



**SENATE COMMITTEE ON CURRICULAR AFFAIRS**  
**COURSE SUBMISSION AND CONSULTATION FORM**

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*Principal Faculty Member(s) Proposing Course*

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Name	User ID	College	Department
ERIC HAYOT	EUH2	Liberal Arts (LA)	Not Available
LYNETTE YARGER	LMK12	Information Sciences and Tech (IS)	Not Available
PAMELA VANHAITSMA	prv5	Liberal Arts (LA)	Not Available

Academic Home: Liberal Arts (LA)

Type of Proposal:  Add  Change  Drop

Message for Reviewers:

**Course Designation**

(CAS 170N) What is Information?

**Course Information**

**Cross-Listed Courses:**

IST 170N(IS)

**Prerequisites:**

**Corequisites:**

**Concurrents:**

**Recommended Preparations:**

Abbreviated Title: What is Info?  
Discipline: General Education  
Course Listing: Inter-Domain

**Special categories for Undergraduate (001-499) courses**

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**Foundations**

- Writing/Speaking (GWS)
- Quantification (GQ)

**Knowledge Domains**

- Health & Wellness (GHW)
- Natural Sciences (GN)
- Arts (GA)
- Humanities (GH)
- Social and Behavioral Sciences (GS)

**Additional Designations**

- Bachelor of Arts
- International Cultures (IL)
- United States Cultures (US)
- Honors Course
- Common course number - x94, x95, x96, x97, x99
- Writing Across the Curriculum

## First-Year Engagement Program

First-Year Seminar

## Miscellaneous

Common Course

## GE Learning Objectives

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit & Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp & Ethic Reason

## Bulletin Listing

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**Minimum Credits:** 3

**Maximum Credits:** 3

**Repeatable:** NO

**Department with Curricular Responsibility:** Communication Arts And Sciences (UPLA\_CAS)

**Effective Semester:** Upon Approval

**Travel Component:** NO

## Course Outline

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### A brief outline or overview of the course content:

"What is Information?" considers the material and social nature of information in historical and contemporary contexts. How has information been managed and valued? How have information infrastructures served as sites of social and political connection or antagonism? How have ideas about information changed over time and how have they remained the same? The course integrates perspectives from the social sciences and the humanities, and prepares students to think about (and act in) a world in which information (and its linked concepts, like data) play an increasingly important social and political role.

### A listing of the major topics to be covered with an approximate length of time allotted for their discussion:

As always, the listing below covers major topics, and assumes the course will be taught to a certain size (100+ students). Different instructors may select among these topics and major themes, or add to them, or subtract from them; they may also change assignments as the course size changes.

A more detailed structure follows, but the basic topics to be covered, with approximate weeks of coverage, would include;

Introduction/Information History: 2 weeks

How Information is Represented: 4 weeks

How Information is Organized: 4 weeks

The Politics of Information: 4 weeks

Review: What is Information After All? 1 week

What is information?

Week 1: Introduction to Information

This first week will introduce the idea of information, focusing on how students define information and then turning to how information might be defined by looking at current uses of the term. Students will then be introduced to Claude Shannon's theory of information as a key moment in how we think about information today.

Readings might be taken from current newspaper and magazine articles, relevant online writings, and excerpts from Claude Shannon's paper on information and James Gleick's *The Information*.

Week 2: Information History

With claims that we live in the "information age," it's common to assume that we are living in a unique moment in history. When we examine the concept of information over a longer timeframe and across different cultures, we can understand that information has been a significant concern for much longer than the past few decades. Students will begin to consider how taking an historical perspective can challenge many of our assumptions about the role of information in our contemporary society.

Readings might include excerpts from James Gleick's *The Information*, and from a smattering of texts representing discussions of information in the pre-modern world (for example, Plato, Eisenstein's *Printing Press as an Agent of Change*, Ann Blair, *Too Much to Know*)

Presentation of Information

Weeks 3-6

From manuscripts to spreadsheets, information can be communicated in different formats using different technologies. These formats are interfaces that effect how we understand the information contained. This unit will look at formats, interfaces, and technologies, as well as how human consumption and understanding of information has been mediated in different contexts. An introduction to Marshall McLuhan's work on media theory will serve as a point of entry into discussions of how the material forms of information effect our understanding of that information. Examples include a history of writing, an exploration of typography past and present, software and/or web design, and studies of reading practices. Students will then move to a survey of information visualization from medieval maps through early modern title pages and indexes to more contemporary flow charts and graphs. After the overview of different approaches to information visualization, students will learn how to critically assess the presentation of

information, especially information visualizations such as graphs and maps, and how visualizations can be designed to mislead; they will also have the opportunity to create their own visualizations.

Readings might include excerpts from McLuhan (or assigning the students to watch his Medium is the Message video); chapters from Amalia Gnanadesikan's *The Writing Revolution*, Raymond Williams' *Television and Cultural Form*, Neil Postman's *Amusing Ourselves to Death*, and Roger Chartier's *Forms and Meanings: Texts, Performances, and Audiences from Codex to Computer*; articles on human-computer interaction and universal design, and how different modes of reading affect different parts of the brain and/or work coming out of PSU's Media Effects Lab (in the College of Communication) and the Communication Research Lab (based in CAS); and excerpts from Mark Monmonier, *How to Lie with Maps*, Edward Tufte, *The Visual Display of Information*, Alberto Cairo's *The Truthful Art* and/or his recent work on visual trumpery, and Catherine D'Ignazio and Lauren Klein's work on feminist data visualization.

Exam 1 will come at the end of this unit.

Organization of Information

Weeks 7-10

There have been many different strategies for organizing information in history. This unit introduces various approaches to managing information in print and electronically, as well as institutions and infrastructures that have been developed to manage information.

The core of this unit will be a history of archives/libraries and a history of the Internet. Instructors teaching this course (or this unit) can emphasize different aspects of the organization of information depending on their expertise and interests. Students will learn about the relationship between organization practices and search/discovery, as well as the basics of information behavior, database design, and data management.

Readings will include a chapter from Robert Glushko, ed., *The Discipline of Organizing*; excerpts from the MIT Press book on metadata or Michael Buckland's recent *Information and Society* book from the same series; work on critical information organization by Melissa Adler and others; and articles on the origin of archives, the history of public libraries, and the development of the Internet from Darpa to today.

Exam 2 will come at the end of this unit.

Politics of Information

Weeks 11-15

The proliferation of information (and access to it) has long had political implications. This unit will begin with debates about the role of information technologies in social and political change, from the relationship between the invention of printing and the Reformation to the impact that social media had on the outcome of recent elections. The class will assess the promise and perils of Internet politics and culture with a look at utopian impulses associated with the Internet and free software movements, Internet activism, studies of online social life (potentially including ethnographies of virtual worlds), and trolling and harassment. Other possible topics include labor and information (e.g., digital labor, platform capitalism, gig economy, hidden labor in IT). Next, the course will address the promise and perils of big data, surveying the different ways in which our society generates, collects, and analyzes data and attending to the ethical considerations of data collection and use. The unit will conclude with a section on privacy and security that will begin with a brief history of secrecy, encryption, and privacy and then move into contemporary issues about online privacy and security. Students will receive training on how to have a safer, more secure online experience.

Readings might include debates about the role of information technologies in political change (e.g., Eisenstein vs. Johns in the *American Historical Review*, Benedict Anderson's *Imagined Communities*); Safiya Noble's and Lisa Nakamura's work on race, gender, and Internet technologies; excerpts from Gabriella Coleman's work on Anonymous or other relevant pieces on the political possibilities of the Internet; Kate Starbird's work on the circulation of fake news on social media; articles on the role of social media in politics (from Katy Pearce's studies of Central Asian politics to debates about the role of social media in the Arab Spring); excerpts from Cathy O'Neil's *Weapons of Math Destruction* and other work on big data and society; and historical and current discussions of privacy and security (for example, national security acts, historical examples of encryption, white papers from *Data & Society*, blog posts from the Electronic Freedom Foundation, and newspaper articles and/or blog posts about the security leaks during the recent election).

Exam 3 will come at the end of this unit.

### Course Description:

"What is Information?" considers the material and social nature of information in historical and contemporary contexts. How has information been managed and valued? How have information infrastructures served as sites of social and political connection or antagonism? How have ideas about information changed over time and how have they remained the same? The course integrates perspectives from the social sciences and the humanities, and prepares students to think about (and act in) a world in which information (and its linked concepts, like data) play an increasingly important social and political role. The course addresses the history of information as both a concept and as a matter of social practice, and then focuses on three major topics: how information is presented, how information is organized, and how information is put to social and political use. Moving from the earliest periods of human history and their "information ages" (including the birth of writing and the dawn of printing and mass literacy), the course leads students into our contemporary "information society," and the ways in which both the use and manipulation of information shape our lives.

### The name(s) of the faculty member(s) responsible for the development of the course:

| Name: ERIC HAYOT (EUH2)

Title:

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| Name: LYNETTE YARGER (LMK12)

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Name: PAMELA VANHAITSMA (prv5)

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## Course Justification

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### **Instructional, Educational, and Course Objectives:**

**This section should define what the student is expected to learn and what skills the student will develop.**

Information has long been with us. Problems of storage and memory, of language and communication, of authority and freedom, of how we know or organize things, of how we control or expand access to knowledge, of how we evaluate differences of quality or quantity—all these have been for a long time relevant to the great human project of making and understanding our lifeworlds. In contemporary "information society" (the term was invented by Masuda Yoneji in the late 1960s) understanding "information" is a matter of basic social literacy. Someone who does not know how to think about information—its history, its uses, its threats and opportunities—will have a hard time participating meaningfully, and powerfully, in contemporary information society, because they will not understand the basic social structures (including the organization of information by corporations, or the presentation of information in the media) or because they will not understand the epistemological practices (arguments from data, arguments about p-values, regression analyses) or forms of social control (positive and negative: surveillance but also security) that govern us.

#### Course Objectives

- 1) Students will be able to identify recurrent problems pertaining to the organization and communication of knowledge documented in literature on information studies.
- 2) Students will acquire a functional social literacy in the importance of information to contemporary society.
- 3) Students will understand how contemporary social structures, epistemological practices, or forms of social control depend upon various uses of information.
- 4) Students will be able to critique the way information is thought about or talked about in the media, popular culture, or politics

### **Evaluation Methods:**

**Include a statement that explains how the achievement of the educational objective identified above will be assessed. The procedures for determining students' grades should be specifically identified.**

This depends on class size; large classes will use the usual methods, including exams and online assignments; smaller classes might include student writing or other group assignments, at the discretion of the instructor. As usual, assignments in the course will aim to address both the general thematic outline of the course as well as the specific learning objectives (1-4).

In a large class of 50-150 students, one example for how such evaluation methods might work would be:

1. Informal class discussion: to allow students to practice identifying problems (objective #1) or critiquing the way information is thought about (#4; ungraded)
2. Informal online discussion, in the form of Canvas groups, in which students respond to prompts and to each other (#1 and #4; ungraded)
3. Multiple-choice questions on exams, which will assess informational literacy (#2) as well as the ability to identify problems (#1; graded, 50 percent)
4. Short-answer questions on exams, in which students demonstrate their mastery of (and literacy in) the history and social function of information (#2, 30 percent)
5. Group projects, in which students work together to demonstrate their ability to identify (#1) understand (#3) and critique (#4) the idea of information (20 percent)

### **Relationship/Linkage of Course to Other Courses:**

**This statement should relate the course to existing or proposed new courses. It should provide a rationale for the level of instruction, for any prerequisites that may be specified, or for the course's role as a prerequisite for other courses.**

This course can serve as an introductory course on the history of (and humanistic approaches to) information for all students in IST; it is not a prerequisite for anything but a course designed to introduce the entire university community to the idea of information as something that can be thought about and studied from a number of perspectives. In this respect, the course avoids substantive overlap with existing CAS courses devoted to Communication and Information Technology (CAS 283, 383, and 483). Those courses feature various courses of study devoted to points of intersection among social scientific perspectives on human communication applied to the use and development of information technology. The proposed course, CAS 170, features a much greater diversity of academic approaches to the study of information and its relationship to forms of communication.

### **Relationship of Course to Major, Option, Minor, or General Education:**

**This statement should explain how the course will contribute to the major, option, or minor and indicate how it may function as a service course for other departments.**

This course is a general education, interdomain GS+GH course. It is being co-proposed by two academic units: the Department of Communication Arts & Sciences (in Liberal Arts) and the College of Information Sciences & Technology, both of which will cross-list the course. The course also benefits from a relationship to Penn State's Center for Humanities and Information, which regularly offers public lectures on information-related topics. (These talks do not have to be integrated into the course, but obviously any given faculty could choose to do so).

The major focus of the course is on building information literacy for all Penn Students, and on helping them learn to think about the disciplinary perspectives (social scientific, GS, and humanistic, GH), that help us understand what information is and how it works.

### **A description of any special facilities:**

None.

**Frequency of Offering and Enrollment:**

Once a year / 100 students

**Alignment with General Education Objectives**

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**EFFECTIVE COMMUNICATION** – the ability to exchange information and ideas in oral, written, and visual form in ways that allow for informed and persuasive discourse that builds trust and respect among those engaged in that exchange, and helps create environments where creative ideas and problem-solving flourish.

**KEY LITERACIES** – the ability to identify, interpret, create, communicate and compute using materials in a variety of media and contexts. Literacy acquired in multiple areas, such as textual, quantitative, information/technology, health, intercultural, historical, aesthetic, linguistic (world languages), and scientific, enables individuals to achieve their goals, to develop their knowledge and potential, to lead healthy and productive lives, and to participate fully in their community and wider society.

**CRITICAL AND ANALYTICAL THINKING** – the habit of mind characterized by comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating a conclusion. It is the intellectually disciplined process of conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action.

**INTEGRATIVE THINKING** – the ability to synthesize knowledge across multiple domains, modes of inquiry, historical periods, and perspectives, as well as the ability to identify linkages between existing knowledge and new information. Individuals who engage in integrative thinking are able to transfer knowledge within and beyond their current contexts.

**CREATIVE THINKING** – the capacity to synthesize existing ideas, images, or expertise in original ways and the experience of performing, making, thinking, or acting in an imaginative way that may be characterized by innovation, divergent thinking, and intellectual risk taking.

**GLOBAL LEARNING** – the intellectually disciplined abilities to analyze similarities and differences among cultures; evaluate natural, physical, social, cultural, historical, and economic legacies and hierarchies; and engage as community members and leaders who will continue to deal with the intricacies of an ever-changing world. Individuals should acquire the ability to analyze power; identify and critique interdependent global, regional, and local cultures and systems; and evaluate the implications for people's lives.

**SOCIAL RESPONSIBILITY AND ETHICAL REASONING** – the ability to assess one's own values within the social context of problems, recognize ethical issues in a variety of settings, describe how different perspectives might be applied to ethical dilemmas, and consider the ramifications of alternative actions. Individuals should acquire the self-knowledge and leadership skills needed to play a role in creating and maintaining healthy, civil, safe, and thriving communities.

**What component(s) of the course will help students achieve the General Education Learning Objectives covered in the course? Provide evidence that students in the course have adequate opportunities to achieve the identified learning objectives.**

**KEY LITERACIES**

Information has long been with us. Problems of storage and memory, of language and communication, of authority and freedom, of how we know or organize things, of how we control or expand access to knowledge, of how we evaluate differences of quality or quantity—all these have been for a long time relevant to the great human project of making and understanding our lifeworlds.

This long history notwithstanding, one thing is sure: ours is the first to recognize itself as an Information Age. Humans today generate more information than ever before; they use more information, and have access to more information, than ever before; they worry about information more than they ever have before. To what extent can or should information—in the form of Big Data or of statistical analysis—decide the course of our lives? What kinds of government surveillance best promote the cause of justice, or of freedom? Does a world of information have to be a world of control? What if information, and not atoms, constitutes the basic physical form of the universe? In a world of constantly accumulating information, how can we ever know enough about what there is to know?

These are basic questions. They touch on all dimensions of human knowledge, from philosophy to physics, in fields that run the gamut from the humanities to the social sciences to the sciences. Having answers to them, or even recognizing that they are questions at all, is now a matter of basic social literacy. Someone who does not know how to think about information—its history, its uses, its threats and opportunities—will have a hard time participating meaningfully, and powerfully, in contemporary information society.

**CRITICAL AND ANALYTIC THINKING // INTEGRATIVE THINKING**

The readings in the proposed syllabus (above) will showcase the ways in which thinking critically help us understand what information is and how it works. Students will learn how the humanities (GH) think: how to address problems from the perspective of their historical development, and how to consider the roles complex social formations play in the development of cultural concepts. They will also learn how to think like social scientists (GS): how to use quantitative data to ask questions and build arguments, how to approach social situations by considering evidence from psychology, sociology, or economics. The course also introduces students to the important idea that human life is fundamentally intertwined with technologies, including media technologies (from writing to the internet). Sections of the course will also help students learn how to interpret and understand the representations of information (especially in visual form, like charts and graphs), and how to recognize when that presentation is manipulative or misleading.

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**How will students be assessed to determine their attainment of the Learning Objective(s) of General Education covered in this course? This assessment must be included as a portion of the student's overall performance in this course.**

The assessment will take place in primarily three forms (in the large format imagined here):

1. Exams will include questions that test students' abilities to remember and use the components of "information LITERACIES" that they gain during the course; the exams will also test CRITICAL AND ANALYTICAL THINKING as students apply their literacies to new situations or cases. By having students move back and forth between GS and GH thinking, we will also show how these forms of knowledge complement each other and can be INTEGRATED with one another.

2. Class discussions will address all of these aspects by giving students opportunities to ask and answer questions, and to discuss these challenges in small groups.

3. Online short writing assignments will give students the opportunity to practice these LITERACIES and showcase their THINKING in all respects; these will also allow the instructor to evaluate their development over the course of the semester.

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## General Education Domain Criteria

General Education Designation: Inter-Domain

### GH Criteria

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Explain the methods of inquiry in humanities fields and describe how the contributions of these fields complement inquiry in other areas

Demonstrate competence in critical thinking about topics and texts in the humanities through clear and well-reasoned responses

Critically evaluate texts in the humanities— whether verbal, visual, or digital— and identify and explain moral or ethical dimensions within the disciplines of the humanities

Demonstrate knowledge of major cultural currents, issues, and developments through time, including evidence of exposure to unfamiliar material that challenges their curiosity and stretches their intellectual range

Become familiar with groups, individuals, ideas, or events that have influenced the experiences and values of different communities

**What components of the course will help students achieve the domain criteria selected above?**

Because this is a GS+GH course, it will necessarily highlight the METHODS OF INQUIRY in both humanistic and social scientific fields, illuminating both fields by comparison and contrast to the other one. The texts chosen for the course will themselves be examples of how to CRITICALLY EVALUATE material, and the student responses and class discussion will give them practice in engaging in and practicing critical evaluation on their own; this evaluation will include attention to the moral and ethical (political) dimensions of information (is there a right to privacy? What does it mean for information to be "free"? How should we use information to make judgments about moral issues, or social policy?). The historical arc of the course, with its emphasis on the roles that information and information technologies have played in human history going back to the invention of writing, will allow students to connect the course to major cultural events and ideas and to observe their DEVELOPMENT THROUGH TIME.

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### GS Criteria

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Explain the various methods of inquiry used in the social and behavioral sciences and describe how the contributions of these fields complement inquiry in other areas

Identify and explain major foundational theories and bodies of work in a particular area of social and behavioral sciences

Describe the ways in which many different factors may interact to influence behaviors and/or institutions in historical or contemporary settings

Explain how social and behavioral science researchers use concepts, theoretical models and data to better understand and address world problems

Recognize social, cultural, political and/or ethical implications of work in the social and behavioral sciences

**What components of the course will help students achieve the domain criteria selected above?**

Because this is a GS+GH course, it will necessarily highlight the METHODS OF INQUIRY in both humanistic and social scientific fields, illuminating both fields by comparison and contrast to the other one. The historical arc of the course, with its emphasis on the roles that information and information technologies have played in human history going back to the invention of writing, will allow students to connect the course to major cultural events and ideas and to observe their SOCIAL, CULTURAL, and POLITICAL implications. The course's focus on the ways in which information appears at the intersection of DIFFERENT FACTORS, including social choices, technological development, and conceptual history, will address the second component of the GS criteria.

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### Integrative Studies

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**Explain how the intellectual frameworks And methodologies of the two Knowledge Domains will be explicitly addressed in the course and practiced by the students.**

Because this is a large course, the major way in which all topics will be covered is in large lecture format, with some class discussion using technology according to the instructor's preference (iClicker, PollEverywhere, or catch boxes for student commentary; possibly small-group discussion and the like). Because the course is being jointly developed by social scientists (Yarger) and humanists (Hayot/Vanhaitsma), and draws perspectives from both CAS and IST, this course fundamentally represents an attempt to integrate the two indicated knowledge domains. Both CAS and IST include faculty working with both social scientific and humanistic methods; the departments are themselves already in that sense cross-disciplinary GH/GS, and so this course is a natural collaboration between them. The sample list of topics in the syllabus includes perspectives from both humanists and social scientists; students will therefore learn to read material from both perspectives and to understand the ways in which humanist and social scientific perspectives can combine to illuminate problems more fully than would happen with either one alone.

RESPONSE TO INTEGRATIVE STUDIES SUBCOMMITTEE (10/23/18). The committee requests two examples of assignments that demonstrate GH/GS intergration.

1. Case Study: What is the social role of "misinformation"? Pre-assignment readings could include material on mass panics and scandals that turn out to be false. What is the difference between deliberate misinformation (lying, propaganda) and information that turns out to be untrue (that the Martians have landed)? Assignment: do research into a contemporary case in which one group or the other claims that misinformation is altering public life (climate change; autism and vaccines). Write a short paper in which you describe the debate, and then analyze that debate using concepts from Richard Dawkins (on the theory of memes) and Limor Shifman ("Memes in a Digital World"), or Kate Starbird's work on memes and social media. This assignment would come during the fourth section (Politics of Information) of the course.

2. Exam Question: Pre-exam readings and discussions would involve looking at the visual presentation of information in maps, charts, graphs, and the like, dating from the 18th century forward; students would look at how these various forms emerge historically, and discuss the ways in which they can be used to both clarify a situation and to lie about it (Tufte, Cairo). The exam questions would present students with examples of graphs, maps, and charts, and ask them to (1) describe the strategies that the object is using in order to communicate, and then to (2) critique those strategies, saying whether they seem to present that information ethically or not, using concepts from the readings and class discussion. This assignment would come during the second section (Presentation of Information) of the course.

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**Demonstrate that each Of the two domains will receive approximately equal attention, providing evidence from course topics, assignments, or other course components, and that students will integrate material from both domains.**

A quick look at the syllabus suggests that both GH and GS approaches are covered equally. For instance in the section on representation the Gndeskian, Williams, Postman, and Chartier are humanists, while Monmonier, Tufte, and Cairo are more social scientific; in the section on organization Glushko and Buckland are social scientists, while in the politics section Noble and Nakamura are humanists, while Data & Society is a social scientific journal. In other words, the division of possible readings is fairly evenly split between humanist and social scientific approaches.

More importantly, part of the message of the course is that you cannot think about (or understand) information if you leave out either humanist or social scientific perspectives--so in some sense it's not a question of separating the class into "here's a humanist way of thinking" and "here's a social scientific way of thinking," but rather of always thinking in ways that bring history/philosophy (=humanities) together with psychology and sociology (= social sciences).

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**Briefly explain the staffing plan. Given that each Inter-Domain course is approved for two Knowledge Domains, it will be taught by an instructor (or instructional team) with appropriate expertise in both domains.**

The course will almost certainly be co-taught the first time or two it is offered, probably in some combination of Hayot/Vanhaitisma/Yarger to be determined. Other contributors to the course teach include the postdoctoral fellows at Penn State's Center for Humanities and Information. These fellows, who are at Penn State for 3 years, usually have PhDs in the humanities (mainly history and literature) but their focus on information as a topic means that they have extensive experience thinking about the history of technology, about media history, about issue of information representation, and the like. Because the course is shared by two units, both units will have an opportunity to support teachers of the course, and to help make sure that the course continues to have a good balance of GS and GH material. CAS is, in addition, poised to acquire additional tenure-track faculty at UP who teach and conduct research in the areas of mass media and/or information technology—both in communication science and in rhetoric. In all, then, a number of well qualified instructors should be available for this course over the long term.

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**Describe the assessments that will be used to determine students' ability to apply integrative thinking.**

Again, it's hard to say this stuff specifically. The short answer is: exams, student responses, class discussion. There is no single test for integrative thinking; the course is itself integrative from the ground up.... more like a bowl of soup than a salad, since the GS and GH ingredients are blended together rather than treated separately. The course topics -- representation, organization, politics-- do not belong just to one side or the other of the GS/GH divide; rather they engage at all times both fields. So all the assignments used to evaluate student learning will also evaluate and encourage students' ability to think integratively.

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## General Education Designation Requirements

**Bachelor Of Arts Requirements:**

- BA: Natural Sciences
- BA: Other Cultures
- BA: Foreign/World Lang (12th Unit)
- BA: Humanities
- BA: Social and BA: Behavioral Sciences
- BA: Arts
- BA: Quantification
- BA: Foreign/World Lang (All)

As per the previous page, this is a GS+GH integrative Gen Ed course.

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## Campuses That Have Offered ( ) Over The Past 4 Years

semester	AB	AL	BK	BR	BW	CR	DS	ER	FE	GA	GV	HB	HN	HY	LV	MA	NK	PC	SH	SL	UP	WB	WC	WS	XC	XP	XS	YK
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## Potential Impact

**Pre-Requisites**

is *listed as a pre-requisite or concurrent course* for the following courses:

Note: Not all courses may be listed here, due to lionpath requirement incompleton.

No pre-requisites or concurrent courses found

## **What is Information? (GS+GH, 3 credits )** **CAS 170/IST 170**

"What is Information?" considers the material and social nature of information in historical and contemporary contexts:

1. How has information been managed and valued?
2. How have information infrastructures served as sites of social and political connection or antagonism?
3. How have ideas about information changed over time and how have they remained the same?

The course integrates perspectives from the social sciences and the humanities, and prepares students to think about (and act in) a world in which information (and its linked concepts, like data) play an increasingly important social and political role.

Instruction will include class lectures, in-class exercises, and online discussions. Assessments will include 3 exams and a final project.

### **Course Goal**

The goal of "What is Information?" is to equip students with the critical literacies necessary to thrive in our contemporary information society. Someone who does not know how to think about information – its history, uses, threats, and opportunities – will have a hard time participating meaningfully in our world today because they will not understand the basic social structures and epistemological practices that govern us. Furthermore, this course will introduce students to knowledge and practices that will enable them to be more critical consumers of information and better, safer online citizens.

### **Grading**

Your grade will be determined as follows:

<i>Participation</i>	<i>20 percent</i>
<i>3 Exams</i>	<i>20 percent each</i>
<i>Final Project</i>	<i>20 percent</i>

The exams will be a mixture of multiple choice, identifications, and short essays. The final project (to be determined by the instructor) will provide students with the opportunity to investigate a topic related to information and produce a web-based project. Project examples: humanistic design of quantitative visualizations; a guide to Internet security aimed at college students; a history of early computing at Penn State.

### **Course Components**

**Participation:** Students will be graded based on substantive participation in Canvas class discussion forums and completing in-class (or Canvas-based) exercises.

**Exams:** There will in-class exams following the end of each topic section. Make-up exams will only be given in cases of serious medical or family emergencies or legitimate, unavoidable conflicts related to University business. Such conflicts should be reported to the instructors at the earliest possible opportunity. Team or club trips that conflict with scheduled class exams must be

reported within the first two weeks of term to be eligible for make-up. Make-up exams will be administered differently and have different content than the in-class exams.

Final Project: Final projects will be due during finals week. Students will be required to submit a final project proposal in week 7.

### **On Class Etiquette**

In order to maintain an orderly class environment that is respectful to all and conducive to learning, especially in a large lecture classroom, all students need to act with extra consideration. By remaining enrolled in the class, you agree to abide by the Class Etiquette Policy as articulated on Canvas. Please read this policy carefully and contact the instructors if you have any questions.

### **Lateness, absences, and other rules:**

Because this is a large class, I will not be taking attendance. However, I will act to limit distractions, so, no newspaper reading, chatting, and so on, unless you want to leave. You may use laptops, since I assume that occasionally you will want to look up class-related material or take notes.

The only acceptable reasons to miss a test and have it rescheduled are (1) a religious observance (2) participation in a university-sponsored activity (sports, e.g.) and (3) a family or medical emergency. In the first two cases, you need to let me know two weeks in advance. In the third, you need to email me *before* the test begins, and you will need, within two days, to provide paperwork or other evidence showing the reason for your absence.

### **Plagiarism and academic honesty**

Dishonesty of any kind will not be tolerated. Dishonesty includes, but is not limited to, cheating, fabricating information or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students. Acts of dishonesty will result in academic sanctions and will be reported to the University's Judicial Affairs office for possible further disciplinary sanction.

Consistent with this expectation, the University's Code of Conduct states that all students should act with personal integrity, respect other students' dignity, rights and property, and help create and maintain an environment in which all can succeed through the fruits of their efforts.

### **Equal access**

Penn State welcomes students with disabilities into the University's educational programs. If you have a disability-related need for reasonable academic adjustments in this course, please contact the Office for Disability Services. For further information regarding policies, rights and responsibilities please visit the ODS website at: [www.equity.psu.edu/ods/](http://www.equity.psu.edu/ods/). Please notify me as early in the semester as possible regarding the need for reasonable accommodations.

### **Struggles, Personal and Academic**

Many students at Penn State face personal challenges or have psychological needs that may interfere with their academic progress, social development, or emotional wellbeing. The

university offers a variety of confidential services to help you through difficult times, including individual and group counseling, crisis intervention, consultations, online chats, and mental health screenings. These services are provided by staff who welcome all students and embrace a philosophy that is respectful of clients' cultural and religious backgrounds, and is sensitive to differences in race, ability, gender identity and sexual orientation. Visit <http://studentaffairs.psu.edu/counseling/> or call 814-863-0395.

### **Keeping Things Fair**

Penn State takes great pride in fostering a diverse and inclusive environment for students, faculty, and staff. Acts of intolerance, discrimination, or harassment due to age, ancestry, color, disability, gender, gender identity, national origin, race, religious belief, sexual orientation, or veteran status are not tolerated and can be reported through Educational Equity via the Report Bias webpage (<http://equity.psu.edu/reportbias/>). The Office of the Vice Provost for Educational Equity can be reached at 814-865-5906.

Daily syllabus. Have everything read before coming to class.

Week 1: Aug 22, 24

T: What does information mean to you?

Th: Claude Shannon's mathematical theory of communication; read chapter on Shannon in Gleick, *The Information*

Week 2: Aug 29, 31

T: Information Ages; read excerpts from Plato, *Gorgias* and Eisenstein, *Printing Press as an Agent of Change*

Th: Information Ages; read excerpt from Buckland, *Information and Society*

Week 3: Sept 5, 7

T: The medium is the message? Listen to part 1 of "The Medium is the Message" on YouTube (recorded from vinyl).

Th: Media theories; read Williams, "Television and Cultural Form" and excerpt from Postman, *Amusing Ourselves to Death*

Week 4: Sept 12, 14

T: Histories of writing; read excerpt from Gnanadesikan, *The Writing Revolution*

Th: On typography; read Beatrice Warde, "The Crystal Goblet" and Thomas Phinney, "How to Explain Why Typography Matters"

Week 5: Sept 19, 21

T: How we read; read excerpt from Chartier, *Forms and Meanings* and Nielsen, "How Little Do Users Read?"

- Th: Designing for the Internet; watch Lindsay Blackwell, “dearlisa rudgers,”  
<https://www.youtube.com/watch?v=FVREK8PPhWE>
- Week 6: Sept 26, 28  
T: Visual display of information; read Monmonier, “How to Lie with Maps”  
and D’Ignazio and Klein, “FeministData Visualization”  
Th: **Presentation of Information Exam**
- Week 7: Oct 3, 5  
T: Managing Information; read excerpt from Blair, *Too Much to Know*  
Th: Metadata; read excerpt from Pomerantz, *Metadata*
- Week 8: Oct 10, 12  
T: Data management; read chapter from Glushko, *Discipline of Organizing*  
Th: Databases; readings will vary
- Week 9: Oct 17, 19  
T: Histories of information institutions (libraries); readings will vary  
Th: Histories of information institutions (archives); readings will vary
- Week 10: Oct 24, 26  
T: Histories of information institutions (Internet); readings will vary  
Th: **Organization of Information Exam**
- Week 11: Oct 31, Nov 2  
T: Information and political change; read Eisenstein, “How to Acknowledge  
a Revolution”  
Th: Social media and politics; read from Tufekci, *Twitter and Tear Gas*
- Week 12: Nov 7, 9  
T: Social media and politics; read Starbird, “Examining the Alternative  
Media Ecosystem”  
Th: Social life online; read Coleman on trolling & Anonymous, and WNYC  
“The Takeway” series on being a woman online
- Week 13: Nov 14, 16

T: The Internet and Race; read Nakamura, "Racism, Sexism, and Gaming's Cruel Optimism," and "QueerFemale of Color"

Th: Algorithmic bias; read Noble, "Google Search"

--- THANKSGIVINGBREAK---

Week 14: Nov 28, 30

T: Big data and society; O'Neil, *Weapons of Math Destruction*

Th: Big data and society; O'Neil, *Weapons of Math Destruction*

Week 15: Dec 5, 7

T: Being safe online; read Electronic Frontier Foundation, "Surveillance Self-Defense," <https://ssd.eff.org/>

Th: **Politics of Information Exam**

## General Education Learning Objectives

Students can expect the course to include social scientific (GS) and humanistic (GH) approaches to each of the course's major questions and corresponding topics. In the process, students will learn how the social scientific and humanistic perspectives differ, relate to one another, affect each other historically, provide new insights, and stimulate novel lines of inquiry in a cross-disciplinary sense. We will illustrate the history of critical and analytic thinking by showing students how social scientific and humanistic thought is made; we will encourage students to practice these skills through numerical exercises in class activities, homeworks, and exams; and we will require students to engage in inter-domain problem-solving exercises as they complete collaborative projects and do problem-solving exercises during exams.

*KEYLITERACIES*– the ability to identify, interpret, create, communicate and compute using materials in a variety of media and contexts. Literacy acquired in multiple areas, such as textual, quantitative, information/technology, health, intercultural, historical, aesthetic, linguistic (world languages), and scientific, enables individuals to achieve their goals, to develop their knowledge and potential, to lead healthy and productive lives, and to participate fully in their community and wider society.

As an inter-domain course, “What is Information?” aims to develop key literacies of the social scientific (GS) and humanistic (GH) domains in its students. These literacies will be developed side-by-side as we work through the material of each unit, emphasizing the distinct and complementary insights that these two domains bring to our understanding of information and its historical and social roles and effects. Key social scientific literacies that will be developed include: approaching problems from the perspective of the social scientific disciplines, including psychology, sociology, anthropology, and political science; using data of multiple types and sources to build composite pictures of social issues and problems; formulating valid and interesting research questions in the field; establishing protocols (or finding them in the world) to test those problems; implementing knowledge gained by social scientific research in practical social or individual cases.. Key humanistic literacies that will be developed include: approaching problems from the perspective of the humanistic disciplines, including history, the study of literature and culture, and philosophy; locating events within sociocultural contexts, and understanding the deep embeddedness of human practices and relations within those contexts; interpreting historical texts and social problems in their personal and multicultural contexts; addressing the conceptual formation and structure of problems and actions, and asking questions about why they should be done (ethics) or how such concepts shape the way we know (epistemology); and developing a personal aesthetic that will support their critical engagement with important literary and imaginative works.

*CRITICALANDANALYTICATHINKING*– the habit of mind characterized by comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating a conclusion. It is the intellectually disciplined process of conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action.

In their approaches to a topic, students will develop their ability to consider and analyze quantitative arguments about the nature of information; to apply data-driven / quantitative and aesthetic / qualitative approaches to their critical evaluation of alternative models; and to explain how and why the social scientific or humanist consensus on each of the **COURSE'S** key questions was developed, or alternatively, remains in flux. Students will also develop their ability to understand how social and individual diversity shapes both the history and experience of information and information-relations; they will improve their ability to engage critically with historical and philosophical works addressing the key questions they raise; and they will learn to think critically and reflexively about the human condition from both personal and communal perspectives.

*INTEGRATIVETHINKING— the ability to synthesize knowledge across multiple domains, modes of inquiry, historical periods, and perspectives, as well as the ability to identify linkages between existing knowledge and new information. Individuals who engage in integrative thinking are able to transfer knowledge within and beyond their current contexts.*

By applying both GH and GS critical and analytical thinking models to the three fundamental questions that are central to the course, and by engaging in homeworks, exams, and projects that integrate these approaches into problem statements, solutions, and challenges, students will practice and develop their ability to engage in deep and reflective integrative thinking.