MASTER OF ARTS IN DIGITAL STUDIES OF LANGUAGE, CULTURE, AND HISTORY

Department Website: http://digitalstudies.uchicago.edu

DIRECTOR
• David Schloen, Professor, Oriental Institute and Department of Near Eastern Languages & Civilizations

OVERVIEW
The Master of Arts in Digital Studies of Language, Culture, and History is a one-year program intended for full-time students who have a B.A. in the humanities, arts, or history. This M.A. program introduces students to computer programming and the use of cutting-edge software tools for representing, exploring, analyzing, and publishing the products of human language and culture. These products range from everyday speech and writing to historical documents and literary texts, and they encompass music and art as well as mundane objects, places, and institutions. The courses in this program will help students not just to understand and use digital tools but to see digital computing as a cultural activity in its own right—an activity to be studied with respect to its historical development, social setting, cultural impact, and aesthetic qualities, as well as the ethical problems it creates in our increasingly digitized and networked world. Students who complete the program will have software skills that are in demand for many kinds of jobs and also for academic work at the Ph.D. level in which computational methods are applied.

DEGREE REQUIREMENTS
Students in the program take ten courses over three academic quarters; six required courses, three elective courses, and one thesis preparation course. Additionally, students with little or no programming experience must enroll in the intensive Introduction to Computer Programming 'boot camp' which takes place in September, immediately preceding the Autumn Quarter.

At least one of the elective courses must have a digital component; the other two electives can be in any department of the humanities or humanistic social sciences. The thesis preparation course will be taken in the final (spring) quarter of the student's program. Each student's M.A. thesis project will be co-advised by a lecturer and a faculty member. The faculty adviser may or may not be someone whose own research entails digital methods; expertise in that area is provided by the lecturer. Thesis projects that involve collaborative software development by groups of students will be encouraged. Courses would typically be taken in the following sequence:

SEPTEMBER (BEFORE THE START OF THE AUTUMN QUARTER)
• Introduction to Computer Programming (intensive 'boot camp')

AUTUMN QUARTER
• DIGS 30002 Basic Mathematics and Statistics for the Humanities
• DIGS 30003 Data Management for the Humanities
• DIGS 30007 History and Theory of Digital Computing and Digital Humanities

WINTER QUARTER
• DIGS 30004 Data Analysis for the Humanities
• DIGS 30005 Data Publication for the Humanities
• Approved elective

SPRING QUARTER
• DIGS 30006 Natural Language Processing
• DIGS 30008 Thesis Preparation
• Approved elective
• Approved elective

ADMISSION
The Master of Arts in Digital Studies of Language, Culture, and History program welcomes a cohort of students dedicated to exploring humanistic knowledge in the digital realm.

INFORMATION ON HOW TO APPLY
The application process for admission and financial aid for all graduate programs in the Humanities is administered through the divisional Office of the Dean of Students. The Application for Admission and Financial Aid, with instructions, deadlines and department specific information is available online at: http://humanities.uchicago.edu/students/admissions.
Questions pertaining to admissions and aid should be directed to humanitiesadmissions@uchicago.edu or (773) 702-1552.

International students must provide evidence of English proficiency by submitting scores from either the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS). (Current minimum scores, etc., are provided with the application.) For more information, please see the Office of International Affairs website at https://internationalaffairs.uchicago.edu, or call them at (773) 702-7752.

CONTACT INFORMATION

• digitalstudies@uchicago.edu
• 773.702.1552

DIGITAL STUDIES COURSES

DIGS 30000. Introduction to Computer Programming for Digital Studies MA Students. 0.00 Units.
In this three-week course, offered in the September term for incoming students in the Digital Studies MA program, students will learn computer programming and computational concepts using the Python programming language. No prior background in computing is required. This course is a prerequisite for the other Digital Studies (DIGS) courses, with the exception of DIGS 20002/30002. DIGS MA students may be exempted from this course requirement if they can demonstrate sufficient knowledge of computer programming, which will be determined in consultation with the faculty director of Digital Studies. NOTE: All other undergraduate and graduate students at the University have the option of taking the equivalent DIGS 20001/30001 course, which is offered concurrently in the September Session as a Summer course, as well as every Spring as a standard quarter-length course, with priority given to those pursuing a graduate minor or BA/MA in Digital Studies.

Terms Offered: Autumn. September Session

DIGS 30001. Introduction to Computer Programming. 1.00 Units.
In this course, students will learn computer programming and computational concepts using the Python programming language. No prior background in computing is required. This course, or an equivalent introductory Computer Science course (CMSC 12100, 15100, or 16100), is a prerequisite for the other Digital Studies (DIGS) courses, with the exception of DIGS 20002/30002. This course is tailored for students in the humanities. DIGS 20001/30001 is offered every Spring and is open to all undergraduate and graduate students at the University, with priority given to those pursuing an undergraduate minor or BA/MA in Digital Studies. Note: Students in the Digital Studies MA program will not enroll in this course but will instead complete a three-week programming "boot camp" in September, prior to the beginning of the Autumn Quarter. DIGS MA students may be exempted from this course requirement if they can demonstrate sufficient knowledge of computer programming, which will be determined in consultation with the faculty director of Digital Studies.

Terms Offered: Spring Summer

Equivalent Course(s): DIGS 20001

DIGS 30002. Basic Mathematics and Statistics for the Humanities. 1.00 Units.
This course covers selected topics in mathematics which are relevant for computing and for the subsequent Digital Studies courses, and it provides an introduction to statistics with emphasis on the analysis of linguistic, cultural, and historical data. No prior background in mathematics beyond the high school level is required for this course. For students who are, or who have been, UChicago undergraduates, STAT 22000 may be substituted for this course. Other prior courses in statistics may also be accepted in lieu of this course, subject to the approval of the faculty director of the Digital Studies program. This course (or an equivalent statistics course) is a prerequisite for DIGS 20004/30004 and DIGS 20006/30006. This course is offered in the Autumn.

Terms Offered: Autumn

Equivalent Course(s): DIGS 20002

DIGS 30003. Data Management for the Humanities. 1.00 Units.
This course introduces students to concepts and techniques related to the representation and management of digital data, with emphasis on the forms of data encountered in linguistic, cultural, and historical research. The following topics are covered: (1) digital character encoding using the ASCII and Unicode standards and digital typefaces ("fonts") for displaying encoded characters; (2) the digital encoding of 2D images, 3D models, sound, and video; (3) database models and querying languages, both relational and non-relational, with attention to data-integration methods for combining and querying semi-structured and heterogeneous data; and (4) cartographic concepts (e.g., coordinate systems and map projections) and the basics of geospatial data management using Geographic Information Systems (GIS). DIGS 20001/30001, or an equivalent introduction to programming, is a prerequisite for this course. This course is offered in the Autumn.

Terms Offered: Autumn

Prerequisite(s): DIGS 20001/30001, or an equivalent introduction to programming

Equivalent Course(s): DIGS 20003
DIGS 30004. Data Analysis for the Humanities. 100 Units.
This course builds on the introduction to statistics in DIGS 20002/30002 by introducing students to the R language and R packages for data analysis. Topics covered include the basics of data mining, data visualization, and high-performance computing (HPC) techniques for analyzing large datasets. This course provides a high-level conceptual introduction to machine learning, social network analysis, and spatial data analysis. The goal is to make students familiar with these methods and aware of their role in linguistic, cultural, and historical studies, as a basis for further study of these methods. DIGS 20001/30001 and DIGS 20002/30002 (or their equivalents) are prerequisites for this course. This course is offered in the Autumn.
Terms Offered: Winter
Prerequisite(s): DIGS 20001/30001 and DIGS 20002/30002 (or their equivalents)
Equivalent Course(s): DIGS 20004

DIGS 30005. Data Publication for the Humanities. 100 Units.
This course introduces software techniques and tools for building end-user-facing apps that run in Web browsers (via HTML5, CSS, and JavaScript). Students will learn how to use application programming interfaces (APIs) to integrate Web services into their apps, making use of the analysis, visualization, and database services provided by external systems. Attention will be paid to user-interface design for both research purposes and pedagogical purposes. Students will learn how to use GitHub to manage software development. DIGS 20001/30001, or an equivalent introduction to programming, is a prerequisite for this course. This course is offered in the Winter.
Terms Offered: Winter
Prerequisite(s): DIGS 20001/30001, or an equivalent introduction to programming
Equivalent Course(s): DIGS 20005

DIGS 30006. Natural Language Processing. 100 Units.
This course introduces software techniques and tools for natural language processing (NLP). The following topics are covered: (1) textual markup and related software standards such as the Extensible Markup Language (XML), as well as the Text Encoding Initiative's XML tagging scheme; (2) character-string processing (with or without markup tags); and (3) NLP methods for part-of-speech tagging, lemmatization, morphological segmentation, sentence splitting, named entity recognition, co-reference resolution, sentiment analysis, and topic modeling. This course also provides a high-level conceptual overview of recent work in machine translation via neural networks and deep learning. DIGS 20001/30001 and DIGS 20002/30002 (or their equivalents) are prerequisites for this course. This course is offered in the Spring.
Terms Offered: Spring
Prerequisite(s): DIGS 20001/30001 and DIGS 20002/30002 (or their equivalents)
Equivalent Course(s): DIGS 20006

DIGS 30007. History and Theory of Digital Computing and Digital Humanities. 100 Units.
This is a discussion-oriented seminar that introduces students to theoretical debates in digital humanities, broadly defined, with attention to underlying philosophical issues. It touches upon the history and theory of digital computing within its social and institutional settings, as well as the history of the application of digital computing to texts, images, sound, geospatial data, and other information relevant to cultural and historical studies. Among other topics, this course introduces students to debates about the cultural impact of digital media and about ethical issues related to the ownership, accessibility, and legitimate uses of digital data. DIGS 20001/30001, or an equivalent introduction to programming, is a prerequisite for this course. This course is offered in the Autumn.
Terms Offered: Autumn
Prerequisite(s): DIGS 20001/30001, or an equivalent introduction to programming
Equivalent Course(s): DIGS 20007

DIGS 30008. Thesis Preparation. 100 Units.
This course is primarily intended for students in the M.A. in Digital Studies program, for whom it is a requirement. Other students may petition the faculty director of the Digital Studies program for admission to the course. Students in this course are co-advised by a lecturer and a faculty member to do a digitally oriented thesis project. Projects that involve collaborative software development by groups of students are encouraged. In addition to the writing of software, each project will normally entail a written document that explains the work and provides critical comparisons with other similar work, with attention to current debates in digital humanities. Prerequisites for this course include DIGS 20001/30001 and DIGS 20002/30002 (or their equivalents), and also DIGS 20003/30003 and DIGS 20004/30004. This course is offered in the Spring.
Terms Offered: Spring
Prerequisite(s): DIGS 20001/30001 and DIGS 20002/30002 (or their equivalents), DIGS 20003/30003, and DIGS 20004/30004
DIGS 30011. Introduction to Digital History I. 100 Units.
What is digital history and how do we do it? This lab-based experimental class will devote two sessions each week to questions of theory and methodology, considering what digital approaches can offer to the field of history; we will also examine and critique recent work by historians engaging with digital methods. In the third meeting of the week, a mandatory Friday lab session, students will learn the basics of digital mapping, network analysis, text mining, and visualization. (No prior technical knowledge is needed or expected.) By the end of the quarter, students will be asked to reflect on the advantages and limits of digital approaches in the historical field and to develop a proposal for a digital project of their own. Students who wish to see this work to fruition are invited to enroll in “Introduction to Digital History II,” which will offer students more advanced technical training and will coach them toward completion of their projects.
Instructor(s): F. Hillis Terms Offered: Autumn
Note(s): Making History courses forgo traditional paper assignments for innovative projects that develop new skills with professional applications in the working world. Open to students at all levels, but especially recommended for 3rd- and 4th-yr students.
Equivalent Course(s): HIST 39530, HIST 29530, DIGS 20011

DIGS 30012. Introduction to Digital History II. 100 Units.
This course focuses on advanced research design and methods in digital history for students who have completed “Introduction to Digital History I.” The course will culminate in a public exhibition of student projects.
Instructor(s): F. Hillis Terms Offered: Winter
Prerequisite(s): HIST 29530, HIST 39530, DIGS 20011, or DIGS 30011.
Note(s): Making History courses forgo traditional paper assignments for innovative projects that develop new skills with professional applications in the working world. Open to students at all levels, but especially recommended for 3rd- and 4th-yr students.
Equivalent Course(s): HIST 39521, HIST 29531, DIGS 20012

DIGS 30013. Computational Linguistics. 100 Units.
This course introduces the problems of computational linguistics and the techniques used to deal with them, focusing primarily on probabilistic models and techniques. Topics are drawn primarily from phonology, morphology, and syntax. Special topics include automatic learning of grammatical structure and the treatment of languages other than English.
Instructor(s): J. Goldsmith Terms Offered: Spring
Prerequisite(s): CMSC 12200, 15200 or 16200, or by consent
Equivalent Course(s): CMSC 35050, LING 38600

DIGS 30015. Musical Robotics. 100 Units.
Musical Robotics is a skills and discussion-based class for students interested in learning analog and digital electronics to build robotic musical instruments or sound art installations. Discussions will be organized around readings related to art and technology with a special focus on sound-based works. Students will learn to program Arduinos to control DC motors, solenoids, and servos with music applications like Logic Pro and Max/MSP. As a final project students will present a new instrument they’ve created or plans for an art installation featuring a kinetic sculpture element.
Instructor(s): Bryan Jacobs Terms Offered: Autumn
Prerequisite(s): For this advanced course, a background in low-level, functional, or graphical (Max/MSP, PD) computer programming is assumed. It is also assumed that students have done some work to develop musical ideas or worked towards developing an aesthetic perspective.
Equivalent Course(s): MAAD 26720, DIGS 20015, MUSI 26720, MUSI 36620