Three-Dimensional Modeling and Design
Fall, Spring, 3(2-2) P: CAS 204 and CAS 208 R: Open to students in the Department of Telecommunication, Information Studies and Media or in the Design Specialization or in the Game Design and Development Specialization or in the Information Technology Specialization. SA: TC 241
Brainstorming, planning, implementing, and troubleshooting applications and interfaces for interactive media. Basic principles of programming for interactivity.

Film Directing
Fall, 4(2-4) Interdepartmental with English. Administered by English. P: (ENG 230 and TC 243) and completion of Tier I writing requirement R: Approval of department; application required. Concepts and techniques for directing in styles most associated with the art of film. Studies of innovative film directors. Skills of film directing, including script and shot breakdown. Directing actors and crew. Directing on location.

Compositing and Special Effects
Fall, 3(1-4) P: (CAS 201 and CAS 202) and (CAS 205 or CAS 206 or CAS 207) or THTR 219 R: Open to students in the Department of Telecommunication, Information Studies and Media or in the Department of Theatre or in the Documentary Studies Specialization or in the Fiction Film Production Specialization. SA: TC 437
Conceptual and technical use of animation and compositing software for television, cinema, interactive media, and live performance.

Film Style Production for Cinema and Television
Fall, Spring, 3(2-2) P: CAS 112 and CAS 201 and CAS 202 R: Open to students in the Department of Telecommunication, Information Studies and Media or in the Documentaries Specialization or in the Design Specialization or in the Fiction Film Production Specialization. Advanced film style planning, techniques, and aesthetic principles for cinema and television production.

Multi Camera Production for Television
Fall, Spring, 3(2-2) P: CAS 112 and CAS 201 and CAS 202 R: Open to students in the Department of Telecommunication, Information Studies and Media or in the Documentary Studies Specialization or in the Design Specialization or in the Fiction Film Production Specialization. Conceptualizing, designing, planning, producing, directing and evaluating multi-camera video programs.

Basic Audio Production
Fall, Spring, Summer, 3(2-2) P: CAS 112 and CAS 201 and CAS 202 R: Open to students in the Department of Telecommunication, Information Studies and Media or in the Documentary Studies Specialization or in the Design Specialization or in the Fiction Film Production Specialization. Basic audio production techniques. In-depth audio and radio industry analysis. Media writing.

Web and Mobile Game Design
Fall, 3(2-2) P: TC 331 or CSE 232 R: Open to students in the Department of Telecommunication, Information Studies and Media or in the Department of Computer Science and Engineering or in the Game Design and Development Specialization. Design and development of digital games for the web and mobile platforms.

Three-Dimensional Computer Animation
Spring, 3(2-2) P: TC 247 R: Open to students in the Department of Telecommunication, Information Studies and Media or in the Design Specialization or in the Game Design and Development Specialization.
How aesthetic skill, technical competency, and engaging performance are woven together to create compelling animation using 3D computer graphics. Use of industry standard software to create, manipulate and render synthetic characters and their environments.

Advanced Lighting and Camera Techniques
Fall, Spring, 3(1-4) P: TC 341 R: Open to students in the Department of Telecommunication, Information Studies and Media or in the Documentary Studies Specialization or in the Fiction Film Production Specialization.
Advanced techniques for manipulation of light and image characteristics in film and television settings.

Client-Side Web Development
Fall, 3(2-2) P: (CAS 204 and CAS 205) or TC 331 or CSE 232 R: Open to students in the Department of Telecommunication, Information Studies and Media or in the Department of Computer Science and Engineering or in the Design Specialization or in the Information Technology Specialization.
Development of web sites, services, and applications that employ primarily client-side technologies.

Producing For Cinema and Television
Spring, 3(3-0) P: (CAS 201 and CAS 202) and CAS 112 R: Open to students in the Department of Telecommunication, Information Studies and Media or in the Documentary Studies Specialization or in the Design Specialization or in the Fiction Film Production Specialization.
Conceptualizing, designing, planning, and developing projects for cinema and television.

Media Research
Fall, Spring, Summer, 3(3-0) Interdepartmental with Advertising. Administered by Advertising. R: Open to undergraduate students in the College of Communication Arts and Sciences. SA: ADV 340, TC 376
Applied media research methods, practices, techniques and ethics in media settings.

Server-Side Web Development
Spring, 3(2-2) P: TC 349 R: Open to students in the Department of Telecommunication, Information Studies and Media or in the Department of Computer Science and Engineering or in the Information Technology Specialization or in the Information Technology Specialization. SA: TC 449
Development of advanced Web sites, services, and applications that employ both client-side and server-side technologies.
Telecommunication—TC

361 Information and Communication Technology Management
Fall. 3(3-0) P: TC 201 or CSE 231
Technologies and organizations that support data communications infrastructure. Case studies of businesses that develop the infrastructure.

362 Web Administration
Spring. 3(2-2) P: TC 331 or CSE 232 RB: (TC 361 or concurrently) or (TC 349 or concurrently) R: Open to students in the Department of Telecommunication, Information Studies and Media or in the Department of Computer Science and Engineering or in the Information and Communication Technology for Development Specialization or in the Information Technology Specialization. Administration of Web servers and the services necessary to support modern information applications.

401 Topics in Media Impacts on Society
Fall, Spring. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course. P: TC 101 and Completion of Tier I Writing Requirement R: Open to graduate students or undergraduate students in the Department of Telecommunication, Information Studies and Media. SA: TC 239, TC 339, TC 375

411 Collaborative Documentary Design and Production (W)
Spring. 3(2-2) Interdepartmental with English and Journalism and Writing, Rhetoric and American Cultures. Administered by Telecommunication. P: Completion of Tier I Writing Requirement R: Open to students in the Documentary Studies Specialization. Design and development of documentaries in a team setting using video and audio, still photography, web design, and print media. Participation in a production cycle including idea generation, research, design, production, and distribution.

419 Digital Design for Live Performance
Spring. 3(2-2) A student may earn a maximum of 6 credits in all enrollments for this course. Interdepartmental with Theatre. Administered by Theatre. P: (THR 219 and THR 219L) or (THR 337 or TC 337 or TC 341) RB: THR 211 or THR 211L or THR 212 or THR 212L or THR 214 or THR 214L or THR 216 or THR 216L
Creating digital performance media through script, technology advancement, and production analysis. Practical application through digital rendering, video production and software exploration.

435A Creating the Fiction Film I
Fall. 3(2-2) Interdepartmental with English. Administered by English. P: ENG 335 R: Approval of department.
Creation of a short film, including scripting, conceptualization and planning, shooting, and rough editing.

435B Creating the Fiction Film II
Spring. 3(2-2) Interdepartmental with English. Administered by English. P: ENG 435A
Finishing a short film, including fine editing, color correction, music composition, sound mixing, and Foley work. Developing web promotion, marketing strategies, and distribution.

442 Design of Cinema and Television Projects (W)
Fall, Spring. Summer. 3(2-2) P: TC 341 and Completion of Tier I Writing Requirement R: Open to juniors or seniors or graduate students in the Department of Telecommunication, Information Studies and Media.
Design and development of television and cinema projects in a team setting. Participation in a production cycle including planning, budgeting, design, proposal writing, production, testing, and evaluation. Issues of professionalism, ethics, and communication.

443 Audio Industry Design and Management (W)
Fall, Spring. 3(2-2) P: TC 343 and Completion of Tier I Writing Requirement R: Open to juniors or seniors or graduate students in the Department of Telecommunication, Information Studies and Media.
Advanced audio production specializing in multi-channel techniques. Industry focus on all aspects of the audio field.

444 Information Technology Project Management
Spring. 3(3-0) Interdepartmental with Computer Science and Engineering and Information Technology Management. Administered by Information Technology Management. P: Completion of Tier I Writing Requirement R: Open to students in the Information Technology Specialization. Practical training and experiences in design, testing, and launch of new information technologies and systems.

445 Game Design and Development I
Fall. 3(2-2) P: TC 349 or TC 361 or CSE 331 or CSE 335 or STA 360) and Completion of Tier I Writing Requirement RB: TC 247 or TC 347 or CB: TC 247 or TC 347 R: Open to students in the Design Specialization or in the Game Design and Development Specialization and open to graduate students in the Department of Telecommunication, Information Studies and Media.
Design, architecture, and creation concepts related to the development of interactive digital games.

447 Advanced Three-Dimensional Animation Workshop (W)
Fall. 3(1-4) P: TC 347 and Completion of Tier I Writing Requirement RB: TC 337 R: Open to juniors or seniors or graduate students in the Department of Telecommunication, Information Studies and Media or in the Design Specialization or in the Game Design and Development Specialization or approval of department.
Design of advanced 3D computer graphic animation.

450 Human Computer Interaction and User Experience Design (W)
Fall, Spring. 3(2-2) P: (TC 331 or TC 346 or TC 349) and Completion of Tier I Writing Requirement R: Open to juniors or seniors or graduate students in the Department of Telecommunication, Information Studies and Media or in the Department of Computer Science and Engineering.
Development, formalization, and communication of information designs. Gathering and structuring information and requirements to meet technological, personal, and business communication goals. Systematic usability evaluation of information designs.

452 Media Strategy (W)
Fall. 3(3-0) P: (TC 300 and TC 301) and Completion of Tier I Writing Requirement R: Open to juniors or seniors or graduate students in the Department of Telecommunication, Information Studies and Media or in the Information Technology Specialization. Strategic options, with their attendant risks and opportunities, available to media firms in an industry that is being transformed by new information and communication technologies.

455 Game Design and Development II
Spring. 3(2-2) P: TC 445 and Completion of Tier I Writing Requirement RB: TC 247 or TC 347 R: Open to students in the Design Specialization or in the Game Design and Development Specialization and open to graduate students in the Department of Telecommunication, Information Studies and Media.
Advanced design, architecture, and creation concepts related to the development of real-time interactive 3D design for gaming, simulation, and immersive virtual environments.

458 Project Management (W)
Spring. 3(3-0) P: (TC 301) and completion of Tier I writing requirement R: Open to juniors or seniors or graduate students in the Department of Telecommunication, Information Studies and Media or in the Applied Engineering Sciences Major. Not open to students with credit in TC 499.
Managing complicated and multidisciplinary projects. Organizing projects into manageable elements: scope, time, cost, quality, human resources, communication, risk, procurement, and integration. Communicate with stakeholders. Analyze organizations. Develop a budget. Identify roles and responsibilities during the critical planning, deployment, and evaluation stages.

462 Social Computing (W)
Fall. 3(2-2) P: (TC 349 or TC 361) and Completion of Tier I Writing Requirement R: Open to juniors or seniors or graduate students in the Department of Telecommunication, Information Studies and Media or in the Information and Communication Technology for Development Specialization. SA: TC 462C
Social and technological perspectives on how people collaborate using information and communication technology. Experience with using multiple collaboration platforms and analysis of differences between enabling technologies.

472 Electronic Commerce (W)
Spring. 3(2-2) P: (TC 349 or TC 361) and completion of Tier I writing requirement RB: TC 359 or concurrently R: Open to juniors or seniors or graduate students in the Department of Telecommunication, Information Studies and Media or in the Information and Communication Technology for Development Specialization or in the Information Technology Specialization SA: TC 462C
Technologies, business models, and organizational and social implications of electronic commerce. Design of e-commerce sites.
480 Information and Communication Technologies for Development
Fall, 3(3-0) Interdepartmental with Engineering. Administered by Telecommunication. R: Open to students in the College of Engineering or in the Department of Telecommunication, Information Studies and Media or in the Information and Communication Technology for Development Specialization. Role of information and communication technologies in facilitating social, political, economic, and environmental change in developing nations.

488 Information and Communication
Technology Global Corps Field Study (W)
Spring, Summer. 3 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. Interdepartmental with Engineering. Administered by Telecommunication. P: Completion of Tier I Writing Requirement R: Open to students in the College of Engineering or in the Department of Telecommunication, Information Studies and Media or in the Information and Communication Technology for Development Specialization. Implementation of an information and communication technology project in a developing country, rural region of the U.S., or low-income urban area. Includes on-campus preparation followed by field work on location.

490 Independent Study
Fall, Spring. 1 to 7 credits. A student may earn a maximum of 7 credits in all enrollments for this course. R: Open to undergraduate students in the Department of Telecommunication, Information Studies and Media. Approval of department; application required. Directed study under faculty supervision.

491 Special Topics
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course. A student may earn a maximum of 16 credits TC291 and TC491. R: Open to juniors or seniors or graduate students in the Department of Telecommunication, Information Studies and Media. Contemporary issues in media and communication technology.

493 Internship
Fall, Spring, Summer. 1 to 7 credits. A student may earn a maximum of 7 credits in all enrollments for this course. RB: TC 101 and TC 201 and TC 301 R: Open to undergraduate students in the Department of Telecommunication, Information Studies and Media. Approval of department; application required. Supervised professional experience in a media or information institution, business or facility.

497 Game Design Studio
Fall, 3(1-4) P: TC 455 R: Open to students in the Game Design and Development Specialization and open to graduate students in the Department of Telecommunication, Information Studies and Media. Conceptualization, design documentation, planning, prototyping, and distribution of games.

498 Collaborative Game Design (W)
Spring, 3(2-2) P: (TC 445 and TC 455 and TC 497) P: GDD 331 or GDD 331 or TC 300) and Completion of Tier I Writing Requirement R: Open to students in the Game Design and Development Specialization and open to graduate students in the Department of Telecommunication, Information Studies and Media. Design and development of comprehensive digital games in a team setting working with a client. Participation in a design cycle including specification, design, prototyping, implementation, testing, and documentation. Issues of professionalism, ethics, and communication.

499 Media and Information Capstone (W)
Spring, 3(2-2) P: (TC 331 or TC 341 or TC 300) and Completion of Tier I Writing Requirement R: Open to juniors or seniors in the Department of Telecommunication, Information Studies and Media. Not open to students with credit in TC 458. Design and development of comprehensive media and information projects in a team setting working with a client. Participation in a design cycle including specification, design, prototyping, implementation, testing, and documentation. Issues of professionalism, ethics, and communication.

803 Introduction to Quantitative Research Methods
Fall, Summer. 3(3-0) Interdepartmental with Advertising and Communication and Journalism. Administered by Communication. SA: ADV 875, COM 800, JRN 817, TC 802 Introduction to quantitative social science research methods and applied analyses for understanding research reports and developing graduate level research projects.

820 Theories of Media and Information
Fall, 3(3-0) Classic and contemporary theories of communication with special emphasis on applications to telecommunication, extant and emerging media, and technology.

830 Foundations of Serious Games
Spring, 3(3-0) R: Open to students in the Serious Game Design and Research Certificate or in the Educational Technology Major or in the Educational Technology Graduate Certificate or in the Educational Technology Major or approval of department. Rationales, principles, processes, and pedagogies for serious game design. Applications of serious game genres and simulations. Funding and distribution.

831 Theories of Games and Interaction for Design
Fall, 3(3-0) R: Open to students in the Serious Game Design and Research Certificate or in the Educational Technology Major or in the Educational Technology Graduate Certificate or approval of department. Theories of interaction in games and other mediated contexts including communication, learning, health, global and local development, and social justice to inform the design of social systems, games and other interactive media products.

839 Implementing Interactivity
Fall, 3(2-2) R: Open to students in the Educational Technology Major or in the Educational Technology Graduate Certificate or in the Serious Game Design and Research Certificate or in the Telecommunication, Information Studies and Media major or approval of department. Foundational visual design principles and theories for interactivity, implementation of user interfaces. Current industry practices.

841 Understanding Users
Fall, 3(3-0) R: Direct experience with the creative process in interactive media R: Open to students in the Serious Game Design and Research Certificate or in the Educational Technology Graduate Certificate or in the Educational Technology Major or approval of department. Methods of user-centered media and interaction design. Iterative cycles of user and product conceptualization.

842 Design and Development of Media Projects
Spring, 3(2-2) P: TC 841 Team projects in Human Computer Interaction and Media and Information Management. Proposal development, team building, project management and workflow methods.

844 Interaction Design
Spring, 3(3-0) R: Basic familiarity with computers and internet. Design of user interactions in information and media systems. Prototyping and presentation tools. Example topics include information architecture, task analysis, use cases, wireframes, scenarios.

845 Human Computer Interaction
Spring, 3(3-0) Principles and theories of how humans and technical systems interact in traditional media, networked environments, social and mobile computing, virtual environments and information appliances.

850 Media and Information Policy
Spring, 3(3-0) SA: TC 810 Analysis of major public and private media and information policies, including Internet governance. Applying concepts and data from law, political science, economics, communication, technology and general social science.

851 Understanding Social Media
Spring, 3(3-0) Overview of social media applications and services and their effects on individuals, organizations, and society.

852 Economic Structure of Telecommunication Industries
Fall, 3(3-0) Economic aspects of telecommunication and information industries. Emphasis on market structure, conduct, performance. Content diversity, new technologies, recent regulatory policies, and antitrust.

854 Economics of Media Markets and Strategies
Spring of odd years, 3(3-0) RB: TC 852 or concurrently Conceptual tools and analytical perspectives on economic forces and incentives underlying structure, conduct, and responses to new technologies in media markets.

TC—Telecommunication
Information and Communication

861 Information Networks and Technologies
Fall. 3(3-0) RB: Academic or professional background in telecommunication field.
Fundamental characteristics, components, standards and applications of information networks and services. Local and wide area network technologies, fundamentals of the Internet, and private network technologies and services from a management perspective.

862 Information Networks in Organizations and Commerce
Spring. 3(2-2) RB: TC 861 or concurrently Design and management of electronic commerce strategies and the telecommunications infrastructure. Impact of information and communication technology on organizations and markets.

875 Information and Communication Technology for Development
Spring. 3(3-0) Information and communication technology in developing areas, cases studies, implementation. International and domestic contexts.

877 Comparative and International Telecommunication
Fall of even years. 3(3-0) Comparison of various national approaches to broadcasting, cable, satellite, telephone, mobile communications, and the Internet. Policy, economic, institutional and content issues. Interactions and media flows among countries. International governance bodies.

890 Independent Study
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to graduate students in the Department of Telecommunication, Information Studies and Media. Approval of department; application required.
Individualized study under faculty supervision.

891 Special Topics in Telecommunication
Fall, Spring. 1 to 3 credits. A student may earn a maximum of 9 credits in all enrollments for this course. R: Open only to graduate students in the College of Communication Arts and Sciences or approval of department. Contemporary issues. Topics vary.

893 Telecommunication Internship
Fall, Spring. Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. Internships in information industries.

898 Master's Project
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to masters students in the Department of Telecommunication, Information Studies and Media. Approval of department; application required. SA: TC 843
Plan B individual project demonstrating master's level professional competence.

899 Master's Thesis Research
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to graduate students in the Department of Telecommunication, Information Studies and Media. Master's thesis research.

900 Theory Building in Media and Information Studies
Fall. 3(3-0) Interdepartmental with Advertising and Journalism. Administered by Advertising and Journalism. Concepts and issues relating explanation, scientific inquiry, theory building and applications to interdisciplinary studies in media and information.

912 Information Technology Transactional Perspectives
Spring of even years. 3(3-0) Interdepartmental with Information Technology Management. Administered by Information Technology Management. RB: Graduate level microeconomics course R: Open to doctoral students. Multiple perspectives on relationships between organizations and information technology. Information processing, communications and management strategy approaches. Economic perspectives.

916 Qualitative Research Methods
Spring. 3(3-0) Interdepartmental with Advertising and Journalism. Administered by Journalism. R: Open only to doctoral students in the College of Communication Arts and Sciences or Department of Communication. Qualitative research in mass and specialized communication systems. Topics include documentary, bibliographic, case study and participant observation methods.

921 Media Theory
Fall. 3(3-0) Interdepartmental with Advertising and Journalism. Administered by Journalism. R: Open to doctoral students. SA: ADV 921

960 Media and Technology
Spring. 3(3-0) Interdepartmental with Advertising and Journalism. Administered by Telecommunication. R: Open only to doctoral students in the Communication Arts and Sciences-Media and Information Studies major or Communication major or approval of department. Theoretical frameworks concerning media and communication processes, and their interactions with technology. Social, organizational, critical, and economic perspectives.

975 Quantitative Research Design
Fall. 3(3-0) Interdepartmental with Advertising and Journalism. Administered by Advertising. RB: One graduate-level research design or statistics course. R: Open to doctoral students. Survey, experimental and content-analytic techniques applied to the study of media. Academic and applied research methods. Univariate and multivariate techniques.

985 Advanced Quantitative Analysis for Media
Spring. 3(3-0) Interdepartmental with Advertising and Journalism. Administered by Telecommunication. P: ADV 975 RB: Masters-level research course in addition to ADV 975. Multivariate research methods for media and information studies research.