INTERACTIVE MEDIA (IM-UH)

IM-UH 1010 Introduction to Interactive Media (4 Credits)
Typically offered Fall and Spring
With the advent of digital computation, humans have found a variety of new tools for self-expression and communication. Thinking about how we interface with these tools beyond the mouse and key-board, we can approach software and electronics as artists and designers, exploring new interactions with machines and each other. This introductory course will provide students hands-on experience with screen and physical interaction design through programming and electronics using microcontrollers, electronics, and software development. Weekly exercises encourage students to experiment freely, creating their own novel interfaces and controls for working with machines. The course culminates with a final projects exhibited at the program's end-of-semester showcase.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No

- Bulletin Categories: Art Art History: Art Practice/Design Electives
- Bulletin Categories: Art History Elective for Visual Arts Track
- Bulletin Categories: Film New Media: Electives
- Bulletin Categories: Interactive Media: Required
- Bulletin Categories: Pre-Professional Media, Culture Communication
- Crosslisted with: Art Art History
- Crosslisted with: Film New Media Major: Required
- Crosslisted with: Film New Media
- Crosslisted with: Interactive Media Minor: Required
- Crosslisted with: Interactive Media
- Crosslisted with: Pre-Professional Media, Culture Communication

IM-UH 1011 Communications Lab (4 Credits)
Typically offered Fall and Spring
Communications Lab is a production-based course that surveys various technologies including web development, 2D design, digital imaging, audio, video, and animation. The forms and uses of these communications technologies are explored in a laboratory context of experimentation, collaboration, and discussion. Much of class time will be spent introducing and surveying equipment and software essential to media production and contemporary storytelling. Each technology is examined as a tool that can be employed and utilized in a variety of situations and experiences. The World Wide Web will serve as the primary environment for content delivery and user-interaction. Principles of interpersonal communications and media theory are also introduced with an emphasis on storytelling fundamentals, user-centered design, and interactivity.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No

- Bulletin Categories: Design Minor Electives
- Bulletin Categories: Interactive Media: Required
- Bulletin Categories: NO LONGER USED
- Bulletin Categories: Pre-Professional Media, Culture Communication
- Crosslisted with: Design
- Crosslisted with: Interactive Media Minor: Required
- Crosslisted with: Interactive Media
- Crosslisted with: Music Major: Required
- Crosslisted with: Music
- Crosslisted with: Pre-Professional Media, Culture Communication

IM-UH 1012 Communication and Technology (4 Credits)
Typically offered Fall
From early alphabets to modern virtual reality experiences, this course will explore the development, reaction, and impact of some of humankind's most transformative innovations - its forms of communication. How have these inventions, such as writing, printing, the telegraph, television, radio, the internet and beyond, influenced human behavior throughout the course of history. How have humans shaped their development and direction? And what role are they playing in shaping our lives both today and tomorrow? Toward the end of the course, students will speculate on the future of communication technologies in a connected world by proposing their own transformative innovation. Readings and discussion will cover communication theory, technical processes, creative applications, and critical investigation. Writing assignments will be paired with practical assignments where students will be challenged to bring their analysis and ideas to life. The web will also be utilized as a test bed for experiencing and experimenting with various forms of communication both old and new.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No
- Bulletin Categories: Core: Arts, Design Technology
- Bulletin Categories: Design Minor Electives
- Bulletin Categories: Digital Arts Humanities Minor: Electives
- Bulletin Categories: Interactive Media: Required
- Bulletin Categories: Pre-Professional Media, Culture Communication
- Crosslisted with: Core: Arts, Design Technology
- Crosslisted with: Design
- Crosslisted with: Digital Arts Humanities
- Crosslisted with: Interactive Media Minor: Required
- Crosslisted with: Interactive Media
- Crosslisted with: Pre-Professional Media, Culture Communication

IM-UH 1013 Understanding Interactive Media - Critical Questions & Theories (4 Credits)
Typically offered Spring
This seminar course is an introduction to the theories, questions, and conditions that encompass interactive media. Students will engage in readings that critically examine both the impact that interactive media and technology have on culture and societies as well as the ways in which social contexts shape the development and application of these technologies. The contexts become apparent by examining interactive media and interactivity through the lenses of relevant perspectives including politics, ethics, race, gender, and cybernetics. Throughout the semester students will leverage theory to analyze interactive media works and build a vocabulary for making sense of our increasingly mediated world. The course thus serves to lay a conceptual foundation for students to inform and direct their own creative practice. Readings, discussions, research, and writing constitute the body of this course.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No
- Bulletin Categories: Interactive Media: Required

IM-UH 1110 Circuit Breakers! (4 Credits)
Typically offered Fall
Circuit Breakers! is a course designed to introduce students to the world of hardware hacking and circuit bending for artistic and mainly sonic ends. By literally opening up common battery powered objects such as toys and finding their circuit boards, one can change the behavior of the object by interrupting the flow of electricity, creating novel, unexpected, outcomes. This technique has both predictable and unpredictable outcomes, but it is almost always satisfying. In addition to hacking off-the-shelf toys, students will also build their own circuits with a minimum amount of components. Many of the projects in this course center on common integrated circuits, which students will cajole, trick, and abuse in order to create art.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No
- Bulletin Categories: Interactive Media: Physical Computing Elective

IM-UH 1511 Introduction to Digital Humanities (4 Credits)
Typically offered Spring
What happens when the arts and humanities are represented in digital form? What kind of new insights can we have when by looking at the data of the humanities? This course will look at intersections between computers and the humanities, a form of inquiry known as "digital humanities." The course is structured around a broad examination of concepts important in today's society (computational thinking, digital identity, text as data, dataset, pattern, algorithm, network, location). Students will discuss these concepts critically, explore real-life examples and put them into practice in hands-on activities. Examples of such hands on work might include, but are not limited to, creating accessible web design, analyzing text digitally, building and visualizing a dataset, curating an open bibliography, thinking about art as data, building a Twitter bot, teaching a computer to recognize human handwriting, visualizing social networks or making digital maps. The course assumes no prior technical skills, but a willingness to explore new technologies is essential for success.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No
- Bulletin Categories: Interactive Media:Media Design Thinking Elective

IM-UH 2113 Machine Lab (4 Credits)
Typically offered Spring
The saying goes, "If all you have is a hammer, then every problem looks like a nail." What if all you have is a 3D Printer? In this course, students will be introduced to, and engage critically with, a range of contemporary machines inside and around the Interactive Media Lab. Leveraging historical perspectives, current use-cases, and hands-on making, the course will explore how machines enhance, or limit, our creative processes. Readings and discussion will be paired with practical designing, prototyping, and making of creative computer controlled devices, such as drawing machines, musical instruments, and a collaborative Rube Goldberg contraption. Over the course of the semester, students will be exposed to a variety of tools, materials, and fabrication techniques as well as learn how to use micro-controllers and software to give their machines unique behaviors and abilities. By thinking about machines, using machines, and making machines, the course will offer insight into our creative relationships with our tools.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No

- Bulletin Categories: Art Art History: Art Practice/Design Electives
- Bulletin Categories: Art History Elective for Visual Arts Track
- Bulletin Categories: Counts towards IM 2000-Level
- Bulletin Categories: Design Minor Electives
- Bulletin Categories: IM 2000-Level
- Bulletin Categories: Interactive Media: Physical Computing Elective
- Crosslisted with: Art Art History
- Crosslisted with: Design
- Crosslisted with: Interactive Media Minor: Required
- Crosslisted with: Interactive Media

IM-UH 2117 Performing Robots (4 Credits)
Typically offered Fall
Intelligent robots living amongst ordinary people used to be a storyline relegated to the world of science-fiction. However, the 21st century has witnessed a rapid adoption of automated machinery in many aspects of daily life. In this course, students will explore the significance of today's robots through the context of art by learning about and building experimental robots for theatrical performance. Robots will be defined broadly, incorporating a wide range of machines both autonomous and remote-controlled. Students will be exposed to critical analysis regarding the historical and contemporary use of machines in art and theatrical performance. In parallel, students will also learn about electronics, programming, robotics and mechanical construction techniques. Over the course of the semester, students will iterate through multiple projects exploring how robots can convey meaning and emotion. The course will culminate with a final public performance by the robots. Experience with physical computing through Introduction to Interactive Media or a course equivalent is highly encouraged.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No
Prerequisites: IM-UH 1010 or INTM-SHU 101 Interaction Lab or IMNY-UT 101 Creative Computing or DM-UY 1133 Creative Coding.

- Bulletin Categories: Counts towards IM 2000-Level
- Bulletin Categories: IM 2000-Level
- Bulletin Categories: Interactive Media: Physical Computing Elective
- Crosslisted with: Interactive Media Minor: Required
- Crosslisted with: Interactive Media

IM-UH 2315 Software Art: Image (2 Credits)
Typically offered Spring
An introduction to the history, theory and practice of computer-aided artistic endeavors in the field of visual arts. This class will focus on the appearance of computers as a new tool for artists to integrate in their artistic practice, and how it shaped a specific aesthetic language across traditional practitioners and newcomers alike. We will be elaborating and discussing concepts and paradigms specific to computing platforms, such as system art, generative art, image processing and motion art. Drawing on those areas, students will explore their own artistic practice through the exclusive use of their computers. The course will also serve as a technical introduction to the OpenFrameworks programming environment to create works of visual art. As such, Software Art: Image will be an art history and critical studies course with a studio component. Software Art: Image is a complement to Software Art: Text, a 7-week course approaching software and computation from the perspective of poetry and fiction. The two courses can be taken in series or independently.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No
Prerequisites: IM-UH 1010, IM-UH 2310, IM-UH 2318, MUSIC-UH 2417 or CS-UH 1001 or INTM-SHU 101 or IMNY-UT 101 or DM-UY 1133 Creative Coding or or CSCI-UA 101 or CSCI-SHU 101 or CS-UY 1122.

- Bulletin Categories: Art Art History: Art Practice/Design Electives
- Bulletin Categories: Art History Elective for Visual Arts Track
- Bulletin Categories: Counts towards IM 2000-Level
- Bulletin Categories: IM 2000-Level
- Bulletin Categories: Interactive Media: Computational Media Elective
- Crosslisted with: Art Art History
- Crosslisted with: Interactive Media Minor: Required
- Crosslisted with: Interactive Media

IM-UH 2316 Software Art: Text (2 Credits)
Typically offered Spring
An introduction to the history, theory and practice of computer-aided artistic endeavors in the field of prose and poetry. This class will focus on the appearance and role of computers as a new way for artists to write and read both programming and natural languages. While elaborating and discussing concepts and paradigms specific to computing platforms, such as recomposition, stochastic writing and ambiguity, students will be encouraged to explore their own artistic practice through the exclusive use of their computers, by writing their own programs. As such, Software Art: Text will be a literary history and critical studies course with an active writing component (in both Python and English). Students will be exposed to new creative perspectives on reading and writing in the digital age. Software Art: Text is a complement to Software Art: Image, a 7-week course approaching software and computation from the perspective of the visual arts. The two courses can be taken in series or independently.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No
Prerequisites: IM-UH 1010, IM-UH 2310, or CS-UH 1001.

- Bulletin Categories: Counts towards IM 2000-Level
- Bulletin Categories: IM 2000-Level
- Bulletin Categories: Interactive Media: Computational Media Elective
- Bulletin Categories: LITCW: Creative Writing Electives
- Bulletin Categories: Literature: Topics Electives
- Bulletin Categories: No longer in use
- Crosslisted with: Interactive Media Minor: Required
- Crosslisted with: Interactive Media
- Crosslisted with: LITCW: Required
- Crosslisted with: Literature Creative Writing

IM-UH 2318 Decoding Nature (4 Credits)
Typically offered Fall
How can we capture the unpredictable evolutionary and emergent properties of nature in software? How can understanding the mathematical principles behind our physical world help us to create digital worlds? And how can implementing these code-based simulations offer insight and perspective on both environmental and human behaviors. This course attempts to address these questions by focusing on the programming strategies and techniques behind computer simulations of natural systems using p5.js (a JavaScript library in the spirit of Java's Processing framework). We will explore a variety of forces and behaviors that occur naturally in our physical world. This includes properties of movement, physics, genetics, and neural networks. For each topic, we will write code to simulate those occurrences in a digital environment. The results will usually be visual in nature and manifested in the form of interactive animated coding sketches.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No
Prerequisites: IM-UH 1010, IM-UH 2310, or CS-UH 1001.

- Bulletin Categories: Counts towards IM 2000-Level
- Bulletin Categories: IM 2000-Level
- Bulletin Categories: Interactive Media: Computational Media Elective
- Bulletin Categories: Mathematics: Breadth Electives

IM-UH 2320 Games and Play (4 Credits)
Typically offered Fall
Games and play are deeply embedded in human culture. Play suggests a range of human experiences not easily contained by a common form. Games use their playable form to speak to the cultural spaces in which they reside. There is freedom in play. There is structure in games. How do they work together? This course explores how games structure play to serve their purpose, and how play inspires games to push expectations of popular culture. Informed by game studies and theories of play, students will study analog and digital games to consider the technological, spatial, artistic and social structures that shape a play experience. Utilizing web-based technologies and the Unity game engine, students will assume the role of both game designer and developer, experimenting with building game experiences that convey meaning as well as express aspects of humanity beyond contest and conflict. Some programming experience is preferred but not required.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No
Prerequisites: IM-UH 1010 or CS-UH 1001.
- Bulletin Categories: Interactive Media: Computational Media Elective

IM-UH 2322 Live Coding (4 Credits)
Typically offered Fall
Live coding is a performing arts form and creativity technique where music and visuals are improvised through live edits of source code. Live coding is most visible in performance, however the 'live' in live coding refers not to a live audience but to live updates of running code. Working across genres, live coding has been seen in algoraves (events where people dance to music generated from algorithms), jazz clubs, and concert halls. Code is projected during performances, exposing the underlying algorithms at work, and thus the patterns of creative thought the performer is developing in real time. Programs are instruments that can change and algorithms are thoughts that can be seen as well as heard. This course explores this new art form and the related themes of algorithmic thought, pattern transformation, artificial language, information theory, improvisation, listening, perception, and structural composition. Students will learn how to create music with code, as well as how to create advanced computer graphics. Students will develop algorithmic audio/visual pieces individually as well as in groups. The course culminates in an algorave.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No
Prerequisites: IM-UH 1010 or CS-UH 1001.
- Bulletin Categories: Interactive Media: Computational Media Elective
- Bulletin Categories: Music: Practice Electives
- Bulletin Categories: NO LONGER USED
- Bulletin Categories: Sound Music Computing Minor: Music Electives
- Bulletin Categories: Theater: Arts Practice Electives
- Crosslisted with: Interactive Media Minor: Required
- Crosslisted with: Interactive Media
- Crosslisted with: Music Major: Required
- Crosslisted with: Music
- Crosslisted with: Sound Music Computing
- Crosslisted with: Theater Major: Required
- Crosslisted with: Theater

IM-UH 2324 Connections Lab (4 Credits)
Typically offered Spring
From intelligent chat-bots and video-sharing apps to social media platforms and virtual reality hubs, our world is infused with mediated, networked systems for communication. While these tools were a luxury a couple years ago, today they are almost a necessity. Every day we are knowingly or unknowingly using a handful of connected applications to communicate with people across the world. With this course we want students to be more than participants in these tools, but also become active creators. In this course, students will design and develop their own creative connected web applications. By coding (using JavaScript) and producing original online experiences that bring people together in playful yet purposeful ways, students will gain valuable insight into the inner-workings and implications of our connected world. The course will culminate in students creating their own connected applications that can be used by peers.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No
Prerequisites: IM-UH 1010, CS-UH 1001, or by instructor approval.
- Bulletin Categories: Digital Arts Humanities Minor: Electives
- Bulletin Categories: Interactive Media: Computational Media Elective
- Crosslisted with: Digital Arts Humanities
- Crosslisted with: Interactive Media Minor: Required
- Crosslisted with: Interactive Media

IM-UH 2325 Digital Matter: Parametric Design Lab (4 Credits)
Typically offered Spring
This course explores the intersection of parametric design, computational thinking, and digital fabrication, equipping students with the tools and methodologies to conceptualize, create and make innovative designs. Students will delve into the principles of parametric design and computational theories and methods to craft adaptable, data-driven designs while critically evaluating digital design workflows. The course emphasizes the relationship between theory and practice, fostering a feedback loop where ideas shape design techniques, and techniques inspire new concepts. By focusing on the interplay of parameters, constraints, and material properties, students will transform abstract concepts into tangible objects that seamlessly integrate computational logic with physical expression. Through hands-on projects, students will work with Rhinoceros, a 3D modeling software, and Grasshopper, a visual programming platform, to approach design algorithmically and unlock its creative potential. They will navigate the process of transitioning between digital models and physical artifacts, refining their work through iterative experimentation. The course aims to cultivate fluency in parametric workflows, fabrication techniques, and computational design thinking, empowering students to address real-world design challenges, explore innovative artistic expressions, and push the boundaries of computation, technology, and design.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No
Prerequisites: Intro to IM (IM-UH 1010) or Intro to Computer Science (CS-UH 1001) or Computer Programming for Engineering (ENGR-UH 1000) or request specific instructor approval.
- Bulletin Categories: Counts towards IM 2000-Level
- Bulletin Categories: IM 2000-Level
- Bulletin Categories: Interactive Media: Computational Media Elective

IM-UH 2513 Future Punk (4 Credits)
Typically offered Spring
The future: let's patch it together from scraps. Future studies and strategic foresight are methods of guiding businesses and politics. Punk means to take the master's tools apart, repurpose them to serve our own goals, to outsmart our adversaries, and to prevail. The compound of the words future and punk, just like in cyberpunk or steampunk, indicates that in the case of future punk, future itself would be setting the stage for the narrative, provide the condition against which the human beings in the world of the story would have to struggle: So in the good old punk tradition, we, too, want to take futurism and use it for our own creations. This class introduces speculative fiction and the more scientific forms of speculation as a means to students to envision, draft, and draw and paint their own images and imaginations of alternative worlds. Students will apply the futurist methods to creative projects and in addition, discuss and critique the field.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No
- Bulletin Categories: Art Art History: Art Practice/Design Electives
- Bulletin Categories: Art History Elective for Visual Arts Track
- Bulletin Categories: Interactive Media:Media Design Thinking Elective
- Crosslisted with: Art Art History
- Crosslisted with: Interactive Media Minor: Required
- Crosslisted with: Interactive Media

IM-UH 2514E Bioart Practices (4 Credits)
Typically offered Spring
In this course we will take a tour of the materials and techniques utilized by artists in the emerging field of biological art - that is art which uses life itself as a medium. This hybrid art and science class will introduce concepts in genetic engineering, personal genomics, the microbiome, epigenetics, microscopic imaging, tissue culture/bioprinting, biopolitics, and bioethics as sites for artistic exploration. Organized in thematic modules students will learn basic lab techniques while studying the work of artists in this interdisciplinary field. The three core areas are: Input/Output (imaging and printing with biology, tissue culture), identity after the genome (genetics, personal genomics, microbiome, epigenetics, portraiture), and final projects. Weekly readings and written responses will supplement lab activities. The course will culminate in the creation of original biological artworks by each student, which will be exhibited in the Interactive Media Showcase at the end of the semester.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No
- Bulletin Categories: Counts towards IM 2000-Level
- Bulletin Categories: Experimental Inquiry
- Bulletin Categories: IM 2000-Level
- Bulletin Categories: Interactive Media:Media Design Thinking Elective
- Crosslisted with: Interactive Media Minor: Required
- Crosslisted with: Interactive Media

IM-UH 2515 Designing Virtual Worlds (4 Credits)
Typically offered Spring
This studio lab course is designed for artists to explore user engagement and storytelling in virtual reality. User Experience Design (UX) is pivotal in developing engaging immersive interactions. In this course students will prototype and test different models of interaction that are emerging in Virtual Reality. Students will develop skills in Unity to develop immersive interactive environments. Students will learn how to prototype interactive models and design complex solutions for virtual environments. By the end of the course students will be able to think critically about virtual reality immersive worlds and have applied research developing virtual reality environments. Students will explore themes such as landscape, narrative and sound for virtual reality through applied coursework.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No
Prerequisites: IM-UH 1010, IM-UH 1011, IM-UH 2310, IM-UH 2318, CS-UH 1001 or ENGR-UH 1000.
- Bulletin Categories: Interactive Media:Media Design Thinking Elective

IM-UH 2516 Virtual Reality Research and Applications (4 Credits)
Typically offered Fall
The course is designed to introduce students to basic immersive virtual reality (VR) concepts and technology with a strong emphasis on the use of VR as a tool for conducting scientific research and developing scenarios for real-world applications in education, psychology, neuroscience, and psychiatric and medical treatment. The course consists of lectures, in-class discussions on selected topics, and hands-on VR lab sessions, where students will learn the basic principles of experimental design to be able to use VR technology to build immersive experiences for hypothesis testing. The goal is for students to gain both practical experience and to understand the fundamentals of human perception and cognition that should be considered when using the medium. Students will learn through first-hand experience of developing VR-based research applications how to assess and evaluate user experiences while maintaining best ethical practices. This work will be complemented by a series of guest lectures by researchers in the field from the industry and other institutions.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No
Prerequisites: IM-UH 1010, IM-UH 1011, CS-UH 1001, CS-UH 2219E, PSYCH-UH 1002EQ or ENGR-UH 1000.
- Bulletin Categories: Interactive Media:Media Design Thinking Elective

IM-UH 2517 Breaking the Code: Gender, Art, and Interactivity in the Digital Age (4 Credits)

Typically offered Spring

In this course, we will focus on gender as a central mode of identity exploration in contemporary art within the digital age, adopting a multidisciplinary and interactive approach. Over a course of six sections, we will analyze how contemporary artists, from diverse backgrounds, delve into various facets of gender identity within the context of digital art history. This exploration will encompass their interactions with new media styles, mediums, reception, and critical analysis. We will raise essential questions: How does technology in interactive art contribute to gender equality? To what extent does an artist's gender identity influence the interpretation of their digital work? We will critically engage with gender studies, examine gender's profound impact on digital creation, and explore the socio-cultural influences at play. Through weekly readings and group interactive activities, class discussions, and a final VR exhibition on a related topic of their choosing, students will explore gender's relevance to digital art creation, examine materials highlighting how gender shapes digital art, analyze socio-cultural factors influencing gender and sexuality in digital contemporary art, and apply their insights to interactive media.

Grading: Ugrd Abu Dhabi Graded

Repeatable for additional credit: No

Prerequisites: IM-UH 1010 or IM-UH 1011 or IM-UH 2310 or IM-UH 2318 or IM-UH 3310, CS-UH 1001 or ENGR-UH 1000.

- Bulletin Categories: Interactive Media Minor: Electives
- Bulletin Categories: Interactive Media:Media Design Thinking Elective

IM-UH 3114 Sensors, Body, & Motion (4 Credits)

Typically offered Fall

Using computer vision, machine learning, gesture recognition, wearable technology, projection mapping, a variety of sensors, and OpenFrameworks (C++), students will create interactive art and performances that leverage the full potential of the human body. Directly injecting "people-sensing" into an artwork via these readily accessible open source technologies, generates a unique feedback loop, or dialogue-like relationship, where a person and a computer are continuously reacting to each other's senses. This course will examine this feedback loop, specifically how a person is directly integrated into the artistic expression of the work. Ultimately, students will create interactive installations and performances where the human body is the central component of the artwork.

Grading: Ugrd Abu Dhabi Graded

Repeatable for additional credit: No

Prerequisites: IM-UH 1010 or IM-UH 1011 or IM-UH 2310 or IM-UH 2318 or IM-UH 3310 or CS-UH 1001 or ENGR-UH 1000.

- Bulletin Categories: Counts towards IM 3000-Level
- Bulletin Categories: IM 3000-Level
- Bulletin Categories: Interactive Media: Computational Media Elective
- Bulletin Categories: Interactive Media: Physical Computing Elective
- Bulletin Categories: Theater: Arts Practice Electives
- Crosslisted with: Interactive Media Minor: Required
- Crosslisted with: Interactive Media
- Crosslisted with: Theater Major: Required
- Crosslisted with: Theater

IM-UH 3115 Virtual Body Performance (4 Credits)

Typically offered Spring

The distinction between human bodies and computational tools (which are increasingly viewed as essential extensions of our biological form) has become blurry as a result of modern technology. Similarly, accessible data, mobile computing, and technologies that combine aspects of the real and virtual worlds are making it more difficult for humans to maintain our orientation within geo-physical space. This course examines the fundamental and advanced technological aspects of digital body reconstruction in relation to human interaction. Students learn from a variety of sources such as hybrid identities, posthuman embodiment, and artistic interpretations of the cyborg to learn how to adapt and alter human body representations in mixed reality. The class uses a variety of techniques in narrative, cinematic, interactive, sculptural, and performative approaches to explore conceptual topics by examining motions that both mimic and transcend the boundaries of reality. Topics include human-computer interaction and user experience, design principles, storytelling, and mixed reality development (virtual, augmented, and extended reality).

Grading: Ugrd Abu Dhabi Graded

Repeatable for additional credit: No

Prerequisites: IM-UH 1010, IM-UH 1011, IM-UH 2310, IM-UH 2318, IM-UH 3310, IM-UH 3311, CS-UH 1001 or ENGR-UH 1000.

- Bulletin Categories: Counts towards IM 3000-Level
- Bulletin Categories: IM 3000-Level
- Bulletin Categories: Interactive Media: Computational Media Elective
- Bulletin Categories: Theater: Arts Practice Electives
- Crosslisted with: Interactive Media Minor: Required
- Crosslisted with: Interactive Media
- Crosslisted with: Theater Major: Required
- Crosslisted with: Theater

IM-UH 3116 Music Devices (4 Credits)
Typically offered Spring
How do our interfaces to computers shape the possibilities for musical expression? If we create our own interfaces what new forms of expression are possible? Music Devices is a production-based course students will design and build a new musical device using physical computing and rapid prototyping that is tailored for a specific mode of expression. The device could be a standalone musical instrument, controller for a synthesizer or DAW, sensors for a live performance / installation, or other physical interface for creating music. The first half of the course focuses on individual production exercises and readings while the second half is devoted to a single final project. Technologies used will include Arduino, rapid prototyping with 3D printing / laser cutting, software synthesizers, digital music production, and wired / wireless MIDI. Students work in groups on the final project and are encouraged to form teams that include members with varying degrees of expertise in technology and music in order to create a music device that deftly mixes technology and musical practice.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No
Prerequisites: IM-UH 1010 or MUSIC-UH 1002.

- Bulletin Categories: Counts towards IM 3000-Level
- Bulletin Categories: IM 3000-Level
- Bulletin Categories: Interactive Media: Physical Computing Elective
- Bulletin Categories: Music: Advanced Topics (3000-Level)
- Bulletin Categories: Music: Practice Electives
- Bulletin Categories: Sound Music Computing Minor: Music Electives
- Crosslisted with: Interactive Media Minor: Required
- Crosslisted with: Interactive Media
- Crosslisted with: Music Major: Required
- Crosslisted with: Music
- Crosslisted with: Sound Music Computing

IM-UH 3310 Politics of Code (4 Credits)
Typically offered Fall
While our relationships between ourselves, our environment, and other people are inherently political, computer technologies and technology companies consistently claim to remain "neutral". This course will assume the opposite - software is political - and focus on how software applications share commonalities with political systems, how they affect their users as political actors and how we can build alternatives to those systems. This course is aimed at deconstructing the design and implementation of software as a political medium, such as Facebook's timeline algorithm, city officials' use of computer simulations to orchestrate urban life, blockchain-backed proof of ownership and algorithmic criminal assessment. Along with an introduction to political theory and media studies, coupled with an exploration of the underlying political impacts of those systems, students will work on several hands-on projects to offer functioning alternatives to those systems. To that end, this course will include several workshops in JavaScript and Python.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No

- Bulletin Categories: Counts towards IM 3000-Level
- Bulletin Categories: Digital Arts Humanities Minor: Electives
- Bulletin Categories: IM 3000-Level
- Bulletin Categories: Interactive Media: Computational Media Elective
- Crosslisted with: Digital Arts Humanities
- Crosslisted with: Interactive Media Minor: Required
- Crosslisted with: Interactive Media

IM-UH 3311 Alternate Realities (4 Credits)
Typically offered Spring
This course will introduce students to the design and development of Virtual Reality experiences. We will examine these increasingly popular means of delivering content and social interactions and identify their unique affordances over existing platforms. Students will be challenged to harness the specific advantages of VR from conception through functional prototype. The class will also cover case studies of effective use of VR in information delivery, as well as social and artistic experiences.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No
Prerequisites: IM-UH 1010, IM-UH 1011, IM-UH 2310, IM-UH 2318, IM-UH 3310, CS-UH 1001 or ENGR-UH 1000.

- Bulletin Categories: Counts towards IM 3000-Level
- Bulletin Categories: Design Minor Electives
- Bulletin Categories: IM 3000-Level
- Bulletin Categories: Interactive Media: Computational Media Elective
- Crosslisted with: Design
- Crosslisted with: Interactive Media Minor: Required
- Crosslisted with: Interactive Media

IM-UH 3312 A.rt I.ntel (4 Credits)
Typically offered Spring
Artificial intelligence and machine learning algorithms affect many aspects of our lives whether we realize it or not: banking transactions, healthcare treatments and diagnoses, entertainment recommendations, smart car functionality, customer service agents, financial trading… the list goes on and on. The power of these algorithms lies in their ability to leverage computers to "study" and "learn". Instead of programming a computer to do a specific task, we program the computer to train and teach itself how to do any number of tasks. As artists, how can we harness the power of these algorithms and apply them towards creative endeavors? This class will explore that basic question. Through a combination of high level applied machine learning techniques, speculative design of artificial intelligence, and some basic understanding of how these algorithms work at a low level, students will explore this rich new field. With their machine counterparts, they will create images, sounds, text, intuitive interactions, chatbots, and more.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No
Prerequisites: IM-UH 1010, IM-UH 2310, IM-UH 2318, CS-UH 1001 or ENGR-UH 1000.
- Bulletin Categories: Counts towards IM 3000-Level
- Bulletin Categories: IM 3000-Level
- Bulletin Categories: Interactive Media: Computational Media Elective

IM-UH 3315 Desert Media Art (4 Credits)
Typically offered Fall
How does bringing an artwork outside change its interaction with people and the environment? What new possibilities exist if we create an electronic artwork that can travel with us and be installed anywhere? Desert Media Art is a production-based course where students research, propose, produce, install, and document an electronic artwork designed for Abu Dhabi's desert. The desert is an iconic landscape with a rich history of use by artists as an alternative to the white box of the gallery. We will study historical and contemporary outdoor art practices as well as local ecology and culture. Students will work in groups to create an Arduino-based project that is battery powered and ready to be taken into the field. The project will be installed in the desert, documented, and then presented in an indoor exhibition. Technologies used will include Arduino, 3D printing for enclosure design, rapid prototyping using laser cutting, battery power, and video production. Students will not just build a project and install it in the field, but also learn how to communicate their work to the public using video documentation and indoor exhibition.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No
Prerequisites: IM-UH 1010.
- Bulletin Categories: Counts towards IM 3000-Level
- Bulletin Categories: IM 3000-Level
- Bulletin Categories: Interactive Media: Computational Media Elective
- Bulletin Categories: Interactive Media: Physical Computing Elective
- Crosslisted with: Interactive Media Minor: Required
- Crosslisted with: Interactive Media

IM-UH 3510 Living Systems Design (4 Credits)
Typically offered Spring
"Living Systems Design" invites students to explore how biotechnology, art, and design converge to foster sustainable innovation. In this course, students will learn to harness biotech processes and living materials, aiming to create projects that reflect principles of biomimicry, sustainable design, and eco-engineering. Key topics include bio-inspired energy systems, regenerative design, and dynamic, living materials. Throughout the semester, students will engage in hands-on projects, studying how living systems can influence the design of resilient, sustainable structures and processes. The course also provides practical exercises, academic discussions, and collaborative assignments that challenge students to apply systems thinking and sustainability principles to their designs. By the end of the course, students will complete a culminating project that showcases their creativity, knowledge, and practical skills. The course prepares students to address environmental challenges and contribute to a sustainable, equitable future.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No
Prerequisites: IM-UH 1010.
- Bulletin Categories: Counts towards IM 3000-Level
- Bulletin Categories: IM 3000-Level
- Bulletin Categories: Interactive Media:Media Design Thinking Elective
- Crosslisted with: Interactive Media Minor: Required
- Crosslisted with: Interactive Media

IM-UH 4000 Capstone Seminar (4 Credits)
Typically offered Fall
The Capstone Seminar course is the first part of a year-long Undergraduate Capstone in Interactive Media. The beginning of the Seminar focuses on reflection and conceptualization, emphasizing the need for a strong thematic approach and foundational inquiry underlying the Capstone Project. Design and ideation exercises will help students frame their multidisciplinary work in terms that are personally relevant as well as accessible to a wider audience. Through additional research, prototyping and iteration, students will work towards creating a production plan for an interactive work to be designed and developed during the Capstone Project course. A collaborative spirit will be infused across the Seminar through constructive input and critical feedback of Capstone peer's project development along with student-led discussions of texts and works that have helped inform their creative direction. By the end of the course, students will produce a statement of creative intent that will include the research question and relevant conceptual contexts with which they want to engage along with a roadmap outlining the practical steps towards the realization of the Capstone project.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No
Prerequisites: Declared Interactive Media major and senior standing.
- Bulletin Categories: Interactive Media: Capstone

IM-UH 4001 Capstone Project (4 Credits)
Typically offered Spring
The Capstone Project builds upon the conceptual and iterative design process of the Capstone Seminar and serves as a semester-long production course for Interactive Media majors. Students will leverage the skills they have learned in terms of software, hardware, interaction design, media study, and design thinking to create and innovate on their proposed project. This process will involve rigorous planning, testing, and documenting that follows a trajectory from low-tech prototypes to a finished work that is polished and robust. Students will be expected to share their project with the Interactive Media community as well as offer support to their Capstone peers through involvement in practical user testing and exhibition of each other's work. Upon completion, students will have demonstrated an ability to build, deliver, and reflect upon an interactive media product or experience that meaningfully addresses a chosen topic of inquiry and pushes the boundaries of the form. Emphasis also lies on professional production practices and presentation through the sharing and re-examining of the work, be it commercial, social, or artistic in nature.
Grading: Ugrd Abu Dhabi Graded
Repeatable for additional credit: No
Prerequisites: IM-UH 4000.

- Bulletin Categories: Interactive Media: Capstone