

## **Detailed Work Plan and Schedule for Early Modern Digital Agendas: Network Analysis**

To facilitate participant communication and program organization, the Folger Institute normally constructs a listserv for our institutes roughly six weeks before participants arrive. The listserv will be maintained for as long as required; the EMDA2013 list is still active and sees several posts per month as its participants communicate project news with each other. Readings distributed via either DropBox or Google Drive (or similar open-source platforms) will allow for non-public, internal communication and the uploading of exercises and participants' discoveries during EMDA2017. Responsibility for a live Twitter feed (@EMDigAgendas) will be assumed by our Technical Assistants during presentations and discussion sessions, as is now common at DH events. Individual participants will contribute to the conversation with a hashtag (#EMDA2017) to allow other participants (and non-attendees) to join in.

All participants will be required to attend all sessions. The institute will convene in the Folger Board Room from 9:30 a.m. to 4:30 p.m., Mondays through Fridays. This schedule provides for a two-hour morning session, a generous break for lunch, and a three-hour afternoon session. The afternoon session also has a built-in break; participants and visiting faculty will join Folger staff and readers at the Folger's daily tea from 3:00 to 3:30 p.m. on weekdays. The schedule allows for presentations and consultation among participants, faculty, and Folger staff. Discussions of assigned and pre-circulated readings will be led by the co-directors and the visiting faculty, and links to digital exemplars and tools will be made available before presentations whenever possible. Evening social events will allow for conversations to continue and community to build outside the sessions.

### **Week 1: 17-21 July 2017**

#### **Network Data: Creation, Management, and Curation**

After orientations and community-formation steps, this week considers issues relating to the creation, management, and curation of early modern network data. That work begins by recognizing that the data upon which network analysis depends—early modern correspondence, manuscript, dissemination, social networks in plays, networks of co-occurring words—are all products of the history of their creation. Regardless of how such data is produced, it must be managed and curated, and participants will discuss best practices in the field of data curation. Presentations on visualization and its design will return participants to first principles. How does visualization impede or advance access to patterns now intelligible with network analysis techniques?

#### **Day 1 | Monday, 17 July 2017 | Welcome and Introductions**

##### **Morning (9:30-11:30)**

The morning will begin with an orientation necessary for work in a restricted-access, non-circulating, rare book library; Dr. Williams will organize a tour of the Folger Shakespeare Library as well as offering an introduction to what is expected of its readers. Participants will confer with the institute's Technical Assistants to configure wireless protocols and troubleshoot software uploads. Following these orientations, the co-directors and participants will convene for lunch with selected Folger staff.

##### **Afternoon (1:00-3:00)**

The first afternoon session will be crucial for community-building and accomplishing the agenda of the rest of the institute. Priorities include: (1) establishing a level of critical discussion which theorizes and contextualizes DH within the broad field of the humanities; and (2) establishing sub-groups within the institute which allow for the development of good inter-personal relations, the sharing of knowledge, and the creation of a supportive context in which participants' network analysis plans can be refined. The twelve participants will meet in three sub-groups of four. In each sub-group, participants will introduce themselves and describe their work, their research interests in network analysis, and their experience in early modern

studies and DH. The institute will then reconvene as a whole, and each person will introduce another member of their sub-group. The aim of these introductions is to establish a network analysis problem for each participant for which the participant will develop a solution, a visualization, a guided approach, or a list of resources over the coming weeks.

**Post Tea (3:30-4:30)**

Professor Hope and Dr. Ahnert will draw upon the participants' collective introductions to scope out the group's sense of current issues that might be addressed through network analysis—both theoretical and practical—that are of current concern in early modern digital humanities. This discussion will provide an overview of the meta-critical questions with which the institute is interested. Professor Hope will lead discussion of assigned texts that concern not only advanced social network analysis but also the particulars of how analyzing networks affects the data being analyzed. Professor Hope, Dr. Ahnert, and Dr. Williams will also outline plans for the institute's digital presence.

**Day 2 | Tuesday, 18 July 2017 | Latourian Networks and the Quantitative Turn of Network Science**

**Morning (9:30-11:30) | Actor-Network Theory**

Bruno Latour has been described as the “Prince of Networks.” Latour is one of the primary developers of Actor–Network Theory (ANT), an approach to social theory that treats objects as part of social networks. Although it is best known for its controversial insistence on the capacity of non-humans to act or participate in systems or networks or both, ANT is also associated with forceful critiques of conventional and critical sociology. In this session, Folger Director **Michael Witmore** will join with Professor **Ellen MacKay** (Indiana University) and Professor **Mattie Burkert** (Utah State University) to discuss how ANT may inform the work of early modern scholars in particular.

**Afternoon (1:00-3:00) | The Rise of Network Science**

Dr. **Maximilian Schich** (University of Texas-Dallas), Dr. **Sebastian Ahnert** (University of Cambridge), and **Scott Weingart** (Carnegie Mellon University) will provide an overview of the rise of the interdisciplinary field of Complex Networks in the late 1990s and early 2000s, and its growing impact on the arts and humanities in recent years.

**Post-Tea (3:30-4:30)**

The participants will discuss where they would position themselves in relation to ANT on the one hand and network science on the other. What are the relative virtues of these frameworks, and what are the drawbacks. What are the challenges of promoting network science to a wider humanities audience who may be skeptical of the drive towards computational methods?

**Day 3 | Wednesday, 19 July 2017 | Guided Build Session 1: Extracting and Structuring Data**

**Morning (9:30-11:30)**

In the first of our guided “build” sessions, Drs. **Jean Bauer** and **Claude Willan** (both Princeton University) and **Scott Weingart** (Carnegie Mellon University) will discuss the process by which scholars might turn historical texts into network data. Topics will include suitable source material, manual data collection/curation, database structure and format, and automated methods of data extraction.

**Afternoon (1:00-3:00)**

Following lunch, participants will have a two-hour session to build their own databases with guidance from both Drs. **Ahnert**, the morning experts, and the Technical Assistants. Participants who already have datasets may use this time to re-format their data for network analysis or enrich this data with additional information.

**Post-Tea (3:30-4:30)**

Drs. Ahnert will discuss the issue of dirty data, workflows, and tools for data-cleaning. The Ahnerts will introduce their own “Disambiguation Engine” and Google Refine.

**Day 4 | Thursday, 20 July 2017 | Data Cleaning and Crowdsourcing**

**Morning (9:30-11:30)**

The morning’s session will follow from the previous post-tea discussion of dirty data and methods for cleaning (and enriching) datasets. It will include introductions to two early modern network projects: [Shakeosphere](#), created by Professor **Blaine Greteman** (University of Iowa) and the [Six Degrees of Francis Bacon](#) project, created by Professor **Dan Shore** (Georgetown University) and Professor **Christopher Warren Jessica Otis**, and **Scott Weingart** (Carnegie Mellon University). This will be followed by a roundtable discussion of the “dirtiness” of their respective datasets and how they cleaned it. It will also introduce the role of crowdsourcing and the challenges that crowdsourcing introduces.

**Afternoon (1:00-4:30)**

A “Six Degrees of Francis Bacon” edit-a-thon will offer the group a change of pace and the practical experience of crowd-sourced dataset production.

**Day 5 | Friday, 21 July 2017**

**Morning (9:30-11:30) Thinking through Visualization**

When most early modern scholars think of networks, the project that immediately springs to mind is [Mapping the Republic of Letters](#). **Nicole Coleman** and **Dan Edelstein** (both of Stanford University) will speak about this project and how it led to the formation of the [Humanities+Design Research Lab](#). The lab’s mission is to produce—through the lens of humanistic inquiry—new modes of thinking in design and computer science to serve data-driven research in the humanities. This will lead to metacognitive questions: What are the best practices by which we embed good design practice into our both our research process and our research outputs? To advance these questions, Professor **Isabel Meirelles** (OCAD University, Toronto) will speak about her reflections on the relationships between visual thinking and visual representation. She will present a framework for thinking and designing interactive visualizations that are aimed at communicating research findings. .

**Afternoon (1:00-3:00) Guided Build Session 2: Visualizing your Data in Palladio**

Nicole Coleman will lead a training session on how to use [Palladio](#), the suite of tools developed by Stanford University’s Humanities+Design Research Lab.

**Post-Tea (3:30-4:30)**

Time will be provided for participants to continue experimenting with Palladio and to discuss in their small groups how such tools might help their research process.

**Week 2: 24-28 July 2017**

**Quantitative Network Analysis and**

**The Implications of Digital/At-Scale Research for Early Modern Studies**

For many scholars of early modern English, DH is equated with the analysis of data at a scale beyond what humans can process. Quantitative Network Analysis (QNA) is a burgeoning field in early modern studies that will be presented by a number of leading practitioners in the second week of the institute. Presentations will feature advanced techniques and methods for measuring networks quantitatively and “notes from the field” from practitioners who have used these advanced techniques for their own projects.

## Day 6 | Monday, 24 July 2017 | Beyond Visualization

### Morning (9:30-11:30)

After Professor Hope and Dr. Ahnert outline expectations for the participant presentations on Thursday and Friday, the Drs. Ahnert will introduce Quantitative Network Analysis (QNA). They will explain the ways in which network connectivity can be quantified, showing how various network measurements can highlight the different roles that individual nodes play in network. They will illustrate these approaches with examples from their own research on Tudor correspondence networks.

### Afternoon (1:00-3:00)

Professor **Mark Algee-Hewitt** and Associate Research Director **Ryan Heuser** of the [Stanford Literary Lab](#) will present their work on modeling dramatic networks. Their project arises from a systematic comparison of hundreds of dramatic networks. Their data is drawn from a dozen different literatures and historical periods. Their team is currently using computer models to identify the fundamental properties of dramatic networks—with particular attention to the correspondence between genres and patterns of growth—to reflect on the relationship between modeling parameters.

### Post-Tea (3:30-4:30)

**Anupam Basu** (Washington University in St. Louis) will be joined by **Jonathan Hope** and **Mike Witmore** to present their collaborative work. While networks are often used in the humanities to represent data that is primarily structured in terms of relationships between nodes, graph theory has been adapted in recent years to a wide variety of purposes. Basu will discuss the ways in which network-based approaches might be used for large-scale text analysis and classification problems.

## Day 7 | Tuesday, 25 July 2017 | Guided Build Sessions 3 & 4

### Morning (9:30-11:30) Guided Build Session 3: Off-the-shelf Tools for Network Analysis

**Algee-Hewitt** and **Heuser** will offer an introduction to several off-the shelf tools that are used to conduct network analysis. Under their guidance, participants will be able to begin visualizing and measuring their network datasets.

### Afternoon (1:00-3:00) Guided Build Session 4: NetworkX

Drs. Ahnert will provide an introduction to the Python package for network analysis, NetworkX.

### Post-Tea (3:30-4:30)

Participants will have a chance to continue analyzing their networks using Gephi or the NetworkX library. The visiting faculty will be available for personal guidance and instruction.

## Day 8 | Wednesday, 26 July 2017 | At-Scale Research and its Implications

### Morning (9:30-11:30)

On Wednesday, Professor Hope will redirect participants' attention to the challenges digital tools and methods pose to literary studies and scholars. He will also broaden the scope of the institute's agenda to the larger (period) ecosystems of DH. Challenges range from the practical ones of how scholars collaboratively conceive a digital project and organize its workflow, interoperability, and sustainability, to fundamental questions about the basis, aims, and procedures of literary studies. To facilitate discussion, participants will be joined by directors from three large-scale projects.

Professor **Howard Hotson** (Oxford University) is director of the European Cooperation in Science and Technology (COST) Action “Reassembling the Republic of Letters, 1500-1800,” an EU project aimed at providing “A digital framework for multilateral collaboration on Europe’s intellectual history.” Professor Hotson will discuss the ways that this project envisaged the open-access, open-source, transnational digital infrastructure capable of reuniting the scattered archives of the Republic of Letters. He will be joined by Professor **Marie-Louise Coolahan** (National University of Ireland-Galway), who will describe her work on two interconnected projects that involve network analysis and naturally raise issues of interoperability: “The Reception and Circulation of Early Modern Women’s Writing, 1550-1700” (RECIRC) and “New Approaches to European Women’s Writing” (NEWW).

**Afternoon (1:00-3:00)**

Professor **Bill Bowen** (University of Toronto Scarborough), Professor Ray Siemons (University of Victoria), and Dr. **Daniel Powell** (King’s College London) will describe the Renaissance Knowledge Network project as it intersects with and facilitates network analysis. ReKN aims to build infrastructure that can facilitate and enable social knowledge work in early modern studies by providing several key functionalities: to provide aggregated and effective searching of digital resources in Renaissance studies; implement standards and practices for peer review of digital resources and projects; develop metadata and interoperability standards for future resources; and act as a hub for communities of knowledge and practice. By providing access to aggregated data about early modern texts and culture, ReKN will provide key, cross-resource, large-scale datasets for use in network analysis.

**Post-Tea (3:30-4:30)**

Professor **Laura Mandell** (Texas A&M University) leads discussion on how network analysis is affecting the Digital Humanities as a whole, considering how projects might link up (share data and tools), what the emerging protocols are for interoperability, and how to conceptualize linked data as a mode of scholarly communication.

**Day 9 | Thursday, 27 July 2017 | Participant Presentations and Comments**

On Thursday afternoon and Friday, to provide the institute’s coda, participants will prepare and then deliver individual presentations, in which they will be charged to respond to the institute’s themes and lay out plans and issues for their future research. Professor Mandell will also participate on Thursday and Friday as an active interlocutor for the participants as they describe their projects.

**Morning (9:30 to 11:30)**

Participants will have the morning to prepare their presentations.

**Afternoon (1:00-4:30)**

Six participants will have thirty minutes each to share their discoveries and the current state of their network analysis work.

**Day 10 | Friday, 28 July 2017 | Participant Presentations and Comments, continued**

**Morning (9:30 to 12:30)**

Six additional participants will have thirty minutes each to share their discoveries and the current state of their network analysis work.

**Afternoon (2:00 to 4:30)**

In this closing session, participants will discuss what they have learned, speculate on what needs to be done or made available to researchers in the field of network analysis, and describe what they have been inspired to investigate. They will also indicate what their continuing contribution to the Institute’s digital presence will

be. In EMDA2013 and EMDA2015, these sessions were extremely successful, even celebratory, as they generated offers of support and collaboration. Again in EMDA2017, these sessions also mark the beginning of the lasting digital presence that the participants will create. The most relevant material and projects will be migrated to a wiki-site called Folgerpedia hosted at the Folger. Together, staff and participants will modify and update the materials as needed to provide a portal to a DH resources hub of advanced work for early modernists. This inter-disciplinary evaluation of goals, materials, and methodologies will increase the likelihood that future projects will be expertly conceived and answer the needs of such scholars and their students, the rising generation of digital humanists. It also looks ahead to the workshop scheduled for the following May.