

# Digital Arts

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**Undergraduate certificate:** digital arts

**Website:** <https://theatre.uiowa.edu/>

Digital technologies transform how people create, perform, and experience art. The goal of the digital arts certificate program is to give students skills to make works of art that are informed by digital technology, scholarship, disciplinary tradition, and interdisciplinary collaboration. At the core of the certificate is a commitment to innovation and interdisciplinary collaboration in research, teaching, creative work, and the public expression of the university's creative research and scholarship.

Upon completion of the certificate program, students will be able to develop and realize artistic visions using digital technology and work collaboratively with other artists, engineers, or computer scientists. Most courses will include a public dimension, where projects are shown to a public audience.

## What Are the Digital Arts?

The digital arts are digital technologies that keep transforming how people create, perform, and experience art.

At the core of the digital arts cluster is a commitment to innovation and interdisciplinary collaboration in research, teaching, creative work, and the public expression of the university's creative research and scholarship. Faculty have home departments in Theatre Arts and Dance, the schools of Music and Art, Art History, and Design, and the College of Engineering.

The Certificate in Digital Arts at the University of Iowa gives students the knowledge and skills "to apply new technologies and integrate multiple media and disciplines in new forms of expression" (Cal Arts, Integrated Media Program). Upon completion of the certificate, students are able to develop and realize artistic visions using digital technology and work collaboratively with other artists, engineers, or computer scientists.

The Department of Theatre Arts, which administers the Certificate in Digital Arts, partners with the schools of Music and Art, Art History, and Design, the departments of Computer Science and Cinematic Arts (College of Liberal Arts and Sciences), and the College of Engineering to offer the certificate.

## Programs

## Undergraduate Program of Study Certificate

- Certificate in Digital Arts

## Courses

### Digital Arts Courses

#### **DIGA:2800 Digital Arts: An Introduction** 3 s.h.

Introduction to potential of integrating art with technology to provide a foundation of skills and concepts through hands-on experimentation; lectures and demonstrations introduce key concepts and ideas as well as the history of digital arts; students develop skills that form a foundation for future investigation through labs; work may include using an Arduino, programming, and developing an interface to control a software project; final project is shared with the public in some way; critical discourse in the form of writing assignments allows for reflection and evaluation. GE: Engineering Be Creative. Same as ARTS:2800, CINE:2800, CS:2800, DANC:2800, MUS:2800, THTR:2800.

#### **DIGA:2880 Installations and Interactive Performance** 3 s.h.

Introduction to aesthetics, techniques, and practical possibilities of fusing together theatre, dance, music/sound, art, design, cinema, gaming, human computer interaction, and engineering; foundations of creating interactive experiences that use digital photos, video, text, real-world objects, sensor data, live bodies moving in space, Kinect 2 sensors, cameras, and multiple video outputs (e.g., projectors, LED displays); use of Isadora, an interactive, node-based programming software, to create immersive mediated performances, interactive installations, embodied user-based experiences, and user-manipulated virtual environments. GE: Engineering Be Creative. Same as DANC:2880, THTR:2880.

#### **DIGA:2890 Producing and Directing Digital Video** 3 s.h.

Introduction to basic concepts, theories, and practical applications of digital video production for multiple distribution streams, with focus on aesthetic and technical principles; development of proficiency in contemporary approaches to digital media production by understanding the production pipeline from ideation to preproduction, production, postproduction, and through to distribution. GE: Engineering Be Creative. Same as DANC:2890, THTR:2890.

#### **DIGA:3285 New Musical Instruments: From Design to Performance** 3 s.h.

Acoustic principles of selected traditional instruments (e.g., winds, strings, percussion) as well as principles of electroacoustic sound production (e.g., analog synthesizers, microphones, transducers); students work in teams to build, test, and improve their own musical instrument and experiment with its playing modes; projects may include inharmonic variations upon classical instruments, musical bots, guitar or voice-processing pedals, transducer-driven DIY Gamelans, and more; for composers, performers, engineers, and sound enthusiasts who want to design, build, and/or perform with new musical instruments. GE: Engineering Be Creative. Same as MUS:3285.

#### **DIGA:3840 Robotic Art Studio** 4 s.h.

Exploration, design, and creation of interactive artworks, kinetic sculpture, robotic art, sound works, light art, and performance environments; application of basic electronics and mechanical techniques; use of programmable microcontroller Arduino. Prerequisites: ARTS:1510 and ARTS:1520 and (SCLP:2810 or CERM:2010 or INTM:2710 or MTL:2910 or TDSN:2210). GE: Engineering Be Creative. Same as SCLP:3840.

**DIGA:3876 Projection Design 3 s.h.**

Introduction to the aesthetics and practical applications of projection design for live performance, including content creation, system design, media servers, projectors, cameras, and related professional equipment. Students learn how to create digital artwork with professional content/animation/effects software Adobe After Effects, Illustrator, Photoshop, Premiere Pro, Audition, etc. Through the media server QLab students learn how to integrate digital artwork and live video cameras into live performance via projectors and digital displays. GE: Engineering Be Creative. Same as CINE:3876, DANC:3876, INTM:3876, THTR:3876.

**DIGA:3895 Performance, Art, and New Technologies in Society 3 s.h.**

Students pitch projects and work in interdisciplinary groups to create original live performances and installations based on major technological innovations that have deeply impacted society and live performance in late 20th and early 21st centuries; daily hands-on making; examination of theoretical texts and performances that address impact of technology on human condition to contextualize students' own art/technology projects; exploration and adaptation of technologies/aesthetics for live performance and art including telepresence and liveness, artificial intelligence and big data, augmented and virtual reality. Prerequisites: MUS:2800 or THTR:2880 or CS:1110 or CS:1210 or SCLP:4835. Same as DANC:3895, THTR:3895.

**DIGA:4835 Electronic Objects and Spaces 4 s.h.**

Aesthetic use of electronics to sequence and control motion, light, and sound; introduction to basic electronics through hands-on workshops and discussions; demonstrations on how to build an Arduino, integrated circuits, power supplies, soldering, prototyping, motors, sensors; projects integrating electronics with objects and spaces; artist screenings and critiques. Prerequisites: ARTS:1510 and ARTS:1520 and (SCLP:2810 or CERM:2010 or INTM:2710 or MTLs:2910 or TDSN:2210). GE: Engineering Be Creative. Same as SCLP:4835.

**DIGA:4840 Air, Actuators, and Motors 4 s.h.**

Introduction to wide range of motors, actuators, and air devices available for integration in art projects; various forms of motor control and necessary means to power these devices; DC and AC motors, stepper motors, solenoids, electro magnets, relays, pneumatics, inflatables, and other air-driven devices; development of a project utilizing one or more systems; examples and media demonstrations to show how artists and scientists employ these systems. Prerequisites: ARTS:1510 and ARTS:1520 and (SCLP:2810 or CERM:2010 or INTM:2710 or MTLs:2910 or TDSN:2210). GE: Engineering Be Creative. Same as SCLP:4840.