Course Descriptions for Digital Arts & Sciences Majors – 2013/2014

DA 100 - Introduction to Digital Art: Time & Image
This introductory studio course explores many of the key principles, techniques and dialogues governing the creative potential of digital technologies within art and design. Topics of study include bitmap and vector-based digital imaging together with digital approaches to time-based media. The goal of the course is to empower students with an artistic and technological understanding of the subject, while encouraging an experimental approach to digital media.

DA 110 - Drawing
This perceptually based studio course serves as one of the foundations for the DA&S major. Students will learn the importance of line, value, perspective, and human anatomy through the use of media such as graphite, charcoal, and ink. The translation of the 3D world to the 2D world through drawing will be emphasized.

DA 120 - Elements of Design
In this traditional studio art course, the foundations of visual design will be studied, particularly in the fields of color theory and two and three dimensional design. Students create projects with a strong focus on basic elements such as: line, shape, texture, value, color, composition, plane, volume, and space. Other concepts, such as form vs. function and conceptual vs. perceptual creativity will also be studied.

DA 140 - Introduction to Digital Art: Form & Code
This course introduces the key principles of computer programming. Through workshops, presentations, quizzes, readings, and project-based exercises and assignments, the course embarks on an investigation into the creative possibilities of computer programming within the digital arts. The skills and concepts taught in this course set a foundation for higher level courses within e.g. game design, web programming, and computational arts.

DA 200 - 3D Digital Modeling & Imagery
This studio course introduces the creation of 3D imagery through the use of the computer. Students will gain experience through the creation and rendering of polygonal models, textures, and lights. This course will demonstrate the importance this medium has in fine art, film, advertising, and video games.

DA 207 - Media Landscapes I
Students will watch, discuss, and critique media objects such as movies and other forms of popular culture. The course focuses on historical and contemporary examples of work that offer ongoing cultural legacies and represent significant achievements within their genre.

DA 208 - Media Landscapes II
Students will watch, discuss, and critique media objects such as movies and other forms of popular culture. The course focuses on historical and contemporary examples of work that offer ongoing cultural legacies and represent significant achievements within their genre.

DA 212 - Art in Context
This course offers a critical exploration of the key themes, ideas, and dialogues that inform and guide contemporary art practices. Through readings, writings, and discussions, students will analyze artists and art movements through both historical and theoretical perspectives with a special emphasis on the position of new media technologies in contemporary art and culture.

DA 225 - Digital Painting and Illustration
This studio course teaches painting and illustration through the use of digital tools such as the computer and pen tablet. Building on the student’s previous knowledge of color theory, drawing, and design, this course will introduce a
raster-based media that facilitates the digital creation of concept art, comics, paintings, and 3D textures.

DA 250 - Interactive & Algorithmic Art
In this course, students will be introduced to artistic expressions unique to digital art. They will experiment with creating forms, motions, and interactions through the design of algorithms and the manipulation of math functions. They will learn to conceive and design art works as a dynamic process and as an inseparable combination of audience participation and its visual manifestation.

DA 300 - 3D Imagery & Animation
An advanced studio course in which students apply their 3D modeling knowledge to camera and object animations. Students will explore advanced procedures while incorporating their experience with digital video and sound editing into each project. Projects will include both digital still imagery and 3D animation shorts.

DA 310 - Digital Object Design
An advanced studio course in which students develop their 3D modeling knowledge further, through real world applications. Using surface modeling, students will design products with the industrial design industry in mind. Projects will result in printed poster presentations and objects created with equipment specializing in procedures such as rapid prototyping and computer numerical control machining.

DA 320 - Moving Images:
Motion Graphics & Animation
Focusing predominantly on the software applications Adobe After Effects and Flash, this course explores creative and experimental uses of time-based media as both a form of artistic expression and as a vehicle for presenting data and information. While primarily a studio course, techniques and skills will be taught within a wider critical framework that explores the historical and theoretical precedents and contexts surrounding motion graphics and time-based art practices.

DA 350 - Interactive Audio/Visual
This course exposes students to the latest concepts and techniques in creating interactive art works using video, audio and graphical materials. Some of the topics introduced are real-time video processing, real-time 3D, audio/visual content triggered by sensor and other physical input, and the interaction between video and audio. This is a project-oriented course. Throughout the semester students will develop collaborative projects in the format of installation, interactive performance, and other experimental or interdisciplinary art forms.

Special Topics Courses:
In DA&S Special Topics courses, students study topics not otherwise available in formal courses under the supervision of a faculty member. The specific topic and the course description for a special topics course are listed when it is offered. These courses reflect ongoing developments in digital art media and practice, which often are related to the particular faculty member’s research interests. These courses are intended primarily for advanced students who wish to pursue special interests in the field.

DA 393 - Special Topics: Creative Apps
This course is an introduction to designing and creating apps for smartphones and mobile touchscreen devices. Students will learn creative approaches and practical strategies for small screen application development through various technical frameworks that cater to varying skill levels such as Application Craft, PhoneGap and Unity3D. The class will involve hands-on workshops and a larger discussion of “app culture”. Students will be expected to produce an app for their final project. Note: We will use code simulators, so students do not have to own a smartphone or tablet to develop and test their apps.
DA 394 - Special Topics: Game Design
Concepting and Presentation
This course takes you through the beginning of designing a game: from early concept to finished game design, using conventional or agile development styles. Starting day one, students will develop concepts, and the class will select the winning pitches to be fully fleshed out. Design teams will then each work on completing the full game design document based on the pitch, and work on presenting the concept with that document, concept art, plus some interactive form presenting their idea (prototype, website, installation).

DA 400 - Directed & Collaborative Study
A studio course available to advanced students wishing to pursue further research in a specific area of interest. Meeting at the same time as DA300, this course provides an opportunity for collaboration & directed research in the specified area. This optional course gives the student a chance to expand their portfolio in preparation for a career in the digital arts.

DA 410 - Directed & Collaborative Study
A studio course available to advanced students wishing to pursue further research in a specific area of interest. Meeting at the same time as DA310, this course provides an opportunity for collaboration & directed research in the specified area. This optional course gives the student a chance to expand their portfolio in preparation for a career in the digital arts.

DA 420/421/423 - Digital Arts Independent Study
Designed primarily for a student who wishes to pursue special interests in Digital Arts for one or more semesters, this series of courses allows individual students to define independent study projects.

DA 450 - Directed & Collaborative Study
This is a studio course for advanced students interested in further developing their skills and creative thinking in interactive audio/visual art works. As an advanced course it emphasizes literature review, discussion and research on related topics and the development of high quality projects that can be included into students' portfolios.

DA 470 - Motion Capture Production
This course introduces the use of motion capture in animation, game and experimental art; teaches the pipeline of motion capture production from lab setup, data capture, to animation creation using software such as Motion Builder and Maya.

DA 480 - Internship in Digital Arts
These internships are designed to provide practical work or research experience for the Digital Arts & Sciences majors. Generally, students work with a professional on projects in the field of digital arts, interactive design, advertising, and/or digital media design and production.

DA 490 - Undergraduate Teaching Assistantship in Digital Arts & Science
Students assist a faculty member in teaching a Digital Arts & Science course. Students engage in substantial pedagogical work beyond mastery of the target course material. Such activities might include mentoring students in course work, leading class discussions or demonstrations, designing or assessing course modules.

DA 491 - Professional Practice
This is the first semester in the advanced studio sequence in which the DA&S major applies the knowledge and skills developed in the program to design a visual portfolio under the directed study of a specific faculty member. Each student should choose the proper section which correlates with the faculty member who they wish to work with for the semester.

DA 492 - Senior Studies
The capstone of the advanced studio sequence in which DA&S seniors integrate the knowledge and skills developed in the program to complete their portfolios by working independently on a
large-scale project. Each student should choose the proper section which correlates with the faculty member who they wish to work with for the semester.

CS 141 - Introduction to Computer Science I
This course is an introduction to basic concepts of computer science, with emphasis on programming. Computer programming is to the study of computer science what writing is to the study of literature. It is a primary tool for implementing algorithms in computer science. Fundamental techniques for software design and implementation will be covered and these concepts demonstrated in a programming language like C++. Additional topics include top-down modular design, developing general-purpose software tools, procedural and data abstraction, algorithms, and an introduction to recursion and dynamic data structures.

CS 142 - Introduction to Computer Science II
This course will further develop and expand upon the topics introduced in CS 141. Advanced programming techniques will be covered, with extensive use of recursion and dynamic data structures. Abstract data types, including lists, queues, trees and graphs, will be studied. Specific emphasis will be given to tree traversals and binary search trees. Algorithms for searching and sorting will be explored along with methods of comparative analysis. The topics in this course provide an essential foundation for the further study of computer science.

CS 452 - Computer Graphics
An introduction to computer graphics. Graphics hardware, algorithms for generating and displaying two and three-dimensional geometric figures, animation, interactive displays. Programming projects using OpenGL will be assigned.

MA 131 - Calculus I
Functions and graphs; derivative concept and formulas, including chain rule and implicit differentiation; integral concept; the Fundamental Theorem of Calculus; properties and applications of the derivative, including max-min problems and graph sketching; exponential, logarithmic, and inverse trigonometric functions.

MA 132 - Calculus II
A continuation of MA 131. Properties and applications of the integral, including areas, volumes, arc length and differential equations; integration techniques, including parts, partial fractions, trigonometric substitution, and numerical integration; indeterminate forms; improper integrals; infinite series and Taylor series; introduction to polar coordinates, complex numbers, and parametric equations.

MA 230 - 3-D Space and Projective Geometry
An introduction to the mathematics of 3 dimensional space, including vector functions, elementary vector calculus and partial derivatives, introductory projective geometry especially as applied to projections of 3-D images on two dimensional media, translations, rotations and an introduction to their matrix representations. A student may not receive credit for both MA230 and MA231. MA231 satisfies any requirement for MA230.

MA 231 - Calculus III
Vectors and vector-valued functions; functions of several variables; partial differentiation, including the chain rule, gradients, and maxima and minima; multiple integration, including polar, cylindrical, and spherical coordinates; vector calculus, including Green’s, Divergence, and Stokes’s Theorems. A student may not receive credit for both MA230 and MA231. MA231 satisfies any requirement for MA230.

MA 339 - Applied Linear Algebra
This course is an introduction to matrices and linear algebra with applications in engineering and science. Algebra of matrices and systems of linear algebraic equations. Rank, inverse, eigenvalues, eigenvectors, vector spaces, subspaces, basis, independence, orthogonal projection, determinant. Other topics may
include: systems of differential equations, numerical methods, linear programming.

MA 377 - Numerical Methods
Floating-point numbers and sources of error, direct solution of linear systems, nonlinear equations, interpolation, numerical integration and numerical solution of initial value problems in ordinary differential equations.

STAT 282 - General Statistics
Topics include descriptive statistics, probability distributions, use of computer packages for statistical data analysis, point and interval estimation, hypothesis testing, two-sample tests, comparisons, measuring and testing association, correlation, regression, and analysis of variance (ANOVA). Emphasis on applications to life sciences, social sciences, business.

STAT 381 - Probability
Sample spaces; combinatorial analysis, the concept of probability; random variables, expected values; and distribution functions including: the hypergeometric, binomial, Poisson and normal distributions; an introduction to Poisson processes and queues; and in introduction to statistical inference including hypothesis testing and confidence intervals.

STAT 383 - Probability and Statistics
A calculus based introduction to topics in probability and statistics. Probability content includes events and sample spaces, the basic axioms of probability, discrete and continuous random variables (definitions and basic characterizations such as the means and variances) including binomial, Poisson, normal, exponential, student-t, and uniform distributions. Topics in statistics include the central limit theorem, statistical inference including confidence intervals and hypothesis testing for one and two sample data, and linear regression. Students will use statistical software to read data and interpret software generated output.

PH 131 - Physics I
Calculus-based general physics course covering elements of Newtonian mechanics and thermal physics. Laboratory experiments key to the lectures to illustrate and demonstrate some of the physical principles and concepts.

BY 130 - Contemporary Issues in Environmental Science
This course examines how human activity impacts the environment. Topics include air and water pollution, environmental systems management, industrial ecology and environmental policy with emphasis on the multidimensional aspects of currently environmental issues. Case studies of chemical exposures, life cycle assessments, and integrated resources management will be used to discuss the process of environmental decision making.

COMM 210 - Theory of Rhetoric for Business, Science, and Engineering
This course introduces students to a rhetorical perspective of communication. Students will develop their abilities to: identify and analyze communication problems and issues in a given context; develop effective arguments; and communicate with others using various communication media (written, electronic, oral, visual). The course contains a substantial reading component, as well as instruction, practice, and feedback in writing and speaking.

COMM 214 - Computer Applications in Media
This class introduces tools and concepts for communicating in the computer age. Students learn about operating environments (e.g., DOS, UNIX, and X-Windows), text generation programs (e.g., MicroEmacs, WordPerfect, and PageMaker), library systems, and network and web tools (e.g., FTP, E-Mail, Electronic Journals, Dreamweaver, HTML, FLASH). Labs conducted via the network enable students to share files with the instructor, correspond with other members of the class, and download freeware from remote sites. Using the online services,
students will conduct research and produce online, hyperlinked bibliographies.

COMM 217 - Introduction to Public Speaking
This lecture and laboratory course is designed to enhance the individual's effective public communication by giving him or her a variety of speaking roles in different situations. The objective of the course is to develop an awareness of the speaking potential of each student with emphasis on listening ability, nonverbal behavior, idea organization and effective use of language and visual aids.

COMM 221 - 2D Digital Design
This introductory studio course explores many of the key principles, techniques and dialogues governing the creative potential of digital technologies within art and design. Topics of study include bitmap and vector-based digital imaging together with digital approaches to time-based media. The goal of the course is to empower students with an artistic and technological understanding of the subject, while encouraging an experimental approach to digital media.

COMM 310 - Mass Media and Society
This course consists of readings in and analysis of modern media communication and its influence. It includes the history of the media, media control, and various media effects on special audiences and on the development of other media. The course centers on an analysis of how society controls the media and how the media controls society. The course is based on discussion of opinion pieces and other readings.

COMM 312 - Public Relations
This course will introduce students to the history, nature, theory and practice of public relations in the United States by examining the activities of public relations professionals and firms. Attention will be given to the communication process and how persuasion is employed to influence various publics via traditional PR strategies and approaches, as well as how emerging media are changing current practice in various fields (e.g., health care, entertainment, government, and non-profits). Frequent practical exercises, communication tasks, and activities could include developing written and/or video press releases, maintaining a blog, running a press conference, planning events for a PR campaign in coordination with a client’s goals, creating ‘press kits,’ developing strategies for building relationships with the media, developing a crisis communication plan for an organization, and associated oral presentations.

COMM 313 - Professional Communication
This course presents students opportunities to learn how to design and present effective professional documents. The course emphasizes a rhetorical approach to analyzing the issues and details important to the communication to be produced (e.g., audience, style, format, purpose). Students will practice writing both individually and collaboratively and will be expected to present their work orally on occasion. Students will encounter topics such as, but not limited to, abstracts, email, instructions, letters, memoranda, proposals, and various types of reports. Students of any major may take this course.

COMM 320 - Digital Photography
In this course students will study and practice digital photography. They will explore digital photography as both an art form and a communication technique. The course covers the use of a the camera, composition, and the history of photography. Students are not required but encouraged to have their own digital cameras to use for this course. A limited number of cameras will be available from the C&M Dept for students to signout to use for assignments.

COMM 322 - Typography and Design
This course introduces students to typography as a design discipline. We will discuss the history and current state of typography, analyze the ways that type and design contribute to different meanings, and produce specific
designs using type and other graphic elements in print and online forms.

COMM 327 - Digital Video Production I
As the WWW becomes better equipped to transmit multimedia, the uses of digital video to enhance and fulfill a variety of communication objectives is increasing. This course presents students with a hands-on opportunity to gain knowledge and experience in digital video production (conceptual development scripting, production planning, execution, and editing). Students will work together in small teams to write and produce creative, instructional, training, and public relations videos. Although a text will be used, emphasis will be on practical exercises.

COMM 330 - Science Journalism
Popular media has a tremendous influence on the production and reception of modern science. News and magazine articles, television shows, and movie documentaries influence public policy on science, research funding, the general public's interest in and understanding of scientific research, and even young people's willingness to choose a career in science. Drawing on student research experience in undergraduate science, students will learn about reporting science using a range of approaches and media. The class will investigate the influence popular accounts of science have on multiple audiences including specialist and non-specialist groups. Assignments will challenge students to understand the societal implications of scientific research and to identify and address different constituent positions and interests.

COMM 341 - Introduction to Web Design
Balancing concerns of visual communication, user interaction and effective design strategies with hands-on coding and practical expertise, this course introduces students to the principles and practices governing the fundamentals of designing and developing online content.

COMM 345 - Information Architecture
Information Architecture explores methods for structuring large information spaces, including WWW sites and virtual collaborative spaces. Drawing on theories of usability, technical communications, communication theory, visual theory, and cultural studies, students will learn how to work with users, draft project plans, storyboard and map information spaces, and develop finished projects. The class culminates with a team-based communication and design project for a real-world client. Participation involves work in both theoretical and applied areas.

COMM 360 - Audio Production
This course covers basic audio production including topics such as acoustics, microphones, speakers, amplification, effects, recording, and editing. Students will learn methods for recording, editing, and mixing music and spoken word as well as basic sound design for movies or video games. The course will cover include reading about concepts and practices as well as extensive hands-on work in the studio.

COMM 391-395 - Special Topics
These courses reflect ongoing developments in communication practice and theory, often related to the particular faculty member’s research interests.

COMM 391 - Special Topics: Crisis Management Communication
From major events like accidental toxic pollution, tainted foods and medicines, criminal behavior by employees, and many other serious, unexpected problems, many organizations are vulnerable to a variety of communication crises. In this course students will examine the underlying principles that guide effective crisis communication practices and develop plans that may help organizations deal with unplanned for problems before they happen as well as handle the ones that do.
COMM 393 - Special Topics: Multi Camera Video Studio Production
This course will introduce and train students in the technical elements and production processes for multi-camera DV studio production through hands-on exercises, program development and actual production. Students will be required to learn and perform the variety of roles and jobs that are integral to studio production. Emphasis will be placed on non-fiction genres of program development and execution: news, civic media and documentaries.

COMM 410 - Theory and Philosophy of Communication
This course exposes students to a range of communication theories, including those allied to rhetoric, linguistics, psychology and philosophy. Through reading and discussion, students do in-depth studies of such concepts as self-knowledge, listening and nonverbal communication, propaganda and persuasion, prejudice and stereotypes, professional jargon, communication motivations and words and values. Classical as well as modern theories are covered, and assignments require students to test theory against real or hypothetical rhetorical situations.

COMM 412 - Organizational Communications and Public Relations Theory
This course examines the nature of the organization and the strategic communication processes that build relationships between organizations and their publics. Through assigned readings, lectures, and class discussion and analysis, students are exposed to communication theory and trends relevant to the workplace. Students will examine the communicative implications of such topics as organizational structure and goals; corporate culture; managerial schools of thought; leadership styles; superior-subordinate relationships; and communication consulting. In addition, students will address communicative implications in a changing economy; employee loyalty and dissent; gender and the workplace; and corporate image in crisis situations. This course seeks to provide students with insight into the organizational context, not only to make them more effective communicators but also to help them make informed choices in their careers.

COMM 417 - Business and Professional Speaking
This course covers the principles of interviewing, group communication and public speaking. Special attention is given to professional presentations by business or technically oriented speakers. The course also provides a basic introduction to communication theory.

COMM 420 – 425 Communication: Independent Study
Designed primarily for a student who wishes to pursue special interests in communication for one or more semesters, this series of courses allows individual students to define independent study projects.

COMM 427 - Digital Video Production II
COMM 427 builds on the concepts and skills learned by students in COMM 327 (Digital Video Production I). This is a hands-on course that will include: conceptual, aesthetic and technical production of the film-style, single-camera, 30-second spot; instructional and training program development; and live multi-camera studio production for interactive video teleconferencing and streaming media on the WWW. Although a text will be used, emphasis will be on practical exercises, with students frequently working in small teams.

COMM 428 - Public Debate and the Environment: Reading and Writing Environmentally
The past twenty-five years have seen environmental issues increasingly debated both in public and in scientific forums. This course will focus on a variety of documents related to current environmental issues, many relevant to northern New York, in order to examine the
rhetoric deployed in such documents by industry, environmental organizations, scientists, and politicians. Examples of topics include acid rain, pollution of the St. Lawrence River, and cleanup of an EPA Superfund site. Using contemporary rhetorical theories, we will examine the processes readers and writers engage in as they attempt to create effective environmental documents. Students will engage in discussion, critical reading, case studies, individual research, and possibly, field trips.

COMM 440 - PHP/My SQL Interactive Design Fundamentals of using PHP to create dynamic web pages for storing and retrieving data via a My SQL database.

COMM 441 - Javascript Interactive Design The course covers the basics of programming interactive Web pages through HTML5, The Document Object Model (DOM), JavaScript, AJAX, and jQuery. Such up to date tools enable student designers to achieve more efficient and exciting Web pages while reducing server loads and Internet traffic.

COMM 442 - Advanced World Wide Web Interface Design This course investigates the latest techniques for creating World Wide Web site design. The course covers server side (CGI) design with HTML5, Perl and MySQL. In project teams and individually, students design CGI interfaces with immediate practical use. (Prior experience with HTML5, Windows, Unix, and a programming language is desirable.)

COMM 444 - Linux Web System Administration This course covers the installation and administration of a Unix (Linux) web site. Students will get hands-on experience with basic hardware configuration, installation of Linux and the Apache Web server, server configuration, account administration, Unix tools, scripting, CGI interfaces using Perl, Java applets, site monitoring, report generation, and user-friendly interface design.

COMM 470 - Communication Internship These internships are designed to provide practical work experience for the communication major or concentration student. Students work with a professional on communication projects areas such as public relations, publication design, advertising, editing, or digital media design. Students can earn credit for only one course for each internship experience.

COMM 480 - Undergraduate Teaching Assistantship in Communication & Media Students assist a faculty member in teaching a Communication & Media course. Students engage insubstantial pedagogical work beyond mastery of the target course material. Such activities might include mentoring students in course work, leading class discussions or demonstrations, designing or assessing course modules.

COMM 490 - Senior Communication Internship These internships are designed to provide practical work or research experience for the senior communication major or concentration student. Generally, students work with a professional on projects in the field of public relations, publication design, advertising, editing, and/or digital media design and production.