School of Art Courses

Note on Course Numbers

Each Carnegie Mellon course number begins with a two-digit prefix which designates the department offering the course (76-xxx courses are offered by the Department of English, etc.). Although each department maintains its own course numbering practices, typically the first digit after the prefix indicates the class level: xx-1xx courses are freshman-level, xx-2xx courses are sophomore level, etc. xx-6xx courses may be either undergraduate senior-level or graduate-level, depending on the department. xx-7xx courses and higher are graduate-level. Please consult the Schedule of Classes (https://enr-apps.as.cmu.edu/open/SOC/SOCServlet) each semester for course offerings and for any necessary pre-requisites or co-requisites.

60-101 Concept Studio: The Self and the Human Being
Fall: 10 units
Concept Studio: The Self and the Human Being is first of a sequence of six studio courses designed to develop a personal approach to generating art and to learning transferable conceptual skills. The topics of the first three Concept Studios are addressed through a sequence of structured, media-independent projects. Open to freshmen admitted to the School of Art, or by instructor permission.

60-104 Contemporary Issues Forum
Fall: 6 units
This introductory class presents to students a diverse range of contemporary issues in the visual arts. It is organized in a thematic way rather than chronologically. There will be readings, discussions, and papers. Lecture/discussion format. All students are required to attend the School of Art lecture series. Open to freshmen in the School of Art, or by instructor permission.

60-109 Adventures in Arts Time
Spring: 9 units
An introduction to the essential elements, structures and dynamics of ?Arts Histories? from the earliest Prehistoric periods to the end of the Ancient World. It will take an anthropological approach, focusing on humans as extraordinary culture-makers, whose definition is inseparably tied to making Art and Symbolic-Objects. The approaches to study and research will utilize multi-media and explore the History of the Arts in multidisciplinary ways - across Time and Space. It will start with a somewhat linear approach towards cultural artifacts and remains, surveying them from the earliest periods down towards our own Common Era. It will also take a multi-cultural perspective relating and comparing cultures across different parts of our world. The methodologies will include investigating Time-Capsules which will focus on interrelated groupings of related cultural materials organized as ? People, Places, Objects, Events and Ideas. The intention is to create a meaningful Matrix which brings together the most significant examples of Art, Architecture, Design, Music and Drama. The setting of the Carnegie Museums will be used as a creative-context for interacting with potent symbolic examples of Human-creativity in ways that transcend what is normally experienced in printed words and pictures. There will also be the creation and development of an i-Story by the participants. Each student?s i-Story will be a form of a personal journal (but including multimedia) relating their own individual historical research experiences to the larger and more universal sequences (cycles) and archetypes of the World of Arts Histories. These creative narratives can evolve into and become important direct connections between the great cycles of Human History and the adventure of Evolution - and the individual student's own narrative and story of growth and development in the present day World of education and learning.

60-110 Electronic Media Studio: Introduction to the Moving Image
Spring: 10 units
Electronic Media Studio: Introduction to the Moving Image is an introduction to the computer as a dynamic tool for time-based media production. In this course students develop skills in digital video and audio production through the exploration of narrative, experimental, performance, documentary and animation themes and forms. Historical and contemporary works are presented and discussed to provide a context for studio projects.

60-125 Introduction to 3D Animation
Spring: 6 units
This mini on introductory animation is designed to explore the wonderful world of computer animation from initial concept to final production. In a mixture of class discussions, training workshops, and guest lectures from industry experts, students will become acquainted with the necessary skills needed to create their own characters and animations. Both artistic and technical elements within animation production will be covered, and workshops will help to delve into more specific elements within a topic. Some specific topics include modeling, rigging, character/object animation, texturing, and rendering. By completion of the course, students will understand how to use Maya - the software used by many industry professionals - and be capable of taking on more advanced courses related to animation, vfx, and video games in the future. Prerequisites: 62-150 or 15-104

60-126 Introduction to Performance Capture and Rendering
Intermittent: 6 units
This mini is designed for those interested in the growing world of performance capture and visual effects. Utilizing the advanced motion capture facilities at Carnegie Mellon and the Kinect, students will learn how to capture motion from performance and apply it to CG characters and objects. While this technique is found in many video games and vfx movies, it has the ability to create endless possibilities within the realm of computer graphics and experimental animation/art. Students will also become more familiar with the process of rendering to create the necessary polish for their animations/visualizations. CG Lighting, camera work, and material shading are just a few of the many topics covered in this course. Prerequisites: 15-104 or 62-150

60-130 3-D Media Studio I
Fall: 5 units
An introduction to three-dimensional form. Various materials and methods are explored through projects covering a broad range of sculptural concerns. Art majors must complete one Mini-1 course and one Mini-2 course to satisfy the 3DI requirement. Students are required to select two of the following four sections: The Structural Imagination (Wood and Steel); Clay Sculpture; Small Metals; and Hey Robot, Let's Make Something. Materials fee may be required. Open to freshmen in the School of Art, or by instructor permission.

60-131 3D Media Studio II
Spring: 5 units
Three unique mini classes offer an introduction to basic language and approaches of sculptural practice. Multiples, Mold Making, and Casting: focus on mold making, casting, and creating multiples for editions and parts; Small Metals; and Mixed Media/Mini-installation: emphasis on mixed media and provides a hands-on approach to working with a variety of materials in order to combine those materials with an array of connectors and/or create a composition with a relationship of objects in 3space?. By using a conglomeration of fabricated, found, natural and altered elements students expected to learn a variety of skills and vocabulary related to mixed media sculpture, assemblage, mini-installation and site work. Art majors must complete one Mini-3 course and one Mini-4 course to satisfy the 3DI requirement. Materials fee may be required. Open to School of Art freshmen or by instructor permission.

60-141 Black and White Photography I
Fall and Spring: 10 units
This course will teach you the basic craft of photography from exposure of the negative through darkroom developing and printing to print finishing and presentation. Content includes student presentations, class discussions, shooting assignments, darkroom sessions and class critiques. We will concentrate not only on the technical aspects of photography, but also the aesthetics of seeing with a camera. The course concentrates on photography as a fine art — what is unique to it and the concerns that are shared with other visual arts, such as composition, tonal values, etc. and aims to equip students with an understanding of the formal issues and the expressive potentials of the medium. Lab fee and 35mm manual camera required. Each student is responsible for the cost of paper and film.
60-142 Digital Photography I  
Fall and Spring: 10 units  
This course explores digital photography and digital printing methods. By semester's end students will have knowledge of contemporary trends in photography, construction (deconstruction) of photographic meaning, aesthetic choices, and the use of color. Students will learn how digital cameras work, proper digital workflow, RAW file handling, color management and Adobe Photoshop. Through the combination of the practical and theoretical, students will better define their individual voices as photographers. No prerequisites.

60-150 2D Media Studio: Drawing  
Fall: 10 units  
This course focuses on the language, materials and concepts of drawing as foundation for all the visual arts. Initial emphasis on the development of perceptual, analytical, and structural drawing skills with increasing attention to idea development. Exposure to methods of creating pictorial and illusionistic space; recording the external world of light and form; and making visible the internal world of the heart, the mind, the soul. Experience with line, texture, tone, shape and mass; in a variety of wet and dry drawing media. Open to freshmen in the School of Art, or by instructor permission.

60-160 2D Media Studio: Imaging  
Spring: 10 units  
A continuation of Two-Dimensional Media Studio: Drawing. Includes an expansion of drawing to include multimedia approaches, painterly issues, digital input/output and work with digital image processing tools. Prerequisites: 60-157 or 60-150

60-200 Sophomore Review  
Fall and Spring  
Students present their work and their ideas about their work to a faculty committee. A successful review is required for advancement to the junior year. Although this is a non-credit course, it is required of all Art (BFA, BHA, BSA, and BCSA) sophomores.

60-201 Concept Studio: Space and Time  
Fall: 10 units  
Concept Studio: Space and Time is a continuation of Concept Studio: The Self and the Human Being I with a focus on space and time through projects of increasing complexity. Such topics as biological time, historical time, psychological time, celestial time, clock time, and public space, private space, mathematical space, and virtual space are addressed through projects. Open to sophomores in the School of Art, or by instructor permission. Prerequisite: 60-101

60-202 Concept Studio: Systems and Processes  
Fall: 10 units  
“Systems and Processes” A continuation of Concept Studios: The Self and The Human Being I with a focus on systems and processes. The utility, discovery, and the generation of systems and processes are addressed through projects. Open to sophomores in the School of Art, or by permission of instructor.

60-203 Concept Studio: EcoArt  
Intermittent: 10 units  
An interdisciplinary studio course that provides an introduction to an art practice focused primarily on ecology and the environment. Combines the exploration of the history of environmentalism and ecological art with the production of creative projects to address related issues such as sustainability. Shorter initial exercises and collaborative projects will precede and evolve into larger and more extended individual and/or collaborative projects. Considers both indoor and outdoor sites with an emphasis on context and the use of natural and recycled materials. Open to freshman and sophomores in the School of Art and to students in other disciplines.

60-204 Concept Studio: Networked Narrative  
Intermittent: 10 units  
Networked Narrative is a studio class that uses social networking sites such as Facebook, Twitter and YouTube as venues to develop fictional stories. The class will explore traditional and experimental narrative forms in a variety of media. Students will develop and produce narrative events that are exhibited on their fictional character's various social networking sites.

60-205 Modern Visual Culture 1789-1960  
Fall: 9 units  
Explores the diverse roles of artists in the complexity of modern society from the Industrial Revolution through 1960. Contextual issues include the relationship of artists and art to culture, politics, economics and modern technologies. Attention is paid to the decline of patronage, the diminishing role of the academy and the emergence of an avant-garde and art promotion. Open to sophomores in the School of Art, or by instructor permission.

60-206 Contemporary Visual Culture 1960 - Present  
Spring: 9 units  
This course traces the shifts in art from late Modernism until our After Post era. It will examine the diversity of art produced, as well as the critical ideas that arose over a span of 60 years. The rise of a pluralist / conceptual art will be discussed within the context of social change, technology and globalization. Open to sophomores in the School of Art, or by instructor permission. Prerequisite: 60-205

60-210 Electronic Media Studio: Introduction to Interactivity  
Fall: 10 units  
Electronic Media Studio: Introduction to Interactivity is an introduction to software programming and physical computing within the context of the arts. In this course students develop the skills and confidence to produce interactive artworks using audiovisual, networked and tangible media. This fall, Section B (taught by Paolo Pedercini) has an emphasis on interactive game design.

60-215 Visualizing Issues with Images and Sound  
Intermittent: 5 units  
Using documentary photography to explore their lives and immediate communities to help better understand and explain the issues facing their generation. Students will choose a topic such as the uncertain economy, environmental concerns or diversity and produce a series of images and conduct audio interviews within the mini term. Emphasis will be placed on aesthetics and skills needed to be a competent storyteller while learning values that are crucial for explanatory visual reporting. We will also look at the work of other photographers who have used this method to better understand society. Knowledge of Photoshop and Garage Band is helpful, but not required.

60-220 Technical Character Animation  
Fall: 10 units  
[IdEATe course] With an emphasis on character animation, this course will explore the whole production pipeline of 3D Animation from initial concept to rendered result through the use of Maya. Through a series of technical assignments, in class demonstrations, and guest lectures from industry professionals, students will come to learn the basic principles of animation and work up to more advanced techniques. Some specific animation areas that will be covered include locomotion, pantomime/acting, dialogue, set driven keys, and blend shapes. Students will also learn more technical/advanced approaches to other production areas such as modeling, texturing, rigging, rendering/lighting, and layout. Please note that there may be usage/lab fees associated with this course. Prerequisites: 15-104 or 62-150
60-223 Introduction to Physical Computing
Fall: 10 units
[DeTe portal course] Physical computing refers to the design and construction of physical systems that are used to produce software and hardware in order to sense and respond to the surrounding world. Such systems include digital and physical toys and gadgets, kinetic sculpture, functional sensing and assessment tools, mobile instruments, interactive wearables, etc. This is a project-based course that deals with all aspects of designing and developing projects with physical computing: the application, the artifact, the computer-aided design environment, and the physical prototyping facilities. The class consists of students from different disciplines who collaboratively synthesize and implement several systems in a short period of time. The course is organized around a large set of essential skills that students must gain in order to effectively tackle physical computing problems. It is then deployed through a series of quick group projects that utilize the essential skills and challenge students to not only consider HOW to make things, but also for WHOM we design, WHEN the time is ripe, and WHY the making is worthwhile/necessary. Upon completion of this course the students will be able to: work in a mixed physical-digital environment and laboratory, make effective use of standard hardware and software tools for physical computing, approach complex physical computing problems with a systematic overview that integrates iterative research and design steps, generate systems specifications from a perceived need, partition functionality between hardware and software, produce interface specifications for a system composed of numerous subsystems, use computer-aided development tools for design, fabrication and testing and debugging, evaluate the system in the context of the end user application or experience. Please note that there will be usage/materials fees associated with this course.

60-233 Portraiture: The Space Between
Intermittent: 10 units
There is a distance there. To me it's often a picture of the space between us. - Alec Soth Portraiture holds a unique place within photography for its direct, consensual and often collaborative relationship between the subject and the photographer. This course will explore the theoretical and practical aspects of portrait photography in both studio and environmental settings, providing students with an understanding of the genre and the technical ability to create portraits in a variety of locations and conditions. Students will gain knowledge in the development of portraiture through the work of notable figures in the medium's history, including August Sander, Dorothea Lange, Richard Avedon, Milton Rogovin, Platon, Rineke Dijkstra and Alec Soth, while utilizing film and digital equipment to learn studio techniques, approaches to artificial and natural lighting, image processing and presentation. Class discussions, readings and critiques will provide an outline for completing both single and serial image assignments.

60-240 Unfolding Environments: The Intersection of Person and Place
Intermittent: 10 units
This course will use photography and visual narratives to look at our surroundings. Assignments will focus on image sequencing and editing, combining the practices of portraiture, landscape, still life and observational photography to create narrative work that explores the complex connections between people, objects and the spaces they inhabit. Through the semester, students will strengthen their understanding of the ways in which these tangible and abstract elements of our environments work together, while also developing their technical abilities by working with color and black and white images, natural and artificial lighting and digital workflow. The course will explore the medium's history and contemporary practice through class presentations and the study of work and books by notable and emerging figures in the field, including Robert Adams, Rineke Dijkstra, Carolyn Drake, Wayne Lawrence, Milton Rogovin, Judith Joy Ross, Michael Schmelling, Stephen Shore, Alec Soth, Zoe Strauss, Larry Sultan, Carrie Mae Weems and Susan Worsham. Discussions, readings, studio visits and critiques will provide an outline for completing assignments.

60-241 Black and White Photography II
Fall and Spring: 10 units
This course extends the traditional darkroom process of silver printing from Black and White Photography I, with an emphasis on aesthetic development, personal artistic growth, and formal image evaluation. Skills covered include medium and large format cameras, advanced darkroom printing techniques, exhibition presentation, and film scanning for inkjet output. Studio work includes both group critique and individual direction from the instructor. Students are expected to produce a finely-printed body of work by the end of the semester. Prerequisites: 62141 or 60141 or 51265 or consent of instructor. Prerequisites: 51-265 or 60-141 or 62-141

60-244 Contemporary Photo Theory
Intermittent: 9 units
Because, you know, the photographs are more a question than a reply. (Sebastiao Salgado) A photograph is a moral decision taken in one eighth of a second, or one sixteenth, or one one-hundred-and-twenty-eighth. (Salman Rushdie) This seminar investigates current topics in photography and the image; our goals are twofold: identification of photo theory as it applies to current practice from both the viewpoint of maker and consumer. The course is designed to address philosophical issues for photographers working now and will favor conversation over written work; students are expected to fully participate in critical analysis and discussions. Readings include works by Roland Barthes, Stephen Shore, Susan Sontag, Hollis Frampton, John Szarkowski, Robert Adams, Italo Calvino, Berenice Abbott, John Berger and James Elkins. No pre-requisites.

60-245 Portrait Photography
Intermittent: 10 units
Portrait Photography explores the emotional and visual process of collaboration between subject and photographer that creates a photograph. We'll use cameras of all formats and levels of sophistication to create portraits in the studio and on location. We'll find and exploit available light and create artificial light to complete our vision, and we'll explore a wide range of darkroom strategies to support and add richness to our final print. Through film and video we'll meet some of the masters of this form like Arbus, Newman, Avedon and Penn, and we'll take advantage of any opportunities to visit exhibitions and photographers studios. Lab fee required. Prerequisites: 60-141 or 51-265 or 62-141

60-250 2D Media Studio: Painting
Fall and Spring: 10 units
A pragmatic introduction to the tools, materials, and techniques of painting, including instruction in the fabrication of sound painting supports and the application of permanent grounds. Students become conversant with the range of visual options unique to the vocabulary of painting. Open to sophomores in the School of Art, or by instructor permission. Prerequisites: 60-151 or 60-160

60-251 2D Media Studio: Print Media
Intermittent: 9 units
An introduction to print media with emphasis on reproductive image making in the context of historical and contemporary practice. Students will be introduced to print processes such as intaglio, stencil, relief, linocut, lithography, serigraphy, and digital applications. Informed by readings, presentations on artists, and visits to museums, students will develop a body of work informed by and extending the traditions of print media. Open to sophomores in the School of Art, or by instructor permission. Prerequisite: 60-160

60-257 Introduction to Computing for Creative Practices
Fall: 10 units
This course is an introduction to Java programming for designers, architects, artists and other visual thinkers, using the popular "Processing" Java toolkit for interactive graphics. Intended for students with little or no prior programming experience, the course uses interaction and visualization as a gateway for learning the traditional programming constructs and the fundamental algorithms typically found in a first course in programming. Students will become familiar with essential programming concepts (types, variables, control, user input, arrays, files, and objects) through the development of interactive games, information visualizations, and computationally-generated forms.
60-280 Introduction to Contextual Practice  
Spring: 10 units  
For some time now art has moved out of gallery and museum spaces and into all facets of public life, where complex social situations and diverse audiences have become important parts of the work. In the past this might have been called Public Art, but today new strategies are being used that challenge public art’s tradition of static sculptures and embrace more dynamic forms of public engagement. As its name implies, Contextual Practice embraces the complex or social interventions in which an artwork exists as part of the material of that work. Evolving out of the history of site-specific, conceptual, and performance art practices, Contextual Practice covers a range of exciting new methods to making art in the public including street art, interactive social media, environmental art, hacktivism, participatory art, guerilla performance, project-based community art, and urban interventions. Students in this field-based class will create projects that work with the social dynamics of a variety of on and off-campus and online public contexts. We will research new trends in public engagement through art, architecture, and design, as well as politics, ecology, sociology, and economics. Fundamentally, this class asks students to experiment with how their art practice can intersect directly with the real world (outside of the traditional art venues) and how they can proactively create new sites and audiences for their work.

60-298 Photography and Reality  
Intermittent: 10 units  
Photography’s unique relationship with reality is the source of the medium’s tension as well as its creative potential. This class will explore photography’s tenuous status as a vehicle for truth and interrogate the mysterious relationship between the ‘real world’ and photographic representation. Students will be introduced to historic and contemporary practices, from “documentary style” images to abstract formalism. We will examine the history of art photography utilizing the book form with an emphasis on how meaning is created through the photographic series and sequencing of images. A series of slideshows, readings, and discussions will provide a framework for conversation and critique of student projects. Recognizing photography as a conduit for examining our ideas and experiences of the world, students will be expected to conceive, execute and present photographic projects that articulate a deeper understanding of the potential of photographic communication and will encourage a closer look at the photographic illusion as it appears in our ever expanding digital image-sphere.

60-340 The Ballet Russe (The Russian Ballet) and its Artists  
Intermittent: 9 units  
The leading artistic position of the French Avant-Garde in the 1910’s and 1920’s was partly predicated on the assembly, meeting, collaboration and cross-influence of artists from all over Europe. The visual artists, musicians and performers brought with them specific aspects of their native heritage, therefore contributing to the enrichment of the general cultural scene. Paris with its cultural focal point the Ballets Russe became a melting pot of creativity.

60-347 Global Perspectives for Art  
9 units  
We find ourselves in a constantly intensifying global reality where increasingly there is a tendency beyond traditional boundaries. This seminar will explore the aesthetic concepts of the large historic cultures where there are bodies of articulated aesthetic philosophy: Western traditions from Plato to Heidegger, including Islam as integral to the Abrahamic/biblical traditions; the vast and rich array of aesthetic thought in Hindu, Buddhist, and Shinto cultures. In some specifically interesting cases, we will explore particularly small, isolated or ancient cultures, such as the Hopi or the Aborigines of Australia. In each case, we will explore ideas related to cardinal cultural ‘objects’ of each culture: architecture, painting, sculpture, performance/ritual, dance, film, and other media. We will expand our thought through various appropriate readings and discussions. Research themes can include: iconoclasm, cultural cooption, cultural orthodoxies and purifications, cultural transfers, cultural isolation and extremes, multiple cultural exchanges over long periods of time, cultural antagonism, cultural extermination and genocide, cultural transplantation, cultural destruction and warfare, cultural distinctions, etc. Of particular interest will be the study and understandings of the roots of the iconoclastic, anti-art traditions and their constant struggle and interaction with the meanings and power of the icon, symbol and image. Students will be expected to do specific presentations based on research topics as well as our readings. A final research paper/project will be the major outcome of the course, and in some cases, this will be combined with an artistic project or performance.

60-351 Art & Religion  
Intermittent: 9 units  
The Art and Religion course-seminar will explore several major artistic manifestations prompted by religious beliefs during the history of art. Emphasis will be on the arts, although general historical eschatological and philosophical explanations will be assessed as well. Major religions will be brought to discussion in one or several of their artistic manifestations. The course-seminar will be based on discussions facilitated lectures given by the professor, in addition to student research presentations.

60-352 NOISE: Toward a Critical Theory of Sound and Hearing  
Intermittent: 9 units  
This seminar will explore audio art in its widest sense: sound sculpture and installations, radio art, the soundtrack, just about anything audible but not conceived as music. Special focus on the production (and reception) of sound by artists, amplifying those creative efforts that, in having explored acoustics, soundscapes, and listening, might also serve to inspire students to incorporate sound in their own work. Contemporary critical theory, by and large, is still glaringly silent on aurality and auditory phenomena; it seriously fails to consider sound as an object of study, instead focusing quite exclusively on visual culture (film, TV, video, computer screens, which are, of course, technologies of vision and sound). This seminar will address this roaring silence by examining some suggestive but disparate theoretical work related to sound and by engaging with a range of artistic practices that explore the production and reception of sound itself.

60-353 Media Performance: History, Theory, and Contemporary Practice  
Intermittent: 9 units  
During the last decade of the twentieth century, new technologies have transformed the way we think about live performance. By examining the use of media (analog and digital) across the areas of sound/music, dance, theater, performance art, gaming, and installation, this course will traverse multiple theories and practices of performance history. With an eye to how changing theories of performativity have influenced how artists think about what it means to “perform,” this seminar, in a sense, will be engaged in both philosophical and aesthetic research about how technology has changed the conventions of performative artistic practice. What was the role of technology in the dematerialization of the object of art? How have ideas about virtual, parallel worlds changed the way artists think about the “performing body?” If technology once acted as a prosthetic device, increasing an artist’s sensual and perceptual world, what happens to the role and impact of an artist’s work in the seemingly inert realms of programming or the increasingly autonomous areas of Robotic Intelligence?

60-355 Rights to Representation: Indigenous Peoples and Their Media  
Intermittent: 9 units  
For decades anthropologists have been “picturing” others, in images as well as in words. This course explores the turn-around: when those who have been subjects of description take the opportunity to represent themselves. After a brief history of visual anthropology, we will concentrate on modes of representation developed by indigenous peoples. We will explore the meanings of “indigenous,” in connection with various modes of representation, including film, dramatic performances, art, and the Internet. During the semester, we will compare across-time and space the purposes for which media are used, the transmission of cultural values in media, the organization of production, and the intended audience. Anthropological method and theory will guide our inquiries. Course materials include disciplinary readings, documents dealing with indigenous rights, and examples of the work of indigenous peoples.

60-356 Curators, Artists, Audiences & International Markets  
Intermittent: 9 units  
How does art and artists get selected for museum shows, collections, and biennials? This course offers students an in-depth view into the multifaceted elements of the markets that influence curators, artists, and audiences. The Global Art Market is a complex structure comprised of many parts and it has been evolving for centuries. The class will provide students with a solid foundation about the history of the art market in order to gain a perspective about the rise and power of the art market today. We will examine how changing theories of representation influence how artists think about what it means to “perform,” this seminar, in a sense, will be engaged in both philosophical and aesthetic research about how technology has changed the conventions of performative artistic practice. What was the role of technology in the dematerialization of the object of art? How have ideas about virtual, parallel worlds changed the way artists think about the “performing body?” If technology once acted as a prosthetic device, increasing an artist’s sensual and perceptual world, what happens to the role and impact of an artist’s work in the seemingly inert realms of programming or the increasingly autonomous areas of Robotic Intelligence?
60-357 Picasso & 20th Century Art
Intermittent: 9 units
The greatest artist of the twentieth century, Picasso, invented or participated in most of the major styles of modern art. His artistic genius and visual inventiveness will be explored from 1894 (age 13) to his death in 1973 (age 92), against the background of eight decades of modern art. The focus of the investigation will not be limited to psychological and iconographic factors, but will be discussed in the historical and artistic context of his time.

60-358 Art and Biology
Intermittent: 9 units
A studio-laboratory art-making course designed to explore interactions between art and biology. It is an opportunity for students interested in interdisciplinary concepts to work both in a studio art environment and a biological laboratory. Students have the opportunity to experiment creatively with scientific media such as electron and video-probe microscopy.

60-360 Feminism - Art - Theory
Intermittent: 9 units
What happened when the women's movement and the art world encountered each other? What is the relationship between the theory of art and the theory of feminism? Or between the practice of art and the practice of feminism? This course will take place on campus, and at the Mattress Factory, where I am curating an exhibition, "Feminist and?", which will open September 7th. The course will cover themes such as the gendered nature of culture; the practices of history and criticism; the interrelation between feminist activism and art practice; notions of the aesthetic and if there are feminine or feminist aesthetics and representational forms; body, sexuality and representation; the representation of gendered national and racial identities. It will do this through looking at artworks, and through close readings of texts. Some of the material will engage with sensitive issues and challenging images, particularly around sexuality, and students taking the course must be prepared for and accepting of this. At the same time, full debate will be encouraged. The course is open to all students; preference will be given to MFA, senior and junior students.

60-362 Art Writer
Intermittent: 9 units
Description TBA

60-366 Culture in the Public Realm
Intermittent: 9 units
The seminar offers a discerning critical overview of key concepts about culture, public space & the public sphere. We will introduce & critically explore the historical, theoretical & practical production & use of 'public space' & articulations beyond the museum or gallery. We will consider the historical evolution of the city as both an actual & theoretical entity. The class will explore urban environments in terms of economics, demographics, political, cultural production & psychology & the city of Pittsburgh will function as our site laboratory. We will inquire about the function of public art/what happens when space is required for the public realm for a means of cultural production that aims to yield some form of transformative effect for the 'public' or citizens at large. Moreover the term "public" is an important topic to be investigated: Who is the public? Who are they in a state of constant re-definition.

60-370 An Aesthetics of Hip Hop Seminar
Intermittent: 9 units
This seminar course will examine artworks informed by or in dialogue with hip hop culture. Particular attention will be paid to visual artists who came of age during the post civil rights, global economics era—a time period between 1965 and 1984, birth years labeled the hip hop generation. We will draw connections between on-going ideas addressed in the art world: aesthetics, identity, culture; and the content of hip hop's visual, technological and performative explorations. There will be both readings and assigned readings. Performance will be evaluated based on overall participation in the following: class discussion, homework assignments, mid-term essay and final research paper.

60-371 Breathless: International New Wave Cinemas
Intermittent: 9 units
What does Jean-Luc Godard's "Breathless (A'bout de souffle)?" (1959) have in common with Wong Kar-Wai's "In the Mood for Love" (Fa yeung nin wa)? (2000)? What does Satyajit Ray's "Pather Panchali" (1955) share with Mark LaPore's "The Glass System" (2000)? By examining an array of films from the classic days of International New Wave Cinemas, beginning with French Nouvelle Vague, Italian "Parallel Cinema," as well as German, Italian and Japanese innovations and moving to contemporary (and experimental) film movements in Iran, Korea, Hong Kong, Eastern Europe, and the US, we will explore the ways a handful of young directors found novel ways to fuse high and low, direct and indirect, ideological, narrative and cultural norms. By focusing on mise-en-scene over thematics, on-site locations over studios, lesser-known actors over box-office ids, and small production teams over professional crews, these directors were able to turn lo-fi aesthetics and financial shortcomings into a radical new filmic style. Especially central here will be how forms of cinematic experimentation translated internationally—and how these approaches continue to challenge hegemonic forms of media culture.

60-373 Aesthetics from a Global Viewpoint
Intermittent: 9 units
The arts and their making is a behavior that differentiates our species. Artistic/aesthetic differentiation is a global phenomenon occurring since the dawn of our species. This seminar will explore the articulated aesthetic philosophy of large historic cultures: Western traditions from Plato to Heidegger, including Islam as integral to the Abrahamic traditions along with Hinduism and rich array of Daoist, Buddhist, and Shinto aesthetics. These broader Traditions may be examined along with additional examples from small, isolated or ancient cultures, such as the Hopi or the Aborigines of Australia. Across cultures, we will explore the aesthetics of cardinal cultural "objects" (architecture, painting, sculpture, performance/ritual, dance, film, and other media) through readings and discussions. Each student's individual definition of the nature of the arts will be constantly measured with and against the ideas of other cultures, all developing an interactive and integrative dialogue. Other issues include: the study and understandings of the roots of the iconoclastic traditions and their constant struggle and interaction between the meanings of the icon and the image; the notion of cultural "otherness"; and how aesthetic problems manifest themselves in our world in immediate and violent ways; and the evolution of the drive for the preservation of cultural memory in light of recent destructive events in Afghanistan and Iraq.

60-375 Art History/Theory: Contemporary Likeness, Identity and Culture
Intermittent: 9 units
The issue of identity in the visual arts emerged in a new light with the shift from a modernist to a postmodernist paradigm since the mid 20th century. When we speak of identity, what do we mean? How does cultural identity contribute to the formation of personal/private identity & vice-versa? Is this reflected in an artist's work in this time? This class will examine the evolution of the portrayal from the "portrait" to the "photo" in the 20th century. Through readings, discussion & presentations the class will focus on how identity & human portrayal has evolved over time & how theory, popular culture, the cult of the 'glam celebrity', & technology have played an influential role in shaping the cyber-technology no longer is a portrait revered as a unique or rarefied object but a conglomeration of cultural influences. We will look at the works of a diverse range of artists, as well as non-artists, & consider how media affected the evolution of the portrayal of the human face & creation of persona. Images of individuals were once viewed as a primary indicator of national identity, social status, religious belief, as well as a signifier of historical events influenced by particular ideologies. Nowadays images of the self and others, prompt viewers to consider a wide range of psychological, spiritual, & political information beyond visual manifestation. Two basic questions "Who are you?" & "What is art?" often come together in the contemporary portrait. Most portraits are negotiations between identity & representation, between being a subject & portraying a subject. Representations of people represent a mark of contemporary life that personal identities have become fractured, complex, & splintered, and that they are in a state of constant re-definition.

60-376 Large Format Photography: The Antiquarian Avant-Garde
Intermittent: 10 units
This course takes part in the anti-digital movement by exploring the roots of photography. Students will shoot with an array of large format cameras and use 19th and 20th century processes to create "one-of-a-kind" photographic images. Course topics include non-silver printing processes, early photography, and contemporary tin-types. Prerequisites: 60-141/62-141/ equivalent or consent of instructor.
60-377 Picasso and 20th Century Art
Intermittent: 9 units
The greatest artist of the twentieth century, Picasso, invented or participated in most of the major styles of modern art. His artistic genius and visual inventiveness will be explored from 1894 (age 13) to his death in 1973 (age 92), against the background of eight decades of modern art. The focus of the investigation will not be limited to psychological and iconographic factors, but will be discussed in the historical and artistic context of his time.

60-380 Color Photography and Digital Output
Fall and Spring: 10 units
This is a course using digital photography with digital printing methods. Students will gain an understanding of color theory and aesthetics, while better defining their individual voices. By semester’s end, students will have a finely printed body of work using Mac OS, RAW file handling, color management and Adobe Photoshop.
Prerequisites: 51-265 or 60-141 or 62-141

60-381 Museums and other Exhibition Spaces
All Semesters: 9 units
This class provides students with an introduction to the history and function of museum/art spaces and an understanding to the effect of museum exhibitions on our notion of history, arts, culture and society. This course is geared to artists as they prepare to go into the post-graduation enigmatic art world and for students desiring to pursue a career in curating. Focus is on the actual and ideal museum and art galleries, alternative spaces, biennials, art collectives, virtual options as well as a variety of venues to showcase art and culture. It will analyze not so visible skirmishes, hidden economics, and the complex ways artists and curators interact with institutional power. We will concentrate on showcases for art in the Pittsburgh region and visits to museums and exhibitions will be an integral part of this course. Topics to be covered through lectures, discussions and readings include: national galleries, city museums, art centers, artists spaces, museums, as treasures of culture and of cultures, museum architecture, the idea of the canon in art, political correctness in exhibitions, collections and collecting, ethical issues, acquisitions and de-accessions, design and installation, conservation, sculpture gardens, private houses as museums, donor memorials, museum operations, museum shops, and the role of museums in contemporary society. We will explore controversies relating to museum acquisitions and to the looting of cultural goods.

60-382 Theory and Practice of the Art Museum
Fall: 10 units
Spring: 10 units
This class is an introduction to and overview of the missions, operations and history of museums, focusing on art-related institutions such as galleries, and non-profit spaces. The course will provide a broad introduction to the field of museum studies and the history and philosophy of museums, the social, economic and political trends that shape museums; the staffing, management and financing of museums; and the multiple functions of museums - collection and care of objects, exhibition design and interpretation, education programs, research activities, and public relations. Discussions will also address cultural policy change as society has evolved and new historical and theoretical models have risen over the past two decades. The course will combine lectures, both by the instructor and visiting lecturers; discussion of readings and videos; field trips to museums; and a semester-long group project.

60-392 Inner Geographies
Fall: 10 units
Spring: 10 units
Inner Geographies: On Discovering the Inward Landscapes and Journeys of the Mind and Body. This course will discover and explore the inward subconscious topologies of perception, thought (logics), memory, imagination, intuition, the hypnagogic (between dream and waking), dreaming, telepathy, meditation and trance in relation to artistic and other forms of creativity (writing, science, and technologies). The general purpose of the course is to familiarize students with their own individual unique and specific patterns of creativity and thereby reveal new artistic and other unanticipated disciplinary potentials projects. Through simple exercises these aspects of the creative mind and body will be revealed and explored, noted, organized and mapped toward simple formal objects and outcomes, and at the same time, toward a chosen artistic projects or research. All students will evolve a final project. Our texts will include: Anton Ehrenweig, “The Hidden Order of Art”, Edward Hall, “The Hidden Dimension”, Gaston Bachelard, “The Psychoanalysis of Fire”, Carl Gustav Jung, “The Red Book”, Martin Heidegger, “Being and Time”, and other excerpted texts. Students will be expected to learn, articulate and use new creative mental tools and methodologies in the creation of their projects.

60-397 Art, Conflict, and Technology in Northern Ireland
Spring: 12 units
Art, Conflict and Technology in Northern Ireland is a 9-unit course cross-listed in the School of Art and the Department of English, with a required 3-unit recitation in the Robotics Institute. Throughout the term students will be introduced to a history of social strife in the North of Ireland from the 1960s to the present, and efforts to reconcile differences in the contemporary period. We will consider the influence of advancing technology on how narratives are shared within a community and worldwide. We will not focus upon and analyze a variety of literary and visual art sources from the chosen time period, while also learning how to create mixed-media projects using Gigapan and Hear Me systems from Carnegie Mellon’s CREATE Lab in the Robotics Institute. If you have ever considered how artists explore societal strife through their writing or visual arts practice, if you are interested in the social and political influences of evolving technology, or if you are a practicing artist who uses advancing technology as a tool for individual expression, this integrative course is for you. Throughout the semester we will examine the practice of a range of visual artists that include Rita Duffy, John Kindness and Willie Doherty and writers and dramatists like Dermot Healy, Patrick McCabe and Christina Reid. Students will learn how to use CREATE Lab’s Gigapan and Hear Me systems as platforms for exploring the content presented in class and for the development of final projects. We will travel to Belfast for spring break 2015, to meet a variety of writers and artists whose work we will study, and stakeholders in reconciliation efforts throughout the region. In addition to weekly lectures on Thursdays throughout the term, students will have a six-week lab on Tuesdays.

60-398 Social History of Animation
Intermittent: 9 units
Social History of Animation will investigate the history of animation from early experiments with trick film through the development of major studios, to independent and web based work. Social movements and technological innovation will be analyzed and discussed in relation to the effects they had on animators and their work. This class will read related texts and view US and international examples to explore animation as a means for personal expression and as a reflection of the context in which they were made.

60-399 Art History/Theory Independent Study
All Semesters: 9 units
A tutorial course in which an Art student works individually on a self-generated project under the supervision of a School of Art faculty member. Prior to enrolling in Independent Study, the student must complete an “Independent Study Proposal” form (available in the bins on the 3rd floor of CFA) which is signed by the faculty member and the Assistant Head of the School of Art. Prerequisite: Art junior or senior status, or by instructor permission.

60-400 Senior Review
Spring
Students present their work and their ideas about their work to a faculty committee. This review affords graduating students the opportunity to analyze and summarize their work, and to engage a faculty committee in discussion about issues that face an artist preparing to enter a career in art. Although this is a non-credit course, it is required of all Art (BFA, BHA, BSA and BCASA) seniors.

60-401 Senior Studio
Fall: 10 units
Spring: 12 units
Students produce a comprehensive two-semester project in the first semester to be continued and completed in the second semester of their senior year (60-402). Each student pursues an ambitious and cohesive body of work with guidance by a team of School of Art faculty. Multimedia, multidisciplinary, and collaborative work is encouraged. Studio work is supplemented by group critiques, workshops on writing, professional presentation skills, career preparation, and technical instruction as needed. Attendance at all 5pm School of Art Lecture Series events is required for this class. Open to seniors in the School of Art, or by instructor permission.

60-402 Senior Studio
Spring: 10 units
Students continue a comprehensive two-semester capstone project. Each student pursues an ambitious and cohesive body of work with guidance by a team of School of Art faculty. Multimedia, multidisciplinary, and collaborative work is encouraged. Studio work is supplemented by group critiques, workshops on writing, professional presentation skills, career preparation, and technical instruction as needed. Attendance at all 5pm School of Art Lecture Series events is required for this class. Open to seniors in the School of Art, or by instructor permission.
60-403 Extended Studio
Fall and Spring: 10 units
Extended Studio allows students to work individually or collaboratively on a self-generated body of work or special project under the supervision of the professor. Group discussions, visiting artist presentations and critiques supplement individual meetings with faculty. Extended Studio can be used in conjunction with Senior Studio to develop more ambitious projects. Open to School of Art seniors.

60-406 Advanced ETB: Internet Resistance
Intermittent: 10 units
Through booms and crashes, colonizations and disruptions, IP0s and LOLZ, Internet has been a spectacular laboratory of social conflict. But what can artists do on the net beside tweaking their pitiful portfolios and sinking into social media malaise? Internet Resistance is both a schizo-seminar about critical issues in cyberculture and a trans-media studio to develop terrible ideas for the networked society. Topics/assignments may or may not include: mememaking, netporn & rule 34, online hustling, net.art, start-up totalitarianism, slacktivism, conceptual hacking, artist as troll & troll as artist, cyberwarfare, artsy browser plug-ins, New Aesthetic, Open Source, and much more.
Prerequisites: 60-110 or 60-210

60-408 Advanced ETB: the Manipulated Moving Image
Intermittent: 10 units
The manipulated moving image has virtually unlimited potential to visually represent events, scenarios and forms that have little or no relation to our experience of the tangible, extant world. In this course you will use digital and analog tools and techniques and your imagination to create movies that do not represent the way the world is, but how you might want it to be and/or what you are afraid it might become (Utopian/Dystopian impulses, Eros and Thanatos). The manipulated moving image is a somewhat awkward but more inclusive word than "animation" for moving image forms that include: animation, motion graphics, compositing and visual effects in various combinations and permutations. In a way, digital tools have allowed moving image-makers to create works that have less to do with film and more to do with music and painting. Some of the techniques we will explore include: object animation, cutout animation, pixilation, collage, rotoscoping, motion tracking, and compositing. There will also be a focus on audio production and post-production with an emphasis on audio-visual relationships. The primary software tools students will be instructed in and use include Adobe After Effects, Photoshop, and Apple Logic Pro.
Prerequisite: 60-110

60-409 Advanced ETB: Video & Performance
Intermittent: 10 units
This studio course will concentrate primarily on the historical and ongoing relationship between video and performance. That said, this course will be flexible enough to allow students to create video, performance and video/performance projects. For structured projects, all students will be expected to participate in performance. Class time will be spent considering the history of performance and video/performance, viewings of primarily video/performance works to provide background and inspiration, presenting and critiquing student projects and studio time to work on projects. Technical instruction in video editing, compositing and effects, audio recording/editing and MIDI applications will be offered on an as needed basis.
Prerequisite: 60-110

60-410 Advanced ETB: Moving Image Magic: Visual Effects, Animation and Motion Graphics
All Semesters: 10 units
Fly like Harry Potter, return to the Land of Oz, journey into the farthest reaches of the universe, or take a head-trip into the inner reaches of your subconscious. It's all possible in Moving Image Magic! This course serves as an introduction to the creation of personal extraordinary cinematic visions using a variety of analog and digital tools and techniques. These include: stop motion animation, compositing, motion tracking, digital matte painting, miniatures, rotoscoping, text animation and motion graphics. The primary software tools that students will use are Adobe After Effects CS3 Pro and Adobe Photoshop CS3 extended.
Prerequisite: 60-210

60-412 Interactive Art and Computational Design
Intermittent: 12 units
This is an advanced studio course in arts-engineering and new media practice, with a special emphasis on information visualization and software art. Topics surveyed in the course will be tailored to student interests, and may include: experimental interface design, game design, real-time audiovisuals, locative and mobile media, computational form-generation, image processing and vision-based interactions, simulation, and other topics. Through a small number of exploratory assignments and a public capstone project, students will bolster interdisciplinary problem-solving abilities and explore computation as a medium for curiosity-driven experimentation. Enrolling students are expected to have demonstrable programming skills, without exception, beyond the level of an introductory class such as 15-110. Although the course will provide technical overviews of major visualization toolkits (including D3, Processing, and openFrameworks), assignments may be executed in the student’s preferred programming environment. Graduate students should register for section 51-882 or 62-726 (12 units), which meets with the undergraduate sections 60-412 and 51-482 (10 units).
Prerequisites: 15-110 or 60-112

60-413 Advanced ETB: Experimental and Abstract Animation
All Semesters: 10 units
Adv. ETB: Experimental and Abstract Animation — This course will explore experimental and abstract animation from a fine arts perspective and emphasize exploratory, formal and cultural/political motivations. Exploratory is the important term here as students will experiment wildly to develop a personal vision and method of creating one’s work. Using a variety of strategies, techniques, and tools students will create experimental and/or abstract animations. Some of the techniques explored will include: 3D stop motion digital photography, copy machines, drawing (analog & digital) painting (analog & digital), cutout, collage, scanners and more. There will also be a strong component on developing audio production and post-production skills with an emphasis on audio-visual relationships. The primary software tools include Adobe After Effects and Photoshop, and Apple Logic Pro. This course is especially suitable for those students who are interested in creating animations using their drawing, painting and object making skills.

60-414 Advanced ETB: Animation Art and Technology
Spring: 12 units
Animation Art and Technology is an interdisciplinary course cross-listed between Art and Computer Science. Faculty and teaching assistants from computer science and art teach the class as a team. It is a project-based course in which four to five interdisciplinary teams of students produce animations. Most of the animations have a substantive technical component and the students are challenged to consider innovation with content to be equal with the technical. The class includes basic tutorials for work in Maya leading toward more advanced applications and extensions of the software such as motion capture and algorithms for animating cloth, hair, particles, and grouping behaviors. The first class will meet in CFA room 303.
Prerequisite: 60-110

60-415 Advanced ETB: Animation
Fall: 10 units
This studio will introduce students to a variety of 3-D computer and 2-D drawn animation techniques. The class will look at and discuss examples of historic and contemporary animation. The students will explore animation through a variety of short experiments and develop individual projects that use animation as a means of self expression.
Prerequisite: 60-110
Course Website: http://graphics.cs.cmu.edu/courses/AAT/index.htm

60-416 Advanced ETB: Documentary Storytelling
Intermittent: 10 units
In this class students will develop projects which use a variety of narrative concepts to convey stories in new ways. We will begin with a core practice around video, audio, and expand into internet media, performance, physical media and installation. Emphasis will be placed on story structure and strategies for choosing a medium most appropriate to the narrative as well as the desired audience. Works by Janet Cardiff, Errol Morris, Spalding Gray, Werner Herzog, Laurie Anderson, This American Life and others will be mined for inspiration. With permission of instructor. We will also examine and discuss a range of historical and contemporary strategies employed by art makers who have used forums from on-line and virtual spaces to physical and site specific venues to expand and explore the relationship between the art object and the audience.
Prerequisite: 60-110
60-417 Advanced ETB: Video
Intermittent: 10 units
This course offers an in-depth exploration of video as a tool for creative expression. Topics for investigation and discussion will include: histories of experimental video, contemporary trends in the field, technological developments, performativity, perception and manipulation of time, and theories of representation. Additionally this course will provide instruction in advanced production and post-production techniques, including lighting, editing, compositing, 2D animation, graphics, and sound design.

60-418 ETB Studio: The Interactive Image
60418 The Interactive Image (Golan Levin). This course is an introduction to the use of interactive graphics as an expressive visual tool. It is a "studio art course in computer science," in which the objective is art and design, but the medium is software. Absolutely no previous programming experience is necessary. Rigorous exercises in a Java-based OpenGL graphics environment will develop the basic vocabulary of constructs that govern static, dynamic, and interactive form. Topics include the computational manipulation of: point, line and shape; texture, value and color; time, change and motion; raster, vector and 3D graphics; reactivity, connectivity and feedback. Students will become familiar with basic software algorithms, computational geometry, digital signal filtering, kinematic simulation, and the application of these techniques to aesthetic issues in interaction design. This course can be repeated with the permission of the instructor.

60-419 Advanced ETB: Experimental Game Design
Intermittent: 10 units
Experimental Game Design: Playing Stories is a hands-on game design course focused on innovative and expressive forms of gameplay. The emphasis is on the complex relationship between storytelling and games: from point-and-click graphic adventure games to AI-driven interactive narratives. The class involves frontal lectures, design exercises and in-depth analysis of works from the digital arts and the independent gaming world. This installment of Experimental Game Design does not require any substantial coding experience but all students will be required to tackle some programming and produce visual content. Prerequisite: 60-210

60-421 Computing for Live Performance with Max/MSP/Jitter
Intermittent: 10 units
This hands-on and highly interdisciplinary studio course is an introduction to the use of Max/MSP/Jitter, a visual programming environment for controlling interactive music, audio, video, and many other electronic media. For more than 25 years this software has been used by artists, musicians, and stage designers to create their own custom programs for algorithmic compositions, interactive installations, live environments and real-time performances. The simple visual interface of Max/MSP/Jitter allows non-programmers to create their own software without having to learn or to write traditional "code." Instead, users connect together pieces from a vast library of functional objects that manipulate and control sound, video, and other effects (such as DMX lighting) in response to sensors like cameras, microphones, game controllers, MIDI devices, and custom electronics. Students will be exposed to the fundamentals of multimedia programming in Max, the basic building blocks of sound and video, and techniques for integrating data from external sources, such as the popular Arduino microcontroller. They will also gain the practical knowledge and problem-solving skills to develop and design their own interactive installations, sculptures, and instruments for performance-based art or experimentation. No previous programming experience is necessary. Prerequisite: familiarity with the Mac OS.
Prerequisites: 60-110 and 60-210

60-422 Advanced ETB: Experimental Animation
Spring: 12 units
[IdeAtE course] This class will explore animation from the student's perspective with a sense of investigation toward both form and content. Topics in the class will include non-linear narrative, visual music, puppet and non-traditional materials, manipulation of motion and performance capture data, immersive environments. Prerequisite: 60-110

60-423 ETB Studio: Audio Visual Systems and Machines
10 units
The idea of a synaesthetic bonding of sound and image is a recurring motif in art, design and cinema; new technologies provide powerful new tools with which to explore that idea. Major topics in this studio course will include: static and dynamic visualizations, visual notation and scoring systems, information sonification, sound for film and animation, and interactive systems for audiovisual play and performance. We will also give attention to psychoacoustics, computer graphics, sound synthesis and analysis techniques, abstract film, and other related fields. The first half of the semester will focus on rigorous weekly assignments aimed at exploring creative mappings between the auditory and visual domains. The second half of the course will develop individual projects, culminating in an evening of public installations, screenings and performances. This course is cross-listed between the Schools of Art, Design and Music.

60-425 Advanced ETB: Live Video
Intermittent: 10 units
Advanced ETB: Live Video - Using analog and digital tools, software and hardware, students will create independent and collaborative live video performances and events. Additionally we will engage in study and discussion around issues of liveness, mediation, representation and embodied experience.

60-428 ETB Studio: Information Visualization
10 units
Traditionally the tool of the statistician and engineer, information visualization has increasingly become a powerful new tool for artists and designers as well, allowing them to present, search, browse, filter, and compare rich information spaces in order to reveal thought-provoking but otherwise hidden narratives. Like many visualization courses, this class will examine computational techniques for displaying temporal, spatial, hierarchical, and textual data. The class will also focus on visualization strategies from the "designer's perspective," exploring how to decipher and represent data in ways that make it meaningful for others, and on critical and conceptual applications of visualization from the "artist's perspective." Emphasis will be placed on the origin of data, as well as what information is worth visualizing and why. This course is heavily project-oriented; students should have programming skills or an interest in learning how to apply computation to their work.

60-430 Advanced SIS: Open Sculpture
Intermittent: 10 units
Open Sculpture
Sculpture is perhaps the broadest field among the contemporary visual arts. Through its privileged relationship to the physical world and the viewer's body, sculpture is the glue that connects the intermediaries of object, installation, interactive art and performance. In this class we build on skills and concepts learned in 3D media 1 and 2 to develop students' individual approach. Students define independent responses to topics proposed through discussion of contemporary sculptors. Emphasis is placed on individual development. Students are encouraged to explore interdisciplinary approaches.

60-431 Advanced SIS: Installation
Intermittent: 10 units
Installation
This course explores a broad range of sculptural issues concerning the practice of Installation Art. Studio focus on relatively large scale works which often involve an ensemble of objects or phenomena in a particular space. Both temporary and permanent works are addressed. Emphasis on research about "place" and the proposal process for a specific context. Various strategies, methods and materials investigated through projects, readings, presentations, discussions and field trips. Exercises and projects assigned initially, but students expected to establish their own projects later in the semester.

60-433 Advanced SIS: Clay Sculpture
Intermittent: 10 units
Clay Sculpture
Clay is a primary building block of sculpture. This supple, responsive and versatile material is being incorporated into the work of many contemporary artists today. This class will ask students to create projects that explore the use of clay as a medium in the context of their own work. It is intended both for students who would like to specialize in clay sculpture as well as students who work primarily in other mediums. Lectures will be presented on various approaches and techniques of clay artists, as well as other historic and contemporary artists. A notebook methodology will be employed for recording progress. Class critiques will stress group participation to broaden viewpoints and sharpen critical abilities. The majority of class time will be for studio projects. The use of mixed media is allowed. A materials fee is required.
60-435 SIS: Metals
Intermittent: 10 units
Studio focus on fabrication using light metalworking techniques including forming, joining, and finishing. Metalsmithing and jewelry techniques will be explored in the context of sculptural issues. Metal stretching, forging, brazing, texturing, small scale casting and coloring are also presented. Slides looking at small scale metalwork, as well contemporary sculpture using metal techniques will be presented periodically. Metals provided include copper, brass, and bronze sheet and wire. Materials fee will also cover silver solder and other expendables.

60-436 Advanced SIS/ETB: Digital Fabrication for the Arts
Intermittent: 10 units
This is a class about making physical objects for sculpture, installations, and other art practices using computers and digital fabrication machinery. The tools will be object modeling software packages, rapid prototyping technologies, and computer numeric controlled (CNC) machines. The facility of such tools in the making of multiples, mechanisms for kinetic/mechatronic work, morphology generated by code, and objects that manipulate the forms of contemporary mass-produced design will be explored. A smattering of techniques for modeling different types of shapes and functionalities will be covered. That the hand, mind, and eye of the artist remain their primary tools, even in this environment of machinic ubiquity, is a primary revelation of the class. The physical still evades the virtual's desire to simulate it, predict it, and form it.

Course Website: http://iteach.alimomeni.net

60-437 Advanced CP/SIS: Environmental Sculpture
Intermittent: 10 units
Studio focus on sculpting with the environment. Includes object making, installations and site work with an emphasis on ecological materials, growing systems, environmental impact and related issues. Students required to explore and develop proposal-making skills in order to acquire permission for sites in which to implement projects. Both individual and collaborative projects are possible.

60-438 Advanced SIS: Intimate Objects
Intermittent: 10 units
The intimate object - exploring the issues of small scale sculpture. This class will deal with the creation of objects that require a one on one interaction with the viewer. Unlike much heroically scaled sculpture, there is a distinctly personal and intimate connection that these objects engender. The class will look at historical examples, as well as 20th century works starting with the dada and surrealists. Problems of small scale sculpture will include topics such as the miniature versus actual size, the nature of materials, the issues of craftsmanship, the problem of preciousness. This class is open to advanced sculpture students working in any media.

60-439 Advanced SIS/CP: Hybrid Instrument Building
Intermittent: 10 units
This course introduces students to the theories, practices, aesthetics and communities surrounding the design, building and performance with hybrid interactive instruments. We espouse an expansive definition of the hybrid instrument that includes "a device for the production of sound/musical sound," as well as "a means whereby something is achieved, performed, or furthered" (from merriam-webster.com). We study the process of translating gesture into another sensory medium (e.g. sound or light). Our approach to instrument design will depart from the double meaning embedded in the notion of composing instruments: first, consideration of instrument building as an act of composition; second, instruments that compose of their own right. While emphasis is placed on musical instruments, course work will also encompass instruments that produce light, image, movement, etc. This course unfolds in two phases: literature review and individualized projects. The first half of the course will introduce students to a wide range of existing examples from contemporary music and composition, installation art and human-computer-interaction. Students will study theoretical and computational frameworks for working with gesture in instrument design. Topics of interest include: gesture data acquisition, data analysis, and mapping gesture data to hybrid-software/hardware computational systems that generate sound/image/movement. We will investigate the software and hardware technologies underlying the design and fabrication of hybrid instruments with electronics, sensors, signal processing, digital fabrication. The second half of the course will allow teams of students to choose an area of specialization, design and fabricate a functioning instrument. The course culminates in an event where all students demonstrate their final instruments in a performance setting.

Course Website: http://iteach.alimomeni.net

60-441 Advanced CP/SIS: Urban Intervention
Intermittent: 10 units
This course introduces students to theories, practices, and communities for critical investigation of urban spaces and play within them. The course will cover two parallel trajectories: research (literature review, lectures, readings, demonstrations) and design (three iterated individualized projects and a fourth larger scale final project). The first half of the course will introduce students to a wide range of theories and techniques within urban intervention that draw from fluxus, the situationist international, activism and hacktivism, as well as public policy, philosophy, psychology and economics. Students will study theoretical and practical frameworks for artistic intervention into public urban spaces, while concurrently researching actual sites and communities within Pittsburgh for experimentation. Students are required to conceptualized projects on larger (urban) scales, and find ways to implement their projects safely and legally by pursuing the necessary administrative, social, technical, financial steps required to create meaningful interventions in public spaces. This class will specifically explore three media for urban intervention: Sound Outdoor video projection Robotics, Autonomy and Mobility in the way of remote control vehicles (e.g. cars, quad-copters, etc.). For each theme, students are required to produce one project that is iterated twice or more. The undergraduate (60441) and graduate (60741) sections of the course meet concurrently and follow the same syllabus and assignments. In addition to the coursework documented in the syllabus, Graduate level students are expected to write a research paper suitable for submission to a notable relevant academic conference. This process includes a rough draft, revisions and a completed and formatted paper ready for submission.

60-446 Advanced SIS: Expanded Theater Fusion Studio
Intermittent: 10 units
[IDeATe collaborative course] As the boundaries between theater, art, entertainment and everyday life continue to expand through engagement with new technologies, it is critical that emerging artists and technologists be provided with the tools, language, and vision to thrive in the new millennium. Expanded Theater will reanimate classical modes of performance with media, networks, robotics, locative applications, and mobile systems. Considering theater as an ancient technology of mass participation and social cohesion, this fusion studio explores how emerging technologies can expand upon the basic theatrical relationships in new and culturally relevant ways. Collaboration and integration of design, media and storytelling is critical to this approach. Experimentation with new forms can reanimate the basic values of theater; the essential nature of a live event, the possibility of visionary spectacle, and the creation of meaning in dialogue with an audience. Expanded Theater is an opportunity to explore avenues outside of traditional theatrical production modes and beyond each student’s individual discipline. The curriculum combines resources from Carnegie Mellon’s Schools of Art and Drama, Integrative Design, Arts, and Technology (IDeATe), the Emerging Media Masters (EM2), Computer Science, the Robotics Institute, and their collaborators across the university in a new configuration. Expanded Theater will explore domains ranging from site specific and networked-based performance and interventionist practices, to pervasive social media technologies and their influence on interpersonal communication. The goal is to investigate contemporary languages that allow authors, actors and technologists to collaborate in ways that push beyond our present understanding of theatrical production and reception. This course alternates between two modes of research and design.

60-450 Advanced DP3: Drawing
Intermittent: 10 units
Studio focus on drawing experiences designed to develop observational, compositional, technical, expressive, and conceptual skills. Emphasis on independent work, and on the integration of drawing with work in other media.
Prerequisites: 60-150 and (60-151 or 60-160)

60-453 Advanced DP3: Painting
Fall and Spring: 10 units
In this course you will be encouraged to expand your skills and develop a personal vision, while maintaining a spirit of investigation into the developmental process, the magic, the illusion and the physical reality of painting. The professor will act as critic and advisor as students work independently developing self-generated ideas and setting personal goals. We will meet as a class for group critiques, discussions, presentations on the practical aspects of the profession, and slide lectures on contemporary artists and their work.
Prerequisite: 60-250
60-455 Advanced DP3: Intaglio
Intermittent: 10 units
60-455 Advanced PDP: Intaglio. Advanced intaglio studio focuses on the development of additional techniques such as lift and soft grounds, photographic processes, color and multiple plate printing, and viscosity printing. Emphasis will be placed on artistic/image development in relationship to the print as a democratic multiple. In addition cross disciplinary work will be encouraged within other printmaking studios to expand the visual vocabulary and image development.
Prerequisite: 60-251

60-456 Advanced DP3: Lithography
Intermittent: 10 units
Studio focus on the processes and issues of lithographic printmaking. Includes both traditional stone and aluminum plate processes along with photographic techniques.

60-458 Advanced DP3: Serigraphy
Intermittent: 10 units
Advanced PDP: Serigraphy. Studio focus on processes and artmaking issues related to water-based/acrylic serigraphy. Emphasis on individual conceptual/artisanal development. Material fee required.

60-462 Advanced DP3: Rethinking Mixed Media & What's Flat
Intermittent: 10 units
This course focuses on your ability to generate ideas and execute a strong and significant body of work in 2D mixed media. As an advanced student you are expected to reach some conclusion about the direction of your work and want to produce and develop your work. Research and experimentation in medium and process is expected along with developing ideas and exploring content and expression. Periodic writing will be required to support your creative research. There is a long history of 2D artists mixing materials and generating more than meets the eye. Materials, process and content will be discussed with emphasis on mixing and integrating orthodox and unorthodox mediums as a way to develop image making that goes beyond the ordinary. Medium process will be discussed but instruction in learning a medium (techniques) will generally not be covered. A variety of critique formats will be maintained weekly along with periodic slide lectures and discussions on artists and critical articles. Where does 2-D end and 3-D begin and have you heard of the talking 2-D work or the 2-D performance, or the flat tube? This course is about engaging in the mixing/combining of 2-D work, including installation, site consideration and other potential mediums.
Prerequisites: 60-150 and 60-250

60-463 Advanced DP3: Print/Draw
Intermittent: 10 units
This course will focus on the development of technical and conceptual strategies in drawing AND/OR print media. With students working in either or both areas, the class the function as a studio workshop in which students set personal goals and strive to produce a significant body of work. Students will be expected to experiment and to create their own directions and possibilities, while investigating a range of materials and considering the relationship between form and content. Individual and group critiques will help guide students; presentations on artists, readings, and field trips will contextualize the group's work.

60-464 Advanced DP3: Expanding the Graphic Novel
Intermittent: 10 units
In this course, students will critically and creatively engage the medium of comics to both learn how to better communicate their ideas through this form as well as explore its boundaries. We will investigate the historical roots of comics and of the graphic novel? as well as study the structure of a sequential narrative. We will research how various comic artists employ these tools (artists such as, Chris Ware, Alison Bechdel, Lynda Barry, Ivan Brunetti, Michael Deforge, Julia Wertz, Kevin Huizenga, Dash Shaw, Marjane Satrapi etc). Students will also be expected to think beyond the commonly accepted notions of a graphic novel and to question the relevancy of their work in this medium. Finally, students will produce a new body of work that will be compiled and published in a collective anthology.

60-467 Advanced DP3: Printinstallation
Intermittent: 10 units
This course offers an expansive approach to print media. It will examine the role of print media in and as installation, addressing the medium in context and as a multiple. Print media, here, is defined as work that may involve traditional practices such as, intaglio, lithography, silkscreen, and contemporary distribution practices such as zines, file sharing and digital imaging. Experimental methods of print production are welcome. Students will generate work to be exhibited, performed or situated for review during individual meetings or group critiques. There will be readings and presentations on contemporary artists, and School of Art Lecture discussions. This course will emphasize student-conceived and executed projects guided by faculty feedback.
Prerequisite: 60-251

60-471 Advanced DP3 Drawing: The Figure, Anatomy and Expression
Intermittent: 10 units
For thousands of years artists have seen the human body as an object of beauty, and as a powerful metaphor for documenting the passion and the pathos of human experience. This course will focus on that complex and compelling subject. In class, students will work from the model, studying the figure as a means to heighten sensitivity, expand visual perception, and refine drawing skills. An introduction to the landmarks of anatomical bone and muscle structure will be included. Outside class, students will be encouraged to seek meaning in the humanity of the figure as a vessel for expression, be it personal, social, political, spiritual, narrative or emotional.

60-472 Advanced DP3: Mutable Landscape
Intermittent: 10 units
With camera in hand, students will explore, document and invent a sense of place in Pittsburgh. Informed by photographic history and landscape studies, students will develop their own portfolios of digital prints. As a CFA Interdisciplinary photography course, students will be encouraged to consider their photographs in the medium of their home department, and in some cases as a starting point for projects in other materials. No prerequisites.

60-475 Advanced DP3: Print Media
Intermittent: 10 units
This course offers an inclusive definition of print media that recognizes historical and contemporary tools, techniques and practice. Reproductive image making will be addressed within the context of traditional print media equipment, digital arts output and experimental methods. Essays and lectures on contemporary artists will aid student knowledge of current dialogue and strategies for addressing the printed impression. This course expands upon the theoretical and conceptual themes introduced in Print Media I with emphasis on student-conceived projects led by faculty advising.
Prerequisite: 60-251

60-486 The Art and Science of Color
Intermittent: 10 units
This interdisciplinary course will consist of a combination of chemistry lecture & labs with studio art & art history. The focus of the course will be on the intersection of painting practice with chemistry, particularly in the study of pigments of mineral & inorganic origin. This is a project course open to majors in chemistry & art. The course & its projects are designed to expand the expertise of students in each discipline, while exposing them to the methods, demands, & aims of the other. Historically, the craft of painting was closely linked to the practice of pigment manufacture, with painters procuring their materials in raw form directly from the chemist/apothecary, & often performing themselves the final purification & grinding of the minerals into pigments. Color has been used by both artists & alchemists as a benchmark for tracking changes while creating new materials based on minerals found in nature. With the advent of mass-produced & marketed art materials in the nineteenth century, the distance between chemist & artist increased until the two worlds have little to do with one another. This class aims to reconnect the two disciplines for a study of their common ground. Students will learn about the origin of the color of minerals with primary focus on colors that originate from electronic transitions & will work collaboratively on hands-on laboratory research projects that involve the synthesis, characterization, & use of inorganic pigments. In the studio, they will make their own egg-tempera paints, & use them in painting projects designed to increase color skills as they learn about the history of pigment use. Students will collaboratively design & carry out final projects which combine research, experimentation & creative work. A series of researchers who work at the boundary between art & chemistry will give guest lectures, & the class will make field trips to local research labs & museums.
60-492 Inner Geographies
Intermittent: 10 units
Inner Geographies: On Discovering the Inward Landscapes and Journeys of the Mind and Body This course will discover and explore the inward subconscious topologies of perception, thought (logics), memory, imagination, intuition, the hypnagogic (between dream and waking), dreaming, telepathy, meditation and trance in relation to artistic and other forms of creativity (writing, science, and technologies). The general purpose of the course is to familiarize students with their own unique individual and specific patterns of creativity and thereby reveal new artistic and other unanticipated disciplinary potentials projects. Through simple exercises these aspects of the creative mind and body will be revealed and explored, noted, organized and mapped toward simple formal objects and outcomes, and at the same time, toward a chosen artistic projects or research. All students will evolve a final project. Our texts will include: Anton Ehrensweig, "The Hidden Order of Art", Edward Hall, "The Hidden Dimension", Gaston Bachelard, "The Psychoanalysis of Fire", Carl Gustuv Jung, "The Red Book", Matin Heidegger, "Being and Time", and other excerpted texts. Students will be expected to learn, articulate and use new creative mental tools and methodologies in the creation of their projects.

60-499 Studio Independent Study
Fall and Spring
A tutorial studio in which an Art student works individually on a self-generated project under the supervision of a School of Art faculty member. Prior to enrolling in Independent Study, the student must complete an "Independent Study Proposal" form (available in the bins on the 3rd floor of CFA) which is signed by the faculty member and the Assistant Head of the School of Art. Prerequisite: Art Junior/Senior status and by instructor permission.

60-540 The Artist as Entrepreneur
Fall: 3 units
This course is designed for senior (BFA, BHA, BSA and BCSA) and graduate Art students who wish to continue making, showing, and selling work after completing their studies. The focus of this course is on helping students develop the skills and knowledge necessary to establish themselves as working professional artists. Topics include: marketing and promotions, galleries and other exhibition opportunities, pricing work, contracts, taxes and related matters, dealers, grants and other fundraising, other income sources, finding health insurance, and finding and connecting with a community of artists. Students will create professional materials including a resume, business card, promotional post card and mailing list - and will be graded on these materials. There will also be required readings, class speakers and graded journals in response to these activities.

60-590 Internship
Fall and Spring
Art Internships are open to all BFA, BHA, BSA and BCSA Art students. Internships may take place with appropriate individuals or organizations within or outside of Carnegie Mellon University. The requirements for an internship are in the School of Art Handbook (available at the School of Art website). Prior to being enrolled for an internship, students must complete an Internship Proposal Form, which defines the goals of the internship. This form must be signed by their site supervisor and approved by the Assistant Head of the School of Art. Forms are available in the bins on the 3rd floor of CFA. Junior and Senior Art majors only.

60-756 Curators, Artists, Audiences & International Markets
Intermittent: 9 units
How does art and artists get selected for museum shows, collections, and biennials? This course offers students an in-depth view into the multifaceted elements of the markets that influence curators, artists, and audiences. The Global Art Market is a complex structure comprised of many parts and it has been evolving for centuries. The class will provide students with a solid foundation about the history of the art market in order to gain a perspective about the rise and power of the art market today. We will examine who are the current players and operational mechanisms. We will investigate the following: Who are the key players?, Cities?, Collectors?, Professional training? And, investigate Institutions and organizations that influence the acceptance of certain artists, the rise of certain ideologies and the contraction of others. Visits to several institutions, discussions with collectors and auction sites will also occur. An analysis of the 56th Venice Biennale as a point of reference will occur in order to demonstrate why this international show has a particular slant and how the director's point of view influences the selection of artists and themes. Focus will be on the expansion of emerging markets and the influence the art world on line has on artists, curators and audiences.