Master of Science in Media Innovation and Data Communication

New Degree Proposal – School of Journalism, College of Arts, Media and Design (CAMD)

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Summary

The School of Journalism proposes a standalone, interdisciplinary Master of Science (M.S. Media Innovation and Data Communication) program that focuses on new forms of data-driven media practice, creative digital storytelling, and strategies for fostering innovation in media fields. We intend to graduate professionals who are well-versed in the methodological principles of effective storytelling using the latest technologies and who have the knowledge and intellectual creativity to explore and conceptualize new areas for media production and communication with public audiences. Our graduates will be well positioned to excel as practitioners, strategists, and leaders in digital media and communications fields. Besides acquiring professional qualifications, graduates will also be ready to continue their education in PhD programs in Media Studies, Journalism Studies, Communication Studies, and other related fields.

The Master of Science program draws on experience within the current M.A. in Journalism, which currently has both a "media innovation" and "professional track" oriented more toward traditional news reporting and editing. Our more technical-, data-, and technology-focused pathway of study in media innovation has a proven record over the past four years of graduating successful media professionals and innovators. Initially funded by a $500,000 grant from the Knight Foundation in 2014, our innovation programs will now be formalized as a standalone master's degree in Media Innovation and Data Communication, with STEM designation. The Stanton Foundation has funded more than $400,000 in research relating to the use of animation and data storytelling in video. Knight and other funders such as Google News and Facebook have continued to recognize the excellence and potential of the Northeastern School of Journalism, which has been host to the international 2020-2021 Computation + Journalism Symposium, an event that has attracted wide attention for the School's and the College of Arts, Media and Design's expertise and specialty in data storytelling. The creation of the MS - Media

Innovation and Data Communication positions the School of Journalism's offerings to 1) be more attractive to students who are interested in areas such as video and data visualization and who want to acquire a STEM degree; and 2) provide advanced undergraduate students (from all majors) who fulfill certain prerequisites with a route towards an accelerated master's degree (PlusOne option). The program will create synergies with our established MA-Journalism and MS-Media Advocacy programs, which will allow us to extend the elective course offerings in this field.

The degree program will also have tight connections with the Information Design and Visualization M.S. in Art+Design, including one required course in that Department. This will allow more interdisciplinary work across teams, embodied in new research teams such as the Center for Design and the Co-Laboratory for Data Impact, which spans Journalism and Art + Design faculty.

Program Description

The new Master of Science will offer a distinctive approach to knowledge and innovation in media fields, an approach rooted in the rigor of professional journalism -- with its emphasis on empowered knowledge acquisition, empirical verification, and storytelling in the public interest -- but one keenly attuned to emerging, data-driven technologies and their potential. The program capitalizes on the revolution in data storytelling and computational methods in media work; the rapid evolution in video, animation, and augmented/virtual reality technologies; and social networks and digital analytics. Our graduates will be prepared to become leaders in media firms and outlets engaged with cutting-edge technologies and innovative digital startups, as well as a broad range of media and communications organizations across the rapidly evolving digital economy.

While the program will be anchored in the School of Journalism, it will be an intentionally interdisciplinary degree, with, as mentioned, one required course in the Art + Design Department, leveraging that department's STEM-oriented faculty who teach in the field of data visualization. In addition, the program will draw on Communication Studies faculty with expertise in areas such as network science and cybersecurity, in addition to fundamental theories of social psychology and communication. The partnership with Art + Design will enable students to gain sophisticated knowledge of well-developed literatures that can guide visual- and experience-related media practice. The partnership with Communication Studies will allow students to strengthen, in particular, their data communication-oriented work by giving them broader theoretical knowledge of areas such as social network analysis, privacy, framing, priming, and agenda-setting. In line with the university's vision to increase the scalability of our graduate offerings, we are restructuring two of our core classes—JRNL 6340 Fundamentals of Digital Journalism and JRNL 6306 Media Innovation Studio—to accommodate class sizes above

30 students through the use of modular teaching assignments and the strategic deployment of teaching professionals drawn from Boston's substantial pool of highly qualified media innovators.

Further, the M.S. Media Innovation and Data Communication will be integrated with multiple research entities, including the Co-Laboratory for Data Impact (CAMD), the Center for Design (CAMD), and the emerging Center for Communication, Media Innovation, and Social Change (CAMD). These research connections will not only allow for students to participate in valuable experiential and intellectual endeavors, but also to boost various faculty efforts. Having more trained graduate students can help to bolster the entire media innovation- and data communication-oriented research ecosystem at Northeastern.

The new standalone Master of Science degree will build off of a strong baseline of curricular innovation and successful outcomes for graduates. The work of the program has benefited from strong interest by external funders (totaling more than $1 million altogether) and will be even more attractive as a standalone, STEM-designated degree. As mentioned, the Knight Foundation contributed $500,000 to start the program; and the Stanton Foundation has sponsored three research projects ($40,000; $150,000; $470,000) led by faculty and graduate students, spurring nationally visible research and prompting innovation within professional media organizations. The Stanton grant has also funded specialized classroom learning connected to research. Facebook, Inc., has also made gifts to faculty leading this program. A new, STEM-designated Master of Science positions Northeastern to continue to attract external funding.

We believe that offering a Master of Science in Media Innovation and Data Communication is timely with respect to recent developments in the field. Until recently, much of the media industry was struggling to adapt to the digital revolution. While this is still true at the local and regional levels, prominent media organizations across the world are now leading the charge in terms of experimenting with new models for storytelling, data-driven business models, and audience-engaged work. Indeed, from the *Washington Post* and the *New York Times* to the BBC and *The Guardian*, media organizations have set up innovation labs and hubs to help chart the future of media as we know it. Meanwhile, more than 200 news nonprofit organizations have sprung up over the past decade in the United States, many with pioneering strategies to help reinvent the public sphere. And marketing, advertising, communications, and strategy firms have widely adopted techniques and strategies from digital and data journalism in order to produce and leverage media content.

The digital communications revolution has affected all aspects of society, and there is strong demand from a wide variety of employers for graduates with knowledge and skills in a suite of relevant areas. The rise of social media has created a strong demand for persons who can tell compelling stories, engage with audiences, and leverage networks to achieve a variety of

strategic goals. Beyond news media itself, large companies, NGOs, and the public sector increasingly are hiring digitally fluent persons to help guide them through this new world, where communications, storytelling, marketing, and audience engagement are all bound up together in a constantly changing and iterative process. Finally, many academic and commercial research institutions have shown an increasing demand for digital media experts for internal and external communication of their research. Alumni who have graduated by taking courses in existing media innovation-oriented curricula are currently working in all of these areas.

The Master of Science will offer applicants with some experience in media or digital communications -- ~~or an undergraduate degree in a relevant field~~ or PlusOne pathway credits within the context of any major -- the technical foundations in areas such as data storytelling, video, and social media/digital analytics as well as the deeper knowledge of how innovation in media can best be fostered. This will allow graduates to promote forward-thinking changes in a wide variety of media fields and, ultimately, provide strategic leadership as they advance their careers. The program will also provide the theoretical context and the empirical methods necessary for evaluating media and communications strategies and campaigns and for exploring new business models for mission-driven media practice.

As students complete the core, required courses, they will be strongly encouraged to embark on a specialization in one of several key areas through focused use of electives: business and analytics; video/audio/AR/VR (visual media); data science; or entrepreneurship.

Program Format

The MS in Media Innovation and Data Communication is designed to address these opportunities by offering competencies needed by professionals moving to the forefront of data-driven media and communications in the workplace and the marketplace. **The program is conceptualized as a one-and-a-half or two-year, professional graduate degree with 36 credit hours.**

Contribution to College and University Mission

The Master of Science in Media Innovation and Data Communication Program supports the University's humanics mission by educating students who will be adept at communicating stories in the public interest across multimedia in areas such as data storytelling, video/animation, and social media/digital analytics while also developing deep knowledge about how innovation in media can best be fostered. The skillful communication of information in order to relay complex content to wider audiences is directly aligned with the Health, Security and Sustainability research foci of the University. The curriculum reaches out to other departments and programs in the University to best identify relevant research questions and address significant cross-disciplinary issues. Core faculty teaching in the Media Innovation and Data Communication

domain have strong research interests in key university priority areas and have affiliations with important university-wide institutions such as the Co-Lab for Data Impact, Global Resilience Institute, Boston Area Research Institute, and the NULab for Texts, Maps and Networks. Some core faculty have STEM-oriented degrees, including in computer science and data/digital design; because of a strategic hiring focus, the School of Journalism now has multiple faculty with technical degrees who use quantitative research methods and build digital tools and experimental platforms. The School of Journalism was the 2020-21 host of the Computation + Journalism Symposium, a globally renowned venue for leading computational researchers and journalists. The recently established Center for Communication, Media Innovation, and Social Change will serve as a platform for both students and faculty to help drive the kind of multi-disciplinary research initiatives crucial to the university's mission. Our current Media Innovation program is also the core engine of two emerging high-profile media projects, Storybench.org and The Scope, which are receiving national attention as innovative, creative startups incubated in the higher education space.

Clientele Analysis and Evidence of Demand

The master's program is unique in its synergies with the MFA program in Information Design and Visualization, paying equal attention to design and research-related aspects of visualization. While there is no direct competing program within the university, the proposed graduate program is complementary to the suite of data analytics certificate programs offered in collaboration between the Khoury College of Computer and Information Sciences and the College of Social Sciences and Humanities.[1]

While several universities offer master's programs of a comparable scope, Northeastern's proposed MS in Media Innovation and Data Communication program possesses several unique attributes allowing it to compete. One such strength is being able to offer a suite, or package, of courses chosen from the related graduate programs within the College of Arts, Media, and Design, including the MFA in Information Design and Visualization and Experience Design.

Evidence of demand is not only furnished by the continuing success of the existing media innovation curriculum that we are supporting, but by innovative new programs at peer/competitor universities. These programs have given STEM designation to comparable degrees in order to reap the recruitment gains such a designation provides, despite offering less actual STEM instruction than we are already providing in the existing Media Innovation track. Examples include:

· New York University's graduate programs in journalism – including the Studio 20: Digital First program – are STEM-designated [2] and offer comparable courses focused on media innovation and communication in the digital age.[3]

· The CUNY graduate center offers a 36-credit master's degree in "Egnagement Journalism" focused on audience engagement, social media, design thinking and community-building.[4]

· Northwestern University's Medill School of Journalism offers a master's degree in Media Innovation and Content Strategy. This program utilizes the university's branch campus in San Francisco to expose students to media start-ups, and is generally aimed at students with ambitions to start media companies, or lead innovation at legacy media firms.[5]

· University of Southern California's Annenberg School for Communication and Journalism offers a STEM-designated M.S. in Digital Social Media offering practical skills and critical knowledge on digital and social media intended for application across industries.[6]

Impact on Existing Programs at Northeastern

The Master of Science in Media Innovation and Data Communication builds upon the existing curriculum and course offerings of the MA in Journalism. The Master of Science in Media Innovation and Data Communication positions our graduate journalism offerings to 1) be more attractive to students who are interested in the quantitative and analytical aspects of journalism and media innovation and want to acquire a STEM degree; and 2) provide advanced undergraduate students who fulfill certain prerequisites with a route towards an accelerated master's degree (PlusOne option). The program will create synergies with our established Journalism and new Media Advocacy programs, which will allow us to extend the elective course offerings in this field. It will also open new research opportunities for faculty studying emerging media technologies, providing more undergraduate (PlusOne) and graduate students with relevant skills and interests.

PlusOne Accelerated Master initiative (4+1)

PlusOne M.S. Media Innovation and Data Communication

The PlusOne program in the Media Innovation and Data Communication degree will be geared towards ~~journalism majors or journalism practice minors, who are~~ students in their junior and senior years with a demonstrated interest in media, ~~and have at least four electives remaining in their program. Other majors can apply after consulting with a journalism academic advisor.~~ Students without a journalism major must take Enterprise 1, offered in the fall semester. PlusOne students should be able to complete the graduate program in two semesters if they take five classes. It will take longer to complete if they participate in co-op.

Requirements for admission to the PlusOne program in Journalism for the Media Innovation and Data Communication M.S.:

- Complete JRNL 1101 (JRNL 2201 is optional but recommended) or COMM1255: Communication in a Digital Age and/or COMM2625: Communication, Technology and Society.

- Minimum GPA of 3.00
- Must have at least four electives available between junior and senior years
- Must have permission from their journalism academic advisor to make sure students meet minimum requirements for their undergraduate program and that they understand the requirements of the PlusOne program.

Application procedure:

- Junior or senior undergraduate journalism majors or journalism practice minors interested in the PlusOne program will apply online and fill out the PlusOne application for journalism and indicate they are applying to the Media Innovation and Data Communication degree.
- Students should apply to the program no earlier than July 1 before the fall semester of their junior year. Applications must be submitted by August 1 before the fall semester of their senior year.
- Acceptance recommendations will be made by the School of Journalism Graduate Admissions Committee.

Requirements for Media Innovation and Data Communication degree during undergraduate studies:

- At least two courses must be required courses, one being JRNL 6306 Media Innovation (MI) Studio 1.
- Students must obtain a minimum grade of B for graduate Journalism courses to be used toward graduate requirements
- The course sequence will depend on whether students enter the PlusOne program during their junior or senior year. Below are suggested courses and sequences:

2-year sequence	Fall	Spring
Junior year	JRNL 6340	Grad MI Elective
Senior year	JRNL 6341	JRNL 6306

1-year sequence	Fall	Spring
Senior year	JRNL 6340 JRNL 6341	JRNL 6306 Grad MI Elective

Double counting options during undergraduate studies:

Graduate courses will count towards either journalism major/minor electives or electives for the undergraduate degree.

Requirements during graduate studies:

PlusOne students entering the journalism master's program must maintain an overall 3.0 GPA and at least a 3.00 in all journalism graduate courses taken as part of the PlusOne program.

PlusOne students must meet with their journalism academic advisor to solidify their desire to enter the graduate program. They also must have their journalism credits transferred to the journalism master's program.

Their advisor, along with the student, will also create a plan of study for the new graduate student based on the courses they have taken as an undergraduate and on their area of interest.

Students will need to take an additional 20 credits or 5 courses to complete their degree with 36 credits and a minimum GPA of 3.00.

Costs, Resources, and Revenue

The MS program will grow from existing resources within the course offerings, faculty and space use of the School of Journalism and specifically the MA in Journalism program. As such, no new or additional resources would be needed. Students will benefit from the resources offered by the MA program such as attending guest lectures; and at the same time, the MS will allow us to expand these resources.

Program Learning Outcomes

The MS in Media Innovation and Data Communication empowers media makers to think creatively about the future of the media and provides training in the digital tools they need to thrive in today's new media environment. Students will gain the skills to report, research, design and build multimedia, interactive and data-driven storytelling projects that clarify complex matters, explain processes, reveal insights, elucidate concepts and relate stories about newsworthy topics and the human experience.

The program will guide them how to:

- Articulate knowledge at the cutting edge of new media, data analysis and communication, and visualization.
- Explore, evaluate and create new formats, tools and ventures to investigate research questions through qualitative and quantitative methods in all stages of data collection,

transformation, analysis, and communication in the service of multimedia storytelling.

- Use emerging technologies and techniques of information and data design; visual communication and cognitive science; data analysis and visualization; photography, documentary and visual storytelling; virtual reality, augmented reality and mixed reality; social media; computer science; and more.
- Add valuable insight to the conversation around new media and data storytelling through external engagement with the community driving media innovation.
- Evaluate and critique media products, platforms, and projects based on principles of democracy and social equality, and on ethics, history, and cultures of media innovation.
- Examine the role of media technologies in practices of knowledge production and society.
- Drawing on scholarly literature, articulate arguments for relevant theoretical and critical positions that relate to issues of inclusivity, diversity, and social goods.

STEM Designation

Experts in digital media and communication are in high demand across industry, and the MS degree speaks to the rising call for media makers and communicators with strong quantitative research and visualization skills and technical competencies. Therefore, the MS program is conceptualized as a STEM degree under the following CIP code:

09.0702 - Title: Digital Communication and Media/Multimedia [7]
Definition: A program that focuses on the development, use, critical evaluation, and regulation of new electronic communication technologies using computer applications; and that prepares individuals to function as developers and managers of digital communications media. Includes instruction in computer and telecommunications technologies and processes; design and development of digital communications; marketing and distribution; digital communications regulation, law, and policy; the study of human interaction with, and use of, digital media; and emerging trends and issues.

This CIP code applies here because of how deeply our MS in Media Innovation and Data Communication is embedded in knowledge areas related to digital communication and data-driven, digital media.

Admission Criteria

Application requirements include:

· Completed application

- Application fee
- Personal statement
- 3 letters of recommendation
- Official transcripts

International applicants must provide proof of English proficiency (minimum TOEFL score of 90 on the internet-based exam [equivalent to 550 on the paper-based exam and 213 on the computer-based exam]). The CAMD Graduate School considers an undergraduate GPA of 3.000 or better to be favorable.

An admissions committee will evaluate students on a rolling basis to assess their experience and objectives with the goal of welcoming diverse perspectives to pursue the certificate.

Two-Year Curricular Path

MS in Media Innovation and Data Communication Requirements		
Course	Credits	Comments
Term 1		
JRNL 6340 Fundamentals of Digital Journalism	4 semester credits	Currently offered every fall
JRNL 6341 Telling Your Story with Data	4 semester credits	Currently offered every fall
Elective	4 semester credits	
Term 2		
JRNL 6306 – Media Innovation Studio I	4 semester credits	Currently offered every spring

ARTG 5330 – Visualization Technologies 1	4 semester credits	Currently offered every semester
Elective	4 semester credits	

Term 3		
JRNL 6307 – Media Innovation Studio II	4 semester credits	Currently offered every fall
Elective	4 semester credits	
Elective	4 semester credits	

One-Year Curricular Path

MS in Media Innovation and Data Communication Requirements		
Course	Credits	Comments
Term 1		
JRNL 6340 Fundamentals of Digital Journalism	4 semester credits	Currently offered every fall
JRNL 6341 Telling Your Story with Data	4 semester credits	Currently offered every fall
Elective	4 semester credits	

Possible Elective	4 semester credits	
Term 2		
JRNL 6306 – Media Innovation Studio I	4 semester credits	Currently offered every spring
ARTG 5330 – Visualization Technologies 1	4 semester credits	Currently offered every semester
Elective Possible Elective	4 semester credits 4 semester credits	

Term 3		
JRNL 6307 – Media Innovation Studio II	4 semester credits	Currently offered summer and fall
Possible Elective	4 semester credits	To supplement electives from fall and spring
Possible Elective	4 semester credits	To supplement electives from fall and spring

Course Descriptions

JRNL 6340 – Fundamentals of Digital Journalism

Offers students an opportunity to learn the fundamentals of digital journalism and to place those skills within the context of a changing media environment. Studies multimedia tools within an intellectual framework—i.e., offers students an opportunity to learn hands-on skills and also to study best practices and theory. May include guest speakers and a consideration of the future of news. Requires students to produce a final project that consists of storytelling across a range of digital platforms.

JRNL 6341 – Telling Your Story with Data

Explores select topics in data journalism and support data-driven storytelling projects of various kinds. Offers students an opportunity to learn how to navigate the often-competing demands of rigorous analysis and accessible narrative and storytelling. Course units are designed to foster moderate technical learning of applications and software, incorporate theories from relevant fields in data visualization and data science, and emphasize storytelling for broad public audiences.

JRNL 6306 – Media Innovation Studio I

Constitutes the first of a two-course studio sequence designed to prepare experienced journalists to create new forms of journalism in the digital age. Offers students an opportunity to work with faculty members and peers via class exercises and peer-to-peer project collaboration to identify and develop the subject of a signature, data-driven master's project. Incorporates lectures on emerging media practices, including parallax scrolling, and instruction on digital journalism tools, including DSLR cameras, as well as reviews and critiques of professional and studio work by faculty and guest speakers.

JRNL 6307 – Media Innovation Studio II

Offers students an opportunity to integrate knowledge and skills derived from foundation courses to develop a data-driven master's project. Creates a newsroom environment in which each student project is advanced through a journalistic collaborative process that features critiques from instructors and peers and integrates expertise from guest lecturers. Following the "teaching hospital" model, students work with the instructor, each other, and partnered media innovation visitors to develop their work.

ARTG 5330 – Visualization Technologies 1

Introduces programming languages that allow computational analysis and digital delivery of dynamic information. Examines characteristics and implications of different data sources, including environmental and personal sensor data sources, real-time and historical data, and social use of shared data visualization tools.

Sample electives (course numbers are actual or modified):

JRNL (6000) - Coding for Digital Storytelling

Journalists are becoming more sophisticated in their approaches to quantitative information, drawing on the growing volume of open datasets and using software and techniques borrowed from the social sciences and data science. This course will explore select topics in data journalism and support data-driven storytelling projects of various kinds. Course units will foster moderate technical learning of applications and software; incorporate theories from relevant fields in data visualization and data science; and emphasize storytelling for broad public audiences. This course aims to foster knowledge of both the classic and cutting-edge forms for telling stories with data. It will instill a sense of rigor in analyzing and using data and statistics, and build knowledge of a variety of tools to clean, analyze, and visualize data.

JRNL 6305 - Think Like a Media Entrepreneur

A media career in the 21st century looks a lot different than it did several decades ago. The traditional structure of big networks and institutional newspapers has given way to niche digital publications and thriving social media platforms. This course will give you the tools to build your future outside the traditional media box. The course will involve careful study of how innovation and entrepreneurship are shaped by digital communications regulation, law, and policy; it will also involve the study of human interaction with, and use of, digital media, examining concepts and products from a user-centered design perspective. Methods for reaching diverse audiences and inclusive startup leadership concepts will be examined.

JRNL 6305-07 – Podcast and Radio Journalism

Learn how to tell powerful stories with sound in this class with veteran public radio journalist Jeb Sharp of PRI's The World. We will start with the technical basics (recording, editing and mixing audio) and move on to reporting and producing various audio formats including sound-rich NPR-style features. You will train your ears and your voice, hone your interviewing skills and learn to write and edit scripts specifically for broadcast.

JRNL 5309 - News Documentary Production

Offers students an opportunity to research, write, and produce a short news video documentary and acquaint themselves with a range of professional documentary styles through screenings and discussions. Emphasizes analyzing and addressing the ethical challenges facing documentary filmmakers and their interaction with subjects historically and in the new media age.

ARTG 5150 – Information Visualization Principles and Practices (3 SH)

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

ARTG 5320 Introduction to Statistics and Data Analysis (4 SH)

Introduces foundational skills to collect, summarize, analyze, and interpret data for the beginner data literate. Introduces concepts and methods in statistical reasoning and analysis. Topics include data mining, comparison, assessment, and delivery. Students who do not meet course restrictions may seek permission of instructor or program coordinator.

ARTG 5320 Introduction to Statistics and Data Analysis

Introduces foundational skills to collect, summarize, analyze, and interpret data for the beginner data literate. Introduces concepts and methods in statistical reasoning and analysis. Topics include data mining, comparison, assessment, and delivery. Students who do not meet course restrictions may seek permission of instructor or program coordinator.

ATG 6100 – Information Design Studio 2 — Dynamic Mapping and Models

Continues the exploration of data representations in a variety of media. Focuses on interactive and time-based techniques. Emphasizes computational methods of data collection, manipulation, and encoding.

COMM (4625/6000) Online Communities

Considers online community dynamics, including formation, governance, conflict, and exit. Offers students an opportunity to understand and engage with online community and how this

relates to topics such as human behavior, identity, and communication online. Reviews contemporary issues and concerns. Engages the question and practice of what it means to develop and maintain a successful online community.

COMM (5000) Communication and Privacy
Explores the ongoing evolution of legal protections for personal data; maps how new digital technologies offer both the prospect of enhanced privacy protections and radical new forms of surveillance that infringe on privacy; traces how much of our contemporary economy thrives on the witting and unwitting exchange of personal data; and sketches changing popular attitudes toward privacy. Privacy has never been a given: It is constantly remade by a shifting legal, technical, socioeconomic, and cultural landscape. Uses pressing contemporary controversies, rich historical examples, and broader theoretical texts to examine the collision of privacy and other important values, including free speech, transparency and accountability, efficiency, and security. Challenges students to consider privacy as a legal, technical, socioeconomic, and cultural artifact.

COMM (5000) Social Networks
Applies network science theories and methods to understand the connectivity and complexity in the world around us on different scales, ranging from small groups to whole societies. Applies network theories, data collection methods, and visual-analytic analyses to map, measure, understand, and influence a wide range of online and offline social phenomena, including friendships and romantic relationships, professional networks, social media, social influence and marketing, diffusion and viral media, recommender systems, and collective action. Offers students an opportunity to learn to use computational tools to gather and analyze network data, derive data-supported insights, and develop effective network interventions.

Degree Specializations:

As students complete the core, required courses, they will be guided to embark on a specialization in one of several key areas through focused use of electives: business and analytics; video/audio/AR/VR; data science/visualization; or entrepreneurship.

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[1] For further information, see: http://www.northeastern.edu/data-analytics/data-science-certificate

[2] See: https://www.nyu.edu/content/dam/nyu/globalServices/documents/forms/students/inboundtonyc/NYU_STEM_Programs.pdf
[3] See: https://journalism.nyu.edu/graduate/programs/studio-20-digital-first/
[4] See: https://www.journalism.cuny.edu/future-students/m-a-social-journalism
[5] See: https://www.medill.northwestern.edu/journalism/graduate-journalism/specializations/media-innovation-and-content-strategy/index.html
[6] See: https://annenberg.usc.edu/communication/digital-social-media-ms/overview
[7] See https://nces.ed.gov/ipeds/cipcode/cipdetail.aspx?y=55&cipid=87221