Department of English
Spring 2019
Humanities Analytics (HumAn) Minor Courses

Updated October 23, 2018
Information subject to change.

FOR MORE INFORMATION, CONTACT:
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Baker Hall 259
https://www.cmu.edu/dietrich/english/undergraduate/minors/humanities-analytics-minor.html

Required Courses:
76-380  Methods in Humanities Analytics
Instructor: David Brown
Meetings: TR 9:00-10:20 a.m.
Units: 9

The computer-aided analysis of text has become increasingly important to a variety of fields and the humanities is no exception, whether in the form of corpus linguistics, stylometrics, "distant reading," or the digital humanities. In this course, we will build a methodological toolkit for computer-aided textual analysis. That toolkit will include methods for the collection data, its processing via off-the-shelf software and some simple code, as well as its analysis using a variety of statistical techniques. In doing so, the class offers students in the humanities the opportunity to put their expertise in qualitative analysis into conversation with more quantitative approaches, and those from more technically-oriented fields the opportunity to gain experience with the possibilities and pitfalls of working with language. The first part of the term will be devoted to introducing fundamental concepts and taking a bird's eye view of their potential application in domains like academic writing, technical communication, and social media. From there, students will initiate projects of their own choosing and develop them over the course of the semester. The goal is to acquaint students with the strengths and limitations of computer-aided textual analysis and to provide them with the necessary foundational skills to design projects, to apply appropriate quantitative methods, and to report their results clearly and ethically to a variety of audiences. This class requires neither an advanced knowledge of statistics nor any previous coding experience, just a curiosity about language and the ways in which identifying patterns in language can help us solve problems and understand our world.

Core Courses:
76-361  Corpus Rhetorical Analysis
Instructor: David Kaufer
Meetings: MW 9:00-10:20 a.m.
Units: 9

The Digital Humanities is a huge and growing field spanning many disciplines and skill sets. The focus of this course is on tools and methods that allow students to analyze textual corpora as purveyors of stories, information, and arguments that seek to influence cultural thinking, reveal existing cultural mindsets, and often both in tandem, either synchronically or diachronically. This is the point of view often taken by analysts who work for universities, think tanks and intelligence...
agencies who seek to understand cultural trends and mindsets from volumes of digital texts. For such analysts, close reading is an indispensable part of their work and computing tools help focus their reading while reading helps refine their understanding of the computer output. The course will give students intensive practice with methods and tools for analyzing corpora of text at the word, phrase, and sentence level, and with working with large scalable dictionaries and multivariate statistics.

76-419  Media in a Digital Age
Instructor:  Chris Neuwirth
Meetings:  TR 10:30-11:50 a.m.
Units:  9
How are media in a digital age changing? And how are they changing us? What does it mean to be living in today's communication technology "revolution"? In a time when many forms of communication are digitally based, traveling as bits at e-speeds on global computer networks? To begin answering these questions, we will take as case studies several new discursive digital media formations, such as digital books, on-line newspapers, blogs, wikis, and so forth, along with related social formations, such as social media networks and distributed non-profit activist organizations. The readings will provide a range of lens by which to understand these developments, including cognitive, social, political, economic and technological aspects. We will briefly put the development of communication technologies in their historical context: How were new forms of communication received in the past? How were they used? How did they affect communication? How did they influence political and social institutions? We will focus, however, on using knowledge of historical developments to inform our understandings of current digital communication developments. Along the way we will ask questions, such as "What are some of the challenges that new digital formations present to traditional communication theories (e.g., How is trust established when speakers are anonymous and globally distributed? How is the "public sphere" constituted when Internet search engines dynamically construct it?). Please note: Freshmen are prohibited from registering for this course. Sophomores must obtain instructor permission.

Elective Courses for Primary Majors in English, History, Modern Languages, Philosophy:
Possible courses include but are not limited to:

05-391  Designing Human-Centered Software
Instructor:  Christopher Harrison
Meetings:  TR 12:00-1:20 p.m.
Units:  12
Some experience with programming is a course prerequisite, for example: 15-112, 15-110 or 15-104. Why are things so hard to use these days? Why doesn't this thing I just bought work? Why is this web site so hard to use? These are frustrations that we have all faced from systems not designed with people in mind. The question this course will focus on is: how can we design human-centered systems that people find useful and usable? This course is an introduction to designing, prototyping, and evaluating user interfaces. If you take only one course in Human-Computer Interaction, this is the course for you. This class is a core course for undergrads in the HCI Minor but open to all undergrads and grad students, with either technical or non-technical backgrounds. We will cover theory as well as practical application of ideas from Human-Computer Interaction. Course work includes lectures, class discussion, homework, class presentations, and group project. Students will need a prerequisite of a fundamental computer programming course.

05-434/11-344  Machine Learning in Practice
Instructor:  Carolyn Rose
Meetings:  TR 9:00-10:20 a.m.
Units:  12
Machine Learning is concerned with computer programs that enable the behavior of a computer to be learned from examples or experience rather than dictated through rules written by hand. It has practical value in many application areas of computer science such as on-line communities and digital libraries. This class is meant to teach the practical side
of machine learning for applications, such as mining newsgroup data or building adaptive user interfaces. The emphasis will be on learning the process of applying machine learning effectively to a variety of problems rather than emphasizing an understanding of the theory behind what makes machine learning work. This course does not assume any prior exposure to machine learning theory or practice. In the first 2/3 of the course, we will cover a wide range of learning algorithms that can be applied to a variety of problems. In particular, we will cover topics such as decision trees, rule based classification, support vector machines, Bayesian networks, and clustering. In the final third of the class, we will go into more depth on one application area, namely the application of machine learning to problems involving text processing, such as information retrieval or text categorization. 05-834 is the HCII graduate section. If you are an LTI student, please sign up for the LTI graduate course number (11-663) ONLY to count properly towards your degree requirements. 05-434 is the HCII undergraduate section. If you are an LTI student, please sign up for the LTI undergraduate course number (11-344) ONLY to count properly towards your degree requirements.

11-441 Machine Learning for Text Mining
Instructor: Yiming Yang
Meetings: TR 12:00-1:20 p.m.
Units: 9
This course provides a comprehensive introduction to the theory and implementation of algorithms for organizing and searching large text collections. The first half of the course studies text search engines for enterprise and Web environments; the open-source Indri search engine is used as a working example. The second half studies text mining techniques such as clustering, categorization, and information extraction. Programming assignments give hands-on experience with document ranking algorithms, categorizing documents into browsing hierarchies, and related topics.

15-110 Principles of Computing
Instructor: David Kosbie; Mark Stehlik
Meetings: Multiple

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A course in fundamental computing principles for students with minimal or no computing background. Programming constructs: sequencing, selection, iteration, and recursion. Data organization: arrays and lists. Use of abstraction in computing: data representation, computer organization, computer networks, functional decomposition, and application programming interfaces. Use of computational principles in problem-solving: divide and conquer, randomness, and concurrency. Classification of computational problems based on complexity, non-computable functions, and using heuristics to find reasonable solutions to complex problems. Social, ethical and legal issues associated with the development of new computational artifacts will also be discussed.

36-315  Statistical Graphics and Visualization
Instructor: Matey Neykov
Meetings: Section 1 (Lecture): MW 12:30-1:20 p.m.
Section A (Recitation): F 12:30-1:20 p.m.
Section B (Recitation): F 12:30-1:20 p.m.
Section C (Recitation): F 12:30-1:20 p.m.
Units: 9

Graphical displays of quantitative information take on many forms as they help us understand both data and models. This course will serve to introduce the student to the most common forms of graphical displays and their uses and misuses. Students will learn both how to create these displays and how to understand them. As time permits the course will consider some more advanced graphical methods such as computer-generated animations. Each student will be required to engage in a project using graphical methods to understand data collected from a real scientific or engineering experiment. In addition to two weekly lectures there will be lab sessions where the students learn to use software to aid in the production of appropriate graphical displays.

36-350  Statistical Computing
Instructor: Peter Freeman
Meetings: TR 12:00-1:20 p.m.
Units: 9

Statistical Computing: An introduction to computing targeted at statistics majors with minimal programming knowledge. The main topics are core ideas of programming (functions, objects, data structures, flow control, input and output, debugging, logical design and abstraction), illustrated through key statistical topics (exploratory data analysis, basic optimization, linear models, graphics, and simulation). The class will be taught in the R language. No previous programming experience required. Pre-requisites: (36-202, 36-208, or 36-309), plus ("computing at Carnegie Mellon" or consent of instructor) and 36-225 co-requisite.

60-142/62-142 Digital Photography I
Instructor: Section A: Aaron Blum
Section B: T. Ross Mantle
Meetings: Section A: TR 1:30-4:20 p.m.
Section B: MW 8:30-11:20 a.m.
Units: 10

This course explores digital photography and digital printing methods. By semester’s end students will have knowledge of contemporary trends in photography, construction (and deconstruction) of photographic meaning, aesthetic choices, and
the use of color. Students will learn how digital cameras work, proper digital workflow, RAW file handling, color management and Adobe Photoshop. Through the combination of the practical and theoretical, students will better define their individual voices as photographers. No prerequisites. Digital camera required.

Elective Courses for Students with Primary Majors in Programs OTHER THAN English, History, Modern Languages, Philosophy:

Possible courses include but are not limited to:

**76-325  Intertexuality**  
Instructor: John Oddo  
Meetings: TR 1:30-2:50 p.m.  
Units: 9

What do we mean when we say that someone has "twisted" our words, or that our words have been "taken out of context"? Why is Martin Luther King Jr. best remembered for saying, "I have a dream," and not for saying, "War is the greatest plague that can affect humanity"? What are political "talking points" and how are they perpetuated? How does a claim (unfounded or not) become a fact? How does a fact become a myth? These are just some of the questions that we will consider. More specifically, this is a course in how meaning changes as texts created in one context and for specific purposes are repeated, cited, and used in other contexts and for other purposes, sometimes related and relevant, sometimes not. More technically, we'll be focusing on the rhetorical nature of intertextual discourse. Our goal will be to examine the ways that people of all kinds—including politicians, journalists, and scientists—strategically draw upon and transform the statements, arguments, and evidence of other people to promote their own viewpoints or purposes. We will begin by investigating scholarship that views language as an extended conversation in which people struggle to have their own voices heard, and other voices countered or even suppressed. Later, we will survey a number of studies that suggest how individuals and organizations recontextualize and reinterpret prior discourse for persuasive ends. More specifically, we will analyze how the micro-features of the language (for example, qualifications, evaluations, and attributions) are used to persuade audiences that certain assertions are (not) factual, that certain speakers are (not) authoritative, and that certain proposed actions are (un)desirable. Ultimately, you can conduct your own research on intertextual rhetoric on a topic of specific interest to your academic or professional goals.

**76-373  Argument**  
Instructor: Chris Neuwirth  
Meetings: TR 3:00-4:20 p.m.  
Units: 9

The purpose of this course is to give you extensive practice in analyzing and producing effective arguments. For us, an "argument" will involve the conveying of a reasoned position on an issue of controversy, and this conveying may take a variety of generic forms (op-ed pieces, political ads, websites, blogs, essays, grant proposals, prose fiction, films, images, and even everyday conversation). The course will introduce you to the fundamentals of argumentation theory and consider a variety of principles that concern the production, analysis and evaluation of verbal (and to a lesser extent, visual) arguments. You will apply the principles through discussion in class to various cases, through a series of written responses to readings, and by producing several written arguments.

**76-385  Introduction to Discourse Analysis**  
Instructor: Alex Helberg  
Meetings: TR 12:00-1:20 p.m.  
Units: 9

"Discourse" is language: people talking or signing or writing. Discourse analysts ask and answer a variety of questions about how and why people do the things they do with language. We study the structure of written texts—the semi-conscious rules people use to organize paragraphs, for example—as well as the unconscious rules that organize oral discourse such as spontaneous stories and arguments. We study how people signal their intended audience-
interpretations of what they say as foreground or background information, a casual remark or solemn promise, more of the same or change of topic. We look at how grammar is influenced by what people need to do with language, and how discourse affects grammar over time. We ask how children and other language learners learn how to make things happen with talk and writing. We ask how people learn what language is for, from exchanging information to writing poetry to perpetuating systems of belief. We analyze the choices speakers and writers make that show how they see themselves and how they relate to others. (Choices about how to address other people, for example, both create and reflect relationships of power and solidarity). We study how people define social processes like disease, aging, and disability as they talk about them, and how language is used to mirror and establish social relations in institutional settings like law courts and schools as well as in families and among friends. This course touches on a selection of these topics and gives students practice in analyzing the complex nuances of language. The course is meant for anyone whose future work is likely to involve critical and/or productive work with language: writers and other communication designers, critics who work with written or spoken texts, historians, actors, sociologists, and so on.

76-394  Research in English
Instructor: Doug Coulson
Meetings: MW 12:00-1:20 p.m.
Units: 9
This course explores methods of researching, writing, and presenting original scholarly work in the broad interdisciplinary field of English Studies. The course allows both undergraduate and graduate students to pursue a research project on a topic of their choosing within the field of English studies to work on in the context of readings and discussions geared toward understanding the production of scholarly work in the field. We will work to understand not only traditional methods in the field such as textual analysis, but also more recent developments borrowed from other disciplines such as history and sociology, anthropology, and visual studies, among others. The course explores methods for developing topics, constructing research plans, locating, gathering, and using data and sources, along with basic principles of organizing, writing, revising, and presenting a research paper in a public presentation. Across the semester, students develop and work on an original scholarly research project culminating in a public presentation open to other students and faculty from the university.

79-200  Introduction to Historical Research and Writing
Instructor: Allyson Creasman
Meetings: TR 3:00-4:20 p.m.
Units: 9
This course introduces students to methods and materials that historians use to study the past. Its goals are: first, to familiarize students with ways that historians think about their research, how they carry it out, and how they debate findings with other historians; second, to train students in “best practices” for doing historical research in primary and secondary sources. We discuss how to ask questions about the past and develop a one-semester research topic, find appropriate primary and secondary sources, take notes from those sources, and write a paper that answers an original question using skills we have studied. In the Spring 2019 semester, we will use the topic of the history of witchcraft and witch-hunting to focus the class. Although Western beliefs in witchcraft and “devil worship” dated back to antiquity, the 16th and 17th centuries witnessed the “Great European Witch-Hunt,” which cost the lives of thousands across Europe and in its American colonies. Ever since, historians have struggled to explain why fears of witchcraft suddenly became so acute in this period. And although the witch-hunts in early modern Europe and its colonies gradually came to an end, beliefs in witchcraft persist into the modern era and, in many parts of the world today, continue to generate campaigns of popular violence against alleged perpetrators. In this course, we’ll examine both primary historical sources and secondary scholarship to explore competing interpretations of this complex historical puzzle. At the end of the term, students will submit a final 10-15 page research paper on a topic of their choice related to the themes of the course.

79-305  Moneyball Nation: Data in American Life
Instructor: Christopher Phillips
Meetings: Section A: MWF 11:30 a.m.-12:20 p.m.
Section B: MW 11:30 a.m.-12:20 p.m.; F 12:30-1:20 p.m.
From conducting clinical trials and evaluating prisoners' parole cases to drafting professional ballplayers, we increasingly make decisions using mathematical concepts and models. This course surveys the development of—and resistance to—such tools by grounding them in the recent cultural history of the United States. Focusing on baseball, medicine, and the law, we'll explore how and why Americans have come to believe mathematical and computational methods can solve complicated problems, even in seemingly unrelated moral, political, and social domains. The course encourages students to think critically about the wider implications of these transformations by situating their development historically.

80-180  Nature of Language
Instructor: Christina Bjorndahl
Meetings: Sections B, D, F: MWF 12:30-1:20 p.m.
Section A, C, E: MW 12:30-1:20 p.m.; F 11:30 a.m.-12:20 p.m.

Language is used to talk about the world or to describe it, but how do we go about describing language itself? Linguistics is the name given to the science of language, whose task it is to give such a description. The discipline of linguistics has developed novel tools for describing and analyzing language over the last two hundred years and in this course we learn what these tools are and practice applying them. Sub-areas of linguistics which we study include phonetics (the study of speech sounds), phonology (the study of sound systems), morphology (the study of parts of words), and syntax (the study of combinations of words). Beyond this, we look at changes in language over time, and we consider the puzzle of linguistic meaning. The methods of linguistics are useful in the study of particular languages and in the study of language generally, so this course is useful for students of foreign languages as well as those interested in going on to study language acquisition, psycholinguistics, sociolinguistics, philosophy of language, and computer modeling of language.

82-283  Language Diversity and Cultural Identity
Instructor: Katharine Burns
Meetings: MW 1:30-2:50 p.m.

Culture, language, and identity are intimately tied together. Individuals, families, communities, and nations identify themselves in relation to the language or languages they speak. Local, national, and international governmental organizations make choices about the language or languages they recognize and use for political and economic affairs. The United Nations even recognizes language as integral to maintaining the cultural heritage of communities and peoples around the world, and the freedom to choose one’s language of expression as a universal human right. In this course, we will explore a variety of questions, advantages, and challenges related to language diversity and cultural identity across the globe. Our main focus will be on contexts of multilingualism that is, contexts in which two or more languages may be used. Adopting a comparative case study approach, we will explore the following themes: (i) The historical underpinnings of language diversity and its consequences for cultural identity today (e.g., migration, colonization, conquest); (ii) How language diversity and cultural identity shapes, and is shaped by, local, regional, national, and international politics; (iii) The relationship between language diversity and language use and visibility in public spaces (i.e., the linguistic landscape); (iv) Relations between linguistic communities (e.g., majority and minority language users) and the sense of belonging to a culture. The course is taught in English. Students who wish to take the course as a Modern Languages major or minor elective will need to complete their final project on a topic relevant to the language they study.