

# Art - Design (ARTG)

## **ARTG 1001. Design Perspectives: An Introduction to Design in the World. (2 Hours)**

Introduces students to a range of perspectives and points of view on design as a human activity. Explores a mix of theories, principles, practices, and histories that constitute various understandings of design across cultures. Through illustrative case studies, examines impacts, influences, accomplishments, consequences, possibilities, and limits of design in the world. Investigates what it means to develop a personal design practice.

**Corequisite(s):** ARTG 1002

**Attribute(s):** NUpath Ethical Reasoning, NUpath Societies/Institutions

## **ARTG 1002. Seminar for Design Perspectives. (2 Hours)**

Offers a small-group discussion format to cover material in ARTG 1001 and provides opportunities for the application of course topics.

**Corequisite(s):** ARTG 1001

## **ARTG 1250. Design Process Context and Systems. (4 Hours)**

Explores common design practices, principles, and vocabularies, introducing the design process as a method of inquiry and problem solving through studio projects. Emphasizes the importance of an awareness of audience and context in the creation of meaningful communications and experiences. Explores the practice of design as an iterative process, offering students an opportunity to obtain an understanding of the value of systems thinking and the importance of feedback and exchange as a means for assessing the quality of design's effectiveness in helping users achieve their goals.

**Attribute(s):** NUpath Creative Express/Innov

## **ARTG 1270. Design: Process + Practices. (2 Hours)**

Introduces students to a range of design practices demonstrated through case studies, activities in lecture and workshop, and presentations by design practitioners.

**Corequisite(s):** ARTG 1271

## **ARTG 1271. Studio for Design: Process + Practices. (2 Hours)**

Explores common design practices, principles, and vocabularies, introducing the design process as a method of inquiry and problem solving through studio projects in the areas of graphic, information, interaction, and experience design. Emphasizes the importance of an awareness of audience and context in the creation of meaningful communications and experiences. Explores the practice of design as an iterative process, fostering an understanding of the value of systems thinking and the importance of feedback and exchange as a means for assessing the quality of design's effectiveness in helping participants achieve their goals.

**Corequisite(s):** ARTG 1270

## **ARTG 1290. Typographic Systems. (2 Hours)**

Covers typography as a core element of graphic design. Examines typography's history, development, and contemporary state. Studies typography principles and how to apply them in different contexts and formats. Introduces the cultural meaning of and diversity of typography and the importance of research while engaging with it. Through appreciation, curiosity, engagement, and discipline, initiates an intellectual investigation and practice of what it means to work with typography and apply typography in different disciplines.

**Prerequisite(s):** ARTF 1122 with a minimum grade of D- or ARTF 1220 with a minimum grade of D-

**Corequisite(s):** ARTG 1291

## **ARTG 1291. Studio for Typographic Systems. (2 Hours)**

Introduces letterforms in visual communication. Studies typography as a form in terms of its function and explores visual principles affecting the organization and access of typographic information. Explores how to organize words and phrases to create clear meanings. Introduces the use of the typographic grid and issues of hierarchy and legibility through assigned projects, readings, and lectures. Includes the historical evolution of typefaces and their classification as a rational system. Guides students in the application of typography as the basis of organizing and expressive principle of graphic design.

**Corequisite(s):** ARTG 1290

## **ARTG 1990. Elective. (1-4 Hours)**

Offers elective credit for courses taken at other academic institutions. May be repeated without limit.

**ARTG 2242. Information Design Principles. (4 Hours)**

Introduces foundational concepts, methods, and procedures for the creation of data-rich information graphics. Investigates and implements visual systems and information structures such as maps, graphs, infographics, charts, and diagrams. Explores conceptual and visual solutions, and the creative process of organizing, visualizing, and communicating information. Examines design solutions that make complex information easier to understand and use. Course experiences include: analysis of design case studies and other critical readings, lectures, class discussions, and individual in-studio design work.

**Prerequisite(s):** ARTF 1122 with a minimum grade of D- or ARTF 1220 with a minimum grade of D-

**ARTG 2250. Typography 1. (4 Hours)**

Introduces typography as the basis of graphic design and visual communication. Guides students through an understanding of letterforms, words, sentences, and text as both image and information. Studies form, context, and visual meaning. Introduces use of the typographic grid and issues of hierarchy and legibility through assigned projects, readings, and lectures. Includes the historical evolution of typefaces and their classification as a rational system.

**Prerequisite(s):** ARTF 1122 with a minimum grade of D- or ARTF 1220 with a minimum grade of D-

**Corequisite(s):** ARTG 2251

**Attribute(s):** NUpath Creative Express/Innov

**ARTG 2251. Type Tools. (1 Hour)**

Offers students an opportunity to acquire technical software skills used in typesetting, such as Adobe InDesign, in this introductory lab.

**Corequisite(s):** ARTG 2250

**ARTG 2252. Graphic Design Principles. (4 Hours)**

Introduces foundational graphic design principles, processes, and methods for creating meaning within function, content, and context. Covers graphic form and vocabulary. Uses typography; language; image; symbolism; and visual principles of composition, hierarchy, rhythm, balance, scale, texture, pattern, grid, value, and color to create effective visual communication. Analyzes design case studies and offers critical readings, lectures, class discussions, and individual in-studio design work.

**Prerequisite(s):** ARTF 1122 with a minimum grade of D- or ARTF 1220 with a minimum grade of D-

**ARTG 2260. Programming Basics. (4 Hours)**

Exposes students to basic programming design for user interfaces. Offers students an opportunity to become familiar with the logical elements of programming languages. Through lectures, hands-on in-class exercises, and modular projects, explores Web-based design and programming solutions for managing interaction and animation.

**ARTG 2262. Prototyping with Code. (2 Hours)**

Introduces students to creative coding and algorithmic thinking through creative projects. Students prototype projects by starting with preproduction exercises like flowcharts and pseudocode before proceeding to writing modular code, then testing and debugging, and finally writing reflection documentation. Introduces multiple programming platforms that can be used for the completion of coursework, allowing students flexibility in coding their project visions. Lecture sessions combine topical lectures with live coding and code walks of example code.

**Corequisite(s):** ARTG 2263

**Attribute(s):** NUpath Formal/Quant Reasoning

**ARTG 2263. Lab for ARTG 2262. (2 Hours)**

Introduces students to creative coding and algorithmic thinking through creative projects. Lab sessions consist of team-based code walks, activities, and problem solving. Students can use different software platforms to complete creative coding projects.

**Corequisite(s):** ARTG 2262

**ARTG 2290. Fashion and Wearable Technologies. (4 Hours)**

Introduces key social, environmental, and technical challenges underpinning sustainable innovation in the fashion, wearable technology, and smart textiles industries. Examines inclusive design and circular economy principles and uses them as a framework within which to analyze complex socio-technical networks of production, use and disposal of fashion, wearable technology, and smart textile products, and their impacts on health and wellbeing, society and the planet. Presents the opportunity to gain firsthand experience of the complex nature of today's open, dynamic, and networked problems through a site visit, case studies, and a series of practical activities. Instills understanding of creative intelligence and innovation as a field of practice.

**Attribute(s):** NUpath Interpreting Culture, NUpath Societies/Institutions

**ARTG 2400. Interaction Design Principles. (4 Hours)**

Introduces foundational interaction design principles, processes, and tools for creating physical and screen-based interfaces. Uses design research methods, stakeholder identification, problem framing, information structuring, low- to high-fidelity prototyping techniques, iterative development, assessment strategies, and usability testing to construct design proposals for interactive artifacts. Analyzes design case studies and offers critical readings, instructor and guest lectures, class discussions, and individual and collaborative in-studio design work.

**Prerequisite(s):** ARTF 2223 with a minimum grade of D- or ARTF 1250 with a minimum grade of D-

**ARTG 2401. Interaction Design Principles Tools. (1 Hour)**

Introduces skills and software used in designing and developing Web-based interactive environments. Explores Web-page scripting and tagging, CSS-based design coding, options for front- and back-end page design connections, and alternative technologies.

**Prerequisite(s):** ARTG 2400 (may be taken concurrently) with a minimum grade of D-

**ARTG 2810. Creative Fabrication Design Principles. (4 Hours)**

Introduces theoretical, methodological, and practical approaches to transforming physical products into meaningful, contextual experiences. Analyzes real-world examples through observation, reverse engineering, and critical discussion, identifying technical and cultural factors that shape impactful interactions between environments, products, and people. Fieldwork at a major global design event forms a central component, fostering direct engagement with contemporary design practices. Emphasizes accessibility, meaning making, sustainability, and social impact, exploring their resonance across users, communities, and stakeholders. Integrates theory and practice through field research and applied design projects, culminating in comprehensive analysis, innovative reporting tools, the application of meta-design principles to design guidelines for future product-related experiences, and the creation of frameworks for others to design.

**Prerequisite(s):** ARTG 1270 with a minimum grade of D- ; ARTG 1271 with a minimum grade of D-

**ARTG 2990. Elective. (1-4 Hours)**

Offers elective credit for courses taken at other academic institutions. May be repeated without limit.

**ARTG 3100. Physical and Digital Fabrication. (4 Hours)**

Explores interdisciplinary projects and themes in immersive media and physical making by fabricating novel artifacts and experiences. Students form groups to create design solutions to wicked problems. Student teams follow a hackathon model to explore multiple ideas quickly. By engaging in critique and studio practice, offers students an opportunity to demonstrate and grow their technical skills.

**Prerequisite(s):** ARCH 2260 with a minimum grade of D- or ARTD 2000 with a minimum grade of D- or ARTF 1124 with a minimum grade of D- or (ARTF 1230 with a minimum grade of D- ; ARTF 1231 with a minimum grade of D- ) or ARTG 2260 with a minimum grade of D- or (ARTG 2262 with a minimum grade of D- ; ARTG 2263 with a minimum grade of D- ) or CS 2510 with a minimum grade of D- or GE 1502 with a minimum grade of D-

**ARTG 3250. Physical Computing. (4 Hours)**

Explores the communication between the physical world and the interactive, computer-based interface. Examines the potential of reactive analog and digital devices embedded within the physical realm. Offers students an opportunity to use simple kit sensors and indicators designed to enable student teams to create interfaces triggered by gesture, bodily movement, physical forces, and other tangible actions. Concludes with discussions of more complex interactive devices, the relationship between physical computing and robotics, and possible future directions.

**Prerequisite(s):** ARTG 2400 with a minimum grade of D-

**Attribute(s):** NUpath Analyzing/Using Data, NUpath Creative Express/Innov

**ARTG 3350. Typography 2. (4 Hours)**

Continues ARTG 2250, exploring structures and hierarchies through increasing typographic complexity. Investigates meaning, legibility, and readability with an emphasis on voice, organization, sequence, and the typographic grid.

**Prerequisite(s):** (ARTG 1290 with a minimum grade of D- ; ARTG 1291 with a minimum grade of D- ) or (ARTG 1290 with a minimum grade of S ; ARTG 1291 with a minimum grade of S ) or ARTG 2250 with a minimum grade of D-

**Attribute(s):** NUpath Creative Express/Innov

**ARTG 3352. Interaction Design Basics. (4 Hours)**

Introduces basic principles of interactive design, such as orientation, navigation, hierarchy, categorization, user expectation, usability, and responsiveness. Explores these concepts through the creation of Web-based user interfaces.

**Prerequisite(s):** (ARTF 1250 with a minimum grade of D- or ARTF 2223 with a minimum grade of D- ); ARTG 2250 with a minimum grade of D-

**ARTG 3400. Topics In Interaction Design Inquiry. (4 Hours)**

Focuses on a specific intermediate-level topic of timely relevance to the domain of interaction design. May be repeated up to two times for a maximum of 12 semester hours. Topics vary each semester.

**Prerequisite(s):** ARTG 2400 with a minimum grade of D-

**ARTG 3444. Topics in Information Design Inquiry. (4 Hours)**

Focuses on a specific intermediate-level topic of timely relevance to the domain of information design. May be repeated up to two times for a maximum of 12 SH.

**Prerequisite(s):** ARTG 2242 with a minimum grade of D-

**ARTG 3450. Graphic Design 2. (4 Hours)**

Explores the conceptual potential inherent in the merging of words/text with images/symbols to achieve a level of communication that exceeds the sum of visual and verbal components. Examining how the relationship of verbal and visual content can enhance meaning and comprehension, students identify a social issue of personal relevance and create a visual campaign targeting a core audience. Through a process including projects, readings, and lectures/discussions, students research, frame concepts, explore visual decisions, and determine appropriate deliverables.

**Prerequisite(s):** ARTG 2252 with a minimum grade of D-

**Attribute(s):** NUpath Creative Express/Innov

**ARTG 3451. Information Design 1. (4 Hours)**

Introduces basic concepts, methods, and procedures of information design with a focus on mapping information. Students investigate visual systems and information structures such as maps, graphs, charts, and diagrams. Emphasizes the creative process of organizing, visualizing, and communicating data by making complex information easier to understand and use.

**Prerequisite(s):** ARTG 3350 with a minimum grade of D-

**ARTG 3452. Topics In Graphic Design Inquiry. (4 Hours)**

Focuses on a specific intermediate-level topic of timely relevance to the domain of graphic design. May be repeated up to two times for a maximum of 12 semester hours.

**Prerequisite(s):** ARTG 2252 with a minimum grade of D-

**ARTG 3460. Identity and Brand Design. (4 Hours)**

Addresses the origins, significance, and consequence of identity and branding expressions, in diverse media, in terms of personal, cultural, and commercial values. Using design research and studio methods, a series of exercises explores expressions of individual and collective identity. Offers students an opportunity to work in teams to develop branding projects in a process designed to increase their capacity to create effective brand expressions and analyze semiotic significance and cultural and economic value. Critique of work and presentation of concepts of identity and brand seek to sharpen students' skills and challenge their ideas about brand. External critique seeks to create valuable tests of bias and assumptions, while principles of managing attention and trust seek to build the ability to function as a brand steward in actual practice.

**Prerequisite(s):** (ARTG 1290 with a minimum grade of D- ; ARTG 1291 with a minimum grade of D- ) or (ARTG 1290 with a minimum grade of S ; ARTG 1291 with a minimum grade of S ) or ARTG 2250 with a minimum grade of D-

**ARTG 3462. Experience Design Principles. (4 Hours)**

Introduces foundational experience design principles, processes, and methods for understanding and creating conditions and interventions that impact people's experiences. Uses design research methods, stakeholder identification, visual synthesis of research findings, and problem framing as means to understand the motivations, behaviors, and values of audiences and participants. Develops scenarios and prototypes to construct design proposals informing people's relationships and experiences with products, environments, and services. Analyzes design case studies and offers critical readings, lectures, class discussions, and individual in-studio design work.

**Prerequisite(s):** ARTF 1250 with a minimum grade of D- or ARTF 2223 with a minimum grade of D- or ARTG 1250 with a minimum grade of D- or (ARTG 1270 with a minimum grade of D- ; ARTG 1271 with a minimum grade of D- )

**ARTG 3463. Experience Design 2. (4 Hours)**

Continues ARTG 3462 processes and strategies for creating compelling human-centered experiences. Offers students an opportunity to use design processes from multiple disciplines to develop real-world solutions.

**Prerequisite(s):** ARTG 3462 with a minimum grade of D- or ARTG 3465 with a minimum grade of D-

**ARTG 3464. Topics In Experience Design Inquiry. (4 Hours)**

Focuses on a specific intermediate-level topic of timely relevance to the domain of experience design. May be repeated up to two times for a maximum of 12 semester hours.

**Prerequisite(s):** ARTG 3462 with a minimum grade of D-

**ARTG 3467. Paper Mechanics and Package Design. (4 Hours)**

Links paper, widely used in packaging, to work done by designers in systems of production, consumption, waste, and natural ecologies. Examines the ethical, social, and environmental responsibilities in the design of mass-produced objects and the role of paper in sustainability initiatives as a substitute for plastics. Uses design methods for material exploration, prototyping, and evaluation to deliver rich experiences. Offers students an opportunity to learn how to assess the impact of design decisions by following design through the stages of a packaging system: manufacturing, storage, merchandising, use, and product end-of-life.

**Prerequisite(s):** ARTG 2242 with a minimum grade of D- or ARTG 2252 with a minimum grade of D- or ARTG 2400 with a minimum grade of D- or ARTG 3462 with a minimum grade of D-

**Attribute(s):** NUpath Creative Express/Innov

**ARTG 3470. Topics in Typographic Inquiry. (4 Hours)**

Builds upon basic typographic skills and knowledge to extend, expand, and deepen the student's understanding of the full range of possibilities for typographic expression as text, image, and experience of a reader. Challenges students to engage with letterform across historical and cultural practices of writing in a wide range of media. Examines how to identify the derivation and significance of writing styles by analyzing typographic form, composition, and presentation to the reader in a variety of contexts. Requires students to experiment with alphabets, fonts, and letterform as systems of signs with semiotic, semantic, logical, grammatical, and syntactical possibilities. Employs conceptual thinking, observation, analysis, and synthesis to devise and implement original ideas in various media.

**Prerequisite(s):** (ARTG 1290 (may be taken concurrently) with a minimum grade of D- ; ARTG 1291 with a minimum grade of D- ) or (ARTG 2250 (may be taken concurrently) with a minimum grade of D- ; ARTG 2251 with a minimum grade of D- )

**ARTG 3700. Interaction Design 2: Mobile. (4 Hours)**

Explores user-centered interface design for information exchanges using handheld and mobile devices. Studies the potentials for leveraging both the social and locative possibilities of mobile devices through research, discussions, and project assignments.

**Prerequisite(s):** ARTG 2400 with a minimum grade of D-

**ARTG 3810. Topics in Creative Fabrication Inquiry. (4 Hours)**

Introduces topic-specific creative fabrication processes appropriate for the creation of three-dimensional form. Possible topics include wearable technology, soft sculpture, toy design, and inflatables. Focuses on making as a pragmatic and unconventional approach to creative research. Offers students an opportunity to refine physical making skills and conceptually explore materials, tools, and sustainable processes to develop a personal design approach in response to the course topic. Introduces design for manufacturability concepts and contextualizes work drawing from sustainable design frameworks. May be repeated twice.

**Prerequisite(s):** (ARTF 1124 (may be taken concurrently) with a minimum grade of D- ; ARTF 1125 with a minimum grade of D- ) or (ARTF 1230 (may be taken concurrently) with a minimum grade of D- ; ARTF 1231 with a minimum grade of D- )

**Attribute(s):** NUpath Creative Express/Innov

**ARTG 3990. Elective. (1-4 Hours)**

Offers elective credit for courses taken at other academic institutions. May be repeated without limit.

**ARTG 4550. Design Degree Project. (4 Hours)**

Encompasses the proposal and execution of a comprehensive project in graphic, interaction, or experience design. Guides students in practical, hands-on implementation of contemporary design methods, as individuals or small interdisciplinary teams. Offers students an opportunity to develop an actionable design proposal and complete a polished project using appropriate design methods, as well as the opportunity to deepen understanding of the ways of knowing through design practice. Serves as a culmination to the undergraduate program.

**Attribute(s):** NUpath Capstone Experience, NUpath Creative Express/Innov

**ARTG 4554. Typography 3. (4 Hours)**

Offers an advanced course exploring a variety of typographical solutions, including expressive formal and complex content-based projects.

**Prerequisite(s):** ARTG 3350 with a minimum grade of D-

**Attribute(s):** NUpath Creative Express/Innov

**ARTG 4555. Graphic Design Synthesis. (4 Hours)**

Offers students experience in the design of identity, information, persuasive messaging, and publication projects. Focuses on cross-platform (print, digital, and three-dimensional) manifestations—all based on a single area of content.

**Prerequisite(s):** ARTG 3350 with a minimum grade of D- ; (ARTG 3450 with a minimum grade of D- or ARTG 3452 with a minimum grade of D- )

**ARTG 4990. Elective. (1-4 Hours)**

Offers elective credit for courses taken at other academic institutions. May be repeated without limit.

**ARTG 5000. Topics in Design. (1-4 Hours)**

Explores a variety of key topics in design, including historical and cultural models. Taught by faculty on topics related to their research and expertise. May be repeated three times for a maximum of 16 semester hours.

**ARTG 5100. Information Design Studio 1: Principles. (4 Hours)**

Explores the theories and practices of information design through studio projects. Investigates visual systems and information structures such as maps, timelines, charts, and diagrams. Emphasizes the creative process of organizing, visualizing, and communicating data by seeking to make complex information easier to understand and use. Requires graduate standing or permission of program coordinator or instructor.

**ARTG 5110. Information Design History. (4 Hours)**

Investigates the history of visualization practices across disciplines and in relation to technology developments. Critically examines seminal visualizations in social, cultural, and technological contexts by means of discussions and writing activities in a seminar format. Requires graduate standing or permission of program coordinator or instructor.

**ARTG 5120. Research Methods for Design. (4 Hours)**

Examines qualitative and quantitative research methods pertinent to design. Through discussion and writing activities, offers students an opportunity to investigate varied inquiry toward the development of researchable questions, argument formation, and assessment methodologies. Students who do not meet course restrictions may seek permission of instructor.

**ARTG 5130. Visual Communication for Information Design. (4 Hours)**

Explores graphic and typographic theory, principles, and practices. Introduces students to visual communication design with a primary focus on typography as the fundamental means of conveying content. Readings locate design and typography within the larger history of visual art and writing development. Covers methods of organizing content through hierarchy and spatial organization of grid structures. Considers relationships between positive and negative space, depth perception, transparency, and color theory. Requires graduate standing or permission of program coordinator or instructor.

**ARTG 5150. Information Visualization Principles and Practices. (3 Hours)**

Introduces information visualization from theoretical and practical perspectives. Defines the information visualization domain and advances principles and methods for the effective visual representation of data. Contextualizes the field from a historical perspective. Presents the perceptual and cognitive tasks enabled by visualizations. Studies an extensive range of visualization models. Illustrates good and bad practices in visualization with real-world examples. Introduces concepts in computer programming in an information visualization context.

**ARTG 5151. Information Design Critique Seminar. (1 Hour)**

Requires students to present their work in design critique sessions to peers, faculty, and guests. Through these critiques, offers students an opportunity to improve their projects based on feedback, learn how to present their work effectively, and articulate design problems in verbal discourse. Can only be taken in conjunction with ARTG 5150.

**Prerequisite(s):** ARTG 5150 (may be taken concurrently) with a minimum grade of C or ARTG 5150 (may be taken concurrently) with a minimum grade of C

**ARTG 5310. Visual Cognition. (4 Hours)**

Introduces human visual cognition as it applies to information design and visualization. Focuses on perception, attention, pattern recognition, information acquisition, memory, and creation of mental models. Explores reasoning, cognition, decision making, and problem solving in relation to visual artifacts. Students who do not meet course restrictions may seek permission of instructor or program coordinator.



**ARTG 5320. Statistics for Design. (4 Hours)**

Offers design students an opportunity to obtain the necessary skills to collect, summarize, analyze, and interpret data. Introduces concepts and methods in statistical reasoning and analysis. Topics include data mining, comparison, assessment, and delivery. Students who do not meet course restrictions may seek permission of instructor or program coordinator.

**ARTG 5330. Visualization Technologies 1: Fundamentals. (4 Hours)**

Introduces programming languages that allow computational analysis and digital delivery of dynamic information. Examines implications of environmental and personal sensor data sources, mobile collection and analysis of data, real-time networked data sets, and social use of shared data visualization tools. Students who do not meet course restrictions may seek permission of instructor or program coordinator. May be repeated once.

**ARTG 5430. Visualization Technologies 2: Advanced Practices. (4 Hours)**

Builds on the foundational skills acquired in ARTG 5330. Introduces students to intermediate- to advanced-level topics in web-based interactive visualization. Focuses on building greater proficiency in working with d3 and related JavaScript libraries and on acquiring knowledge of best practices and common patterns in data visualization problem solving. Through lectures, workshops, and a final project, offers students an opportunity to learn to effectively deploy their data visualization skills to explore and extract understanding from data in a critical and productive way.

**Prerequisite(s):** ARTG 5330 with a minimum grade of C- or ARTG 5330 with a minimum grade of D-

**ARTG 5540. Design and Product Management. (1 Hour)**

Explores the principles of user research, delving into techniques for gathering and analyzing user insights to inform design decisions. Applies the human-centered design process to address real-world challenges, balancing user needs, business objectives, and technological possibilities. Explores innovation strategy, using tools and frameworks to generate creative solutions and drive meaningful change in product development. Covers the practical skills necessary to navigate complex design problems and contribute effectively to cross-disciplinary teams in the professional world.

**ARTG 5600. Experience Design Studio 1: Principles. (4 Hours)**

Offers students hands-on project development of systems, artifacts, communication, environments, or service offerings with a focus on the unique personal experience of the audience exposed to the project. Experience design is a holistic approach to design that investigates the human experience in specific situations to improve its quality, given an understanding of human goals, needs, and desires. This course provides a context for a cohesive experience through interaction, movement, and understanding, which builds on previous knowledge of audiences and applications. Presents students with design methods and processes for experience design by developing a semester-long project. Offers students an opportunity to develop competency in tools used to create the various elements that create the context for experiences in specific situations and events including interaction, artifact, and environment design. Understanding a design process and knowledge of studio critique practices is recommended.

**ARTG 5610. Design Systems. (4 Hours)**

Explores a systems-based perspective on our environment by addressing questions that are fundamental to design practice: What is a system, and what are the different types? How do we observe, analyze, and represent systems? What interactions can we have with systems and what are the different types of interaction? Explores structures and processes for the design of systemic relationships between people, artifacts, environments, and activities. Systems may be physical, virtual, social, or a combination. Through discussion, writing, diagramming, and project exercises, offers students an opportunity to learn principles of systems theory and explore the connection between design methods and systems thinking. Students who do not meet course restrictions may seek permission of instructor or program coordinator.

**ARTG 5620. Notational Systems for Experience. (4 Hours)**

Examines theoretical foundations, concepts, and methods of visual notational systems used in the effective analysis and communication of existing experiences and in the envisioning of conditions for future experiences. Notational systems are sets of graphic signs and codes that denote or prescribe specific actions, forces, operations, events, or performances that occur over time. Students engage with concepts and models through readings, discussion, case study analyses, and speculative design projects. Evaluates the role that notational systems play in documenting, analyzing, and understanding the human goals, actions, behaviors, and perceptions key to experience and assesses their value in designing for agency and new experiences. Students who do not meet course restrictions may seek permission of instructor or program coordinator.

**ARTG 5640. Prototyping for Experience Design. (4 Hours)**

Explores tools, technologies, and processes to create prototypes of artifacts, environments, and interactive systems for experience design projects. Offers students the opportunity to learn, use, experiment with, and test prototypes using a wide range of state-of-the-art prototyping technologies to further their understanding of multiple strategies and techniques of prototyping for experience design. Tools and techniques change over time but typically include laser cutting, 3D printing, CNC machining, electronics prototyping, augmented reality, machine tools and 2D forming, fast prototyping, and hand tools.

**ARTG 5710. Design for Dignity. (4 Hours)**

Explores the ethical dimensions of design practice through design projects. This studio course addresses design problems with a focus on the concept of dignity as a central principle of human-centered design. Uses readings and in-class activities to study human value systems, dignity as a principle, and service design as a process of deliberation. Offers students an opportunity to practice applying these perspectives, models, and theories to create compelling design projects as well as to develop competencies in collective participation in community.

**ARTG 5910. Human-Centered Design. (4 Hours)**

Introduces human-centered design and associated ways of thinking and working. Human-centered design places people at the center and can be used to develop many types of interventions. Aims to foster understanding of people's lived experiences and identify their needs and pain points through extensive user research, iterative testing, and close interaction with the intended audience and relevant stakeholders. That understanding informs and gives direction to the design process and decisions made along the way to ensure that the final intervention benefits its intended users.

**ARTG 6100. Information Design Studio 2: Dynamic Mapping and Models. (4 Hours)**

Continues the exploration of data representations in a variety of media. Focuses on interactive and time-based techniques. Emphasizes computational methods of data collection, manipulation, and encoding. Requires graduate standing or permission of program coordinator or instructor. May be repeated once.

**Prerequisite(s):** ARTG 5100 with a minimum grade of D- or ARTG 5100 with a minimum grade of C- (Graduate)

**ARTG 6110. Information Design Theory and Critical Thinking. (4 Hours)**

Examines various theoretical models of information visualization and delivery systems. Evaluates the concepts and effectiveness of the models through discussions and writing activities. Students who do not meet course prerequisites or restrictions may seek permission of program coordinator or instructor.

**Prerequisite(s):** ARTG 5100 with a minimum grade of C-

**ARTG 6310. Design for Behavior and Experience. (4 Hours)**

Examines the potential of interfaces as mediators between information and users. Explores iterative prototyping and research methods to analyze patterns of behavior and implications of interface on effective communication. Utilizes observation, empathy, ethnography, and participatory design methods to offer students an opportunity to increase their understanding of audiences' and stakeholders' motivations and expectations. Requires graduate standing or permission of program coordinator or instructor.

**ARTG 6330. Information Design Mapping Strategies. (4 Hours)**

Examines the relationships between content and context through mapping methods. Emphasizes the impact of geographic information systems, evolving technologies, community mapping tools, globalization, and delivery systems. Undergraduate students may seek permission of instructor.

**ARTG 6460. Human-Centered AI. (4 Hours)**

Explores the foundations of human-centered AI. Examines the critical processes underpinning AI development and deployment and applies user-centered design principles to AI-driven products and services. Investigates methodologies for integrating human perspectives into AI systems and strategies for fostering collaboration between AI technologies and human users. Analyzes the ethical implications of AI applications in various organizational contexts using case studies showcasing the diverse uses of AI across business processes and products. Offers students an opportunity to engage in hands-on projects to design AI solutions tailored to human needs and that use AI systems responsibly to prioritize human values and well-being. Critically assesses the societal impacts of human-centered AI adoption.

**ARTG 6555. Graphic Design Synthesis. (4 Hours)**

This course has been designed for graduate students in the Information Design and Visualization program. It builds on skills obtained in the ARTG 5100 Information Design Studio: Principles course. The course is intended to give the students experience in the design of identity, information, and publication projects, as well as focus on cross-platform (print, digital, and three-dimensional) manifestations – all based on a single area of content. Its scope reflects the multi-faceted components that comprise real-world comprehensive design projects. Through additional research and readings, students are to perform at high level, and demonstrate how the readings of theoretical material reflect in their projects. Information and Design Visualization graduate students, or permission of the teacher.



**ARTG 6600. Experience Design Studio 2: Group and Interpersonal. (4 Hours)**

Offers students an opportunity to learn a human-centered design perspective and to develop experience design competency in the complex context of interpersonal and group interactions. Experience design is a holistic approach that investigates the human experience in specific situations in order to improve its quality. Students study the person-to-person aspect of human-centered design through readings and in-class activities, as well as practice applying its perspectives, models, and theories to the project process. Students are asked to participate in class discussions and create compelling experience design projects to address the needs, desires, fears, and aspirations of their audience.

**Prerequisite(s):** ARTG 5600 with a minimum grade of C-

**ARTG 6700. Design Studio 3: Synthesis. (4 Hours)**

Extends the exploration of design principles and methods by starting the development of a design master thesis. Examines how to develop effective design interventions capable of enriching human experience in specific situations, sites, and in the context of comprehensive activities. Emphasizes a systems perspective in both research and design development—the relationships between diverse participant groups and communities as well as the complex implications and interrelations of interventions at multiple scales and dimensions. Continues the exploration of theories of information design and visualization. Offers students an opportunity to prototype functioning applications that advance their thesis projects.

**Prerequisite(s):** ARTG 6100 with a minimum grade of C- or ARTG 6600 with a minimum grade of C-

**ARTG 7100. Critical Design and Research Seminar. (4 Hours)**

Examines emerging research and critical practices in design. Provides conceptual frameworks to formalize and iterate on students' thesis topics. Presents and frames qualitative research methods for application in thesis research. Offers students an opportunity to develop the visual and verbal expression of the thesis through writing, discussion, presentation, and critique, resulting in a thesis proposal document and in a public presentation for faculty feedback.

**ARTG 7890. Thesis. (4 Hours)**

Offers students an opportunity to obtain the support needed to develop and produce the written component of a design thesis that integrates and applies their knowledge acquired during the program. Encourages student participation within a practice and research community consisting of classmates, advisor(s), and external professionals.

**Prerequisite(s):** ARTG 5120 with a minimum grade of C- ; ARTG 6100 with a minimum grade of C-

**ARTG 7910. Design Project and Exhibition. (4 Hours)**

Offers students an opportunity to focus on the design of pieces, artifacts, and experiences for the thesis exhibition. Includes planning and design of the exhibit. Situates the thesis contributions to design as project-based discipline. Discusses and reflects on the design process at the crossroads of methodological, systematic iteration, and creative exploration.

**Prerequisite(s):** ARTG 7990 (may be taken concurrently) with a minimum grade of B-

**ARTG 7986. Research. (0 Hours)**

Offers students an opportunity to conduct full-time research under faculty supervision.

**ARTG 7990. Thesis. (4,8 Hours)**

Offers students support in developing and producing the written component of a design thesis that integrates and applies their accumulated knowledge. Encourages student participation within a practice and research community consisting of classmates, advisor(s), and external professionals. Restricted to students in experience design and Information design and visualization.

**ARTG 7996. Thesis Continuation - Half-Time. (0 Hours)**

Offers students continuing thesis supervision by members of the department.