

Report from the Digital Working Group

September, 2017

Technology alone is not enough—it's technology married with liberal arts, married with the humanities, that yields us the results that make our heart sing.

— Steve Jobs

COMMITTEE MEMBERSHIP

Mark Bailey, Professor of Computer Science, Chair
Lisa Forrest, Director, Research and Instructional Design (LITS)
Robert Knight, Associate Professor of Art
Daniel Nye '88, Charter Trustee
Kyoko Omori, Associate Professor of East Asian Languages and Literatures
Sam Pellman, James L. Ferguson Professor of Music
Thomas Wilson, Elizabeth J. McCormack Professor of History
Stephen Wu, Professor of Economics

INTRODUCTION

Digital technologies have transformed virtually all aspects of higher education as well as the world around it. They both necessitate and make possible new ways of interdisciplinary thinking in teaching and research. To better prepare Hamilton students to effectively negotiate the demands of a world that is increasingly constructed by algorithmic principles, the Digital Working Group has outlined four recommendations and posed a number of questions for further discussion. These ideas would build upon the College's existing resources to expand digital instruction, develop new curricular initiatives to infuse digital thinking across the curriculum, and create structures in which faculty and students can work on research that deploys digital thinking in critical, innovative, and creative ways, which are often collaborative and interdisciplinary.

A recent brief by the New Media Consortium (2017) states that students must “be able to intuitively acclimate to new digital environments, developing habits that cultivate lifelong learning and the continuous mastery of new skills.” Rather than attempt to define digital competency as such, this report considers several main competencies, or what we refer to as fluencies, including computational thinking (Wing, 2006), information fluency, digital creativity, digital communication and collaboration, and digital ethics. The committee has been especially mindful of the values that the College community has come to embrace and drawn connections between our recommendations and the College Mission and Educational Goals. This report outlines specific recommendations under the two rubrics of “Foundations,” which

addresses how the College might enhance offerings in digital, algorithmic, and computational instruction, and “Infusions,” which outlines initiatives to infuse digital thinking across the curriculum. These fluencies are not discrete, but we present our findings in separate sections in order to enumerate specific though interconnected recommendations.

I. FOUNDATIONS

Make Hamilton a leader at the intersection of technology and the liberal arts by adding a new foundational skill focused on digital fluency.

The Digital Working Group believes that incorporating digital initiatives at Hamilton should involve a multi-pronged approach, connecting with faculty and students through changes that are structural, curricular, and programmatic.

Recommendation #1: Add a new foundational skill focused on digital fluency in the form of a requirement for graduation similar to the other three foundational skills of writing, speaking, and quantitative and symbolic reasoning.

Hamilton students are graduating into a world that is mediated by digital technologies and are increasingly expected to function creatively in such an environment. We believe that Hamilton should not merely instruct students in basic “digital literacy,” but should develop programs that enable students to draw broadly from their education at Hamilton to cross disciplinary boundaries.

Questions:

1. A number of questions on implementation need to be addressed: Should this be a requirement with a special course designation? Should a requirement entail more than one course? What guidelines should determine which courses satisfy this requirement?
2. What impact would a digital requirement have on FTE allocations?
3. What role does the First Year Program have in supporting this new foundational skill? Should there be an introductory course?
4. What are the budgetary implications for maintaining and updating technology in classrooms and expanded support?
5. How will this affect the services already provided by Research & Instructional Design (RDS) in LITS?
6. How would a digital requirement affect the existing configuration of Quantitative and Symbolic Reasoning requirement, particularly given that symbolic reasoning is tightly coupled with digital reasoning? Should the College consider splitting “symbolic” from QSR to create a Quantitative Literacy (QL) requirement and a new Digital and Symbolic Reasoning requirement (DSR)?
7. How would a requirement affect considerations for hiring in disciplines not primarily devoted to digital instruction?

Recommendation #2: Create a new academic resource center for Computational and Algorithmic Reasoning (CAR) similar to existing centers: Writing, QSR, and Oral Communications.

A dedicated center is essential to elevating digital competency to the level of Hamilton's other core values in writing, quantitative and symbolic reasoning, and speaking. CAR would support students in courses that have a digital component in a range of disciplines such as Anthropology, Art, Biology, Chemistry, Computer Science, Economics, Geosciences, Mathematics, Music, Neuroscience, and Physics, among others. With the addition of a new requirement, we anticipate a far greater demand for support in foundational computational and algorithmic skills.

Questions:

1. What are the facilities implications of creating a new center? Where should it be located? The committee discussed the importance of situating CAR where the demand for its services will most likely be greatest. Should it be combined with QSR (Christian Johnson), or located in a renovated space in Taylor Science Center, Burke Library, or elsewhere on campus?
2. What is the relationship between CAR and QSR?
3. What are the opportunities for collaboration between CAR and LITS (e.g., basic technology instruction on topics such as Excel, application support)?

II. INFUSIONS

Infuse digital learning across the curriculum.

The Digital Working Group discussed a number of initiatives to enable students to use digital skills in creative and collaborative ways, and to foster a critical ethical sense of how data is collected and used.

Recommendation #3: Create a center for Innovative Teaching and Research (ITR).

The exponentially increasing number of sources (texts, images, data, etc.) in digital form enables new modes of thinking in teaching and research. Yet the sheer glut of "information" poses the daunting task of not just discerning the genuine from fake, but also of situating the sources in relevant historical and cultural contexts. The magnitude of what is available and the complexity of interpreting it often require collective efforts across a number of disciplines. In contrast to the Computational and Algorithmic Reasoning Center, this center would support collaborative interdisciplinary work for faculty and students who employ digital technologies. The center might also support faculty training in digital technologies for their teaching and research. This center would build upon the college's existing strengths of faculty research support provided by DHi, and research and course support provided by Research & Instructional Design in LITS.

Questions:

1. What are the space requirements to house ITR? Given the initiatives outlined in the fourth recommendation, a center will need different kinds of spaces to accommodate both digital collaborations and non-digitally based collaborative work among students and faculty.
2. Where should ITR be located (e.g., in a new facility or in an expanded addition to an existing building)? The committee discussed the importance of situating ITR in a central, accessible location.

3. What are the budgetary implications for maintaining and updating technology in this center? How would this affect the resources and services needed in DHi and Research & Instructional Design?
4. As a learning center for faculty development in teaching and research, ITR might coordinate the resources at other academic centers in LITS, QSR, etc., in ways that should be considered.
5. Should ITR house existing digitally-centered programs (e.g., DHi, Research & Instructional Design)?
6. How will ITR support existing interdisciplinary curricular programs such as Digital Arts and Cinema and Media Studies, as well as prospective curricular programs?
7. Should ITR include postdoctoral and graduate school fellows focused on digital scholarship in disciplines across the College?

Recommendation #4: Create new academic programs and interdisciplinary initiatives that incorporate digital thinking.

The creation of a center for Innovative Teaching and Research and the new foundational requirement will create new possibilities across the curriculum that need further exploration, including the following:

The establishment of interdisciplinary programs (concentrations and minors) that use algorithmic approaches in the arts, humanities, sciences, and social sciences.

The creation of an alternative model for the Senior Project that provides an opportunity for interdisciplinary work (with support from the ITR) that might involve a group of students working with one or more faculty members.

The creation of academic initiatives to support collaborative student–faculty research projects that deploy digital thinking to collect and curate large amounts of textual or visual works: organizing them into a digital archive, interpreting the materials, and presenting a digital exhibition that is accessible to the public.

Questions:

1. How would this affect the resources and services provided by Research & Instructional Design and DHi?
2. What is the budgetary impact for using and sustaining new or emerging technologies?

Relation of these recommendations to the College Mission and Educational Goals:

Computational Thinking (Analytic Discernment/Creativity): Comprehend the power and limits of computing processes, quantify the difficulty of problems, model systems at multiple levels of abstraction, decompose large problems, design systems that scale, understand heuristic reasoning, recognize patterns, and understand the digitization of the material world.

Digital Creativity (Creativity/Aesthetic Discernment/Disciplinary Practice): Generate new ideas and original works of digital art, develop products and processes through the use of technology, use models and

simulations to explore complex issues and ideas, develop software, explore virtual and augmented environments, and make virtual worlds.

Digital Ethics (Ethical, Informed, Engaged Citizenship; Structural/Institutional Hierarchies): Critically examine the broader ethical implications and social effects of the uses of digital information; learn to weigh the efficiency of collecting data, on one hand, with how the expansion and intensification of digital information gathering affects the lives of private citizens, on the other; examine the commodification of personal information; understand digital rights and responsibilities, including respect for intellectual property.

Information Fluency (Intellectual Curiosity/Analytic Discernment/Understanding of Cultural Diversity): Utilize effective digital search strategies, critically evaluate information, discern credible from inaccurate resources, and organize and synthesize digital source ideas.

Interdisciplinary Collaborations (Communication & Expression): Effectively use digital tools to work with others, examine issues from multiple viewpoints, produce and analyze digital media, and effectively produce and consume digital formats.

EXAMPLE ACADEMIC PROGRAMS

Digital and computational studies program at Bates. (2016). Retrieved from <https://www.bates.edu/news/2016/02/26/digital-computational-q-and-a/>

Computing and digital technologies minor at Notre Dame. (2017). Retrieved from <http://cdt.nd.edu/>

Digital humanities minor at Stanford. (2017). Retrieved from <https://dhminor.stanford.edu/about-digital-humanities-minor>

Digital studies minor at Davidson. (2017). Retrieved from <http://www.davidson.edu/academics/digital-studies>

Media arts and science interdepartmental major at Wellesley. (2017). Retrieved from <http://www.wellesley.edu/mas#Lh9058jtmPWS11Hi.97>

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