focuses on applications, innovations, and future direction (not on the technology that enables the Internet and www). Heavy reading, electronic and in-class discussions, and 'surfing' required (recommended prerequisite: MKT 291).
Cross-listed with MKT.
**IMS 422/IMS 522. Advanced Web Design. (3)**
This course is an opportunity to investigate interactive design as it relates to a variety of media types used by businesses. Using industry standard measures of effective design methods, students will learn to design and evaluate interactive products for business needs. This includes the design and evaluation of websites, games, kiosk systems, and others. Topics include the use of standard interaction (e.g. mouse, touchscreens) but also extend into emerging interaction through eye tracking, computer vision, and haptic interface. Effective interactive design is often achieved by the creative application of sometimes disparate disciplines. Students should expect to incorporate their understanding of art theory, psychology, commercial business practice and creative problem solving.
Prerequisite: IMS 222, IMS 257, IMS 261 or a working knowledge of HTML/CSS/JavaScript; or by permission of instructor.

**IMS 424/IMS 524. Ethics and Digital Media. (3)**
Students will focus on key ethical issues related to online writing, communication, and visual design. Course will introduce key ethical principles, including principles of rhetoric, communication, and design ethics, as well as key principles of professional ethics as articulated in fields like professional writing, technical communication, and graphic design. Topics include intellectual property, access and universal design, privacy and surveillance, visual representation and manipulation, global communication and cultural difference, economic issues of justice and equity, and professional rhetorics.
Cross-listed with ENG/JRN.

**IMS 440/IMS 540. Interactive Media Studies Practicum. (4) (MPC)**
Examines the tools and methodologies involved in creating and managing the production of new media. Students will study different development models in a real-world setting and work with a client in business or industry to consultatively produce an interactive solution. This course particularly focuses on two aspects of the client project: (1) the management of new media development, and (2) the processes that best develop the synergy of an interdisciplinary team working toward a shared goal and the tools of development. It will also emphasize project planning and management. While it may be the case that programmers need to know coding and graphic designers need to know vector graphics, the successful manager will know something about all of these tools, about how they work together, and about how to specialize in one of them.
Cross-listed with MAC 440.

**IMS 445. Game Design. (3) (MPT)**
Develops theoretical foundations, methods and skills in building 3D gaming environments.

**IMS 452. Senior Degree Project. (3)**
Independent interactive media research project, to be completed in the final year of IMS coursework. This project provides an opportunity for the student to synthesize various strands of their academic work, professional experiences and knowledge.

**IMS 461/IMS 561. Advanced 3D Visualization and Simulation. (3)**
Advanced course in 3D simulations, motion tracking, 3D data visualization and virtual reality. Provides background, theory and practice in creating 3D visualizations and in using game technology for non-game applications like training, digital heritage or interactive data display. Recommended prerequisites: IMS 222, IMS 259 or IMS 319.