

State Council for Higher Education for Virginia
Assessment of Competencies
Digital Fluency
UNIVERSITY OF MARY WASHINGTON
2021

GENERAL EDUCATION AT THE UNIVERSITY OF MARY WASHINGTON

General Education is the foundation of a liberal arts education and is designed to cultivate the skills, knowledge, values, and habits of mind that are essential in every field of study and which enable graduates to make effective decisions as citizens of a rapidly changing, richly diverse, and increasingly interconnected world. The University's General Education requirements introduce students to a variety of learning perspectives and methods of inquiry, which combine to foster an appreciation of the connections between different ways of viewing, knowing, and engaging with the world. In particular, the General Education curriculum should:

- develop core skills that enable students to understand, evaluate, articulate, and advance their ideas and the ideas of others. Across their General Education courses, students learn to think critically, analyze data, evaluate evidence and the arguments and theories grounded in that evidence, conduct research thoroughly and with integrity, write and speak effectively, and be in command of the technologies that define not only 21st-century communication but also the emerging tools of different disciplines.

- challenge students to explore issues, solve problems, and learn through multiple methodological approaches. General Education offers a wide range of courses challenging students to make connections across their course of study and to explore the variety of ways they can understand and apply what they learn. They achieve this through studying complex problems and issues in the arts, humanities, quantitative reasoning, and natural and social sciences.

- prepare students to engage knowledgeably and responsibly with a changing, complicated, and multi-dimensional world. University of Mary Washington students must understand and appreciate global connections, differences, cultures, languages, environments, and change. These courses require students to be both individual and collaborative learners, solve problems systematically and creatively, and find opportunities to explore beyond the classroom experiences such as undergraduate research, internships, study abroad, and engagement in community and civic life.

These goals were the basis for the development of the new General Education curriculum, where requirements were placed into three overarching categories: Foundations, Methods of Investigation, and Connections. Courses in the Foundations category will establish skills for later success at UMW, are fundamental to the liberal arts, and ideally should be taken early in the academic career. Methods of Investigation consist of lower-level courses that explore how different disciplines approach critical thinking, research, and problem-solving. Connections courses will build on prior requirements to help students make links between classroom knowledge, the world, and their life beyond UMW. This arrangement of the courses emphasizes the skills and knowledge that will be gained from each required course and clarifies the benefits that will be acquired through the completion of the General Education curriculum through this framework.

The General Education curriculum and the Honor System are both integral parts of the educational experience at UMW. It is expected that students will devote their authentic selves to each course, will learn and respect relevant disciplinary norms, and will conduct themselves with integrity in

accordance with the honor pledge made upon arriving at Mary Washington in the completion of this curriculum.

CORE COMPETENCIES IN THE STATE OF VIRGINIA

In 2017, the State Council of Higher Education for Virginia established a policy on Student learning Assessment and Quality in Undergraduate Education. Goal #2 of the *Virginia Plan for Higher Education* directs SCHEV to “optimize student success for work and life,” and, specifically, to “strengthen curricular options to ensure that graduates are prepared with the competencies necessary for employment and civic engagement.” Priority Initiative #4 for 2016 includes a commitment to “collaborate with institutions to measure the quality of undergraduate education, including civic engagement of graduates and relevance to demand occupations across regions of the state.” The 2017 policy identifies four core competencies for student success to be assessed by all institutions:

- 1) **Critical thinking** – the ability to subject one’s own and others’ ideas, arguments, assumptions, and evidence to careful and logical scrutiny in order to make an informed judgment, draw a sound conclusion, or solve a problem.
- 2) **Written communication** – the ability to develop and communicate ideas effectively in writing as appropriate to a given context, purpose, and audience. It includes a variety of styles, genres, and media, including computer-mediated communications.
- 3) **Quantitative reasoning** – the ability to manipulate, analyze, and/or evaluate numbers and numerical data. It may involve calculation and/or analysis and interpretation of quantitative information derived from existing databases or systematic observations, and may be based in a variety of disciplines, not limited to mathematics and the natural and physical sciences.
- 4) **Civic engagement** – an array of knowledge, abilities, values, attitudes, and behaviors that in combination allow individuals to contribute to the civic life of their communities. It may include, among other things, exploration of one’s role and responsibilities in society; knowledge of and ability to engage with political systems and processes; and/or course-based or extra-curricular efforts to identify and address issues of public or community concern.

Two additional core competencies are selected by the institutions themselves. At the University of Mary Washington, these competencies are:

- 5) **Oral communication** – The ability to communicate effective oral messages in a variety of settings, including public speaking, group discussion, and interpersonal communication; the ability to plan, organize, support, and deliver ideas and arguments, and utilize a variety of research techniques to synthesize information and support their messages.
- 6) **Digital Fluency** – Digital fluency is the ability to consume and produce digital knowledge critically, ethically, and responsibly, as well as to creatively adapt to emerging technology.

The calendar for UMW’s reporting of these core competencies is below:

SCHEV Competencies Review Calendar							
2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026
	Civic Engagement (early)			Civic Engagement			Civic Engagement
Critical Thinking (early)				Critical Thinking			Critical Thinking
		Digital Fluency			Digital Fluency		
Oral Communication			Oral Communication			Oral Communication	
		Quantitative Reasoning (late)			Quantitative Reasoning		
Written Communication			Written Communication			Written Communication	

Digital Fluency at UMW

UMW must prepare our students to live, work, and serve effectively in this Age of Accelerations; thus, a Digital Intensive course intentionally fosters the ability in our students to consume and produce digital knowledge, as well as to creatively adapt to emerging technology. The Digital Intensive course requirement ensures that all students, regardless of major, will develop digital fluency during their time at the University. The requirement incorporates information literacy, knowledge production and creativity, critical thinking paired with ethical actions, social awareness in the digital environment, and the evolving nature of what is understood as “digital.” These skills are necessary for UMW graduates as they move through an increasingly digital and interconnected world.

In Digital Intensive courses, students build on information literacy foundations developed in the First Year Seminar to work toward advanced digital fluency. Digital Fluency serves as an across-the-curriculum requirement, where these principles and skills are presented in appropriate ways that may be unique to each learning context or discipline. This ensures that every student would develop demonstrable digital fluency skills and capabilities, with the ability to adapt to the inevitable changes in the digital landscape.

The following learning outcomes are used both for assessing UMW’s General Education requirement for a Digital Intensive course and the SCHEV core competency of Digital Fluency. These three criteria are expressed in material, assignments and exams for all courses offered at University of Mary Washington that fulfill the QR requirement.

Learning Outcomes:

- Students will successfully locate and critically evaluate information using the Internet, library databases, and/or other digital tools.
- Students will use digital tools to safely, ethically, and effectively produce and exchange information and ideas.
- Students will creatively adapt to emerging and evolving technology.

Standard(s) for Proficiency:

There are four rating categories (i.e., *not proficient*, *somewhat proficient*, *proficient*, *fluent*) for each SLO. At least 70% of students in each category will achieve a rating of *proficient* or *fluent*.

Description of Methodology Used to Gather Evidence of Proficiency.

In consultation with the academic departments offering the DI designated courses, the Office of Institutional Analysis and Effectiveness selects a sample of courses for assessment during the fall and spring semesters. OIAE reaches out to the faculty teaching that course and works with them to determine appropriate artifacts for assessment (see Appendix 1 for sample questions and results). The protocols used by each academic program are archived each year and can be requested from the IAE office. In courses larger than thirty, random samples of student work are allowed. In 2021, these courses were assessed:

Studio Art 104: Digital Approaches to Fine Art
Computer Science 110: Introduction to Computer Science

A total of 114 artifacts were evaluated by two professors from these two courses.

Results:

The “results by category” table looks at the number of *not proficient*, *somewhat proficient*, *proficient*, and *fluent* ratings given in each of learning outcomes. Overall, we achieved a 70% passing score (*proficient* or *fluent*) for all three of the learning outcomes (see table 1), with scores of 71%, 73%, and 75% for each of the three learning outcomes respectively.

Table 1: Results of Digital Fluency Assessment

	Artifacts rated <i>not proficient</i>	Artifacts rated <i>somewhat proficient</i>	Artifacts rated <i>proficient</i>	Artifacts rated <i>fluent</i>
Locates and critically evaluates	6%	23%	58%	13%
Uses tools safely, ethically	6%	21%	60%	13%
Adapts to emerging tech	5%	19%	66%	10%

The results vary by discipline, with scores in Studio Art higher than in Computer Science. However, given that there were only two disciplines represented and this is the first time assessing this competency, we have not reported on these differences. In the future, we plan to collect more data across a wider variety of courses and instructors.

Summary and Suggestions:

In summary, students are doing well with the Digital Fluency competency at UMW, scoring above the benchmark for each student learning outcome. Nevertheless, there is still some room for improvement, especially bringing students in the somewhat proficient range up to the benchmark standard. One way this issue could be addressed is by discussing the digital fluency learning outcomes ahead of time with students (perhaps at the beginning of the semester, as the learning outcomes are already listed on the syllabus).

Since this is the first time Digital Fluency has been assessed for SCHEV, this report can serve as a baseline for measurement and discussion moving forward. A meeting among Digital Fluency instructors at the beginning of a semester to discuss interrater reliability between different disciplines might be useful for sharing expectations about what each score signifies. Sharing rubrics, assignments and test questions across disciplines might also help alleviate any potential differences in scoring that exist across disciplines.

Digital Fluency is scheduled to be assessed again in 2023-24. For questions, contact the office of OIAE.

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Appendix 1: Sample Assessment Questions

Computer Science 110:

Assignment 2 (DI Learning Outcomes 2 and 3):

The second assignment also consists of a program and a DI reflection component.

1. The Python component asks the students to develop a program that does some text processing such as finding substrings in longer texts.
2. The second component of the assignment asks the students to read an article by Burgstahler, Sheryl. "Designing Software that is Accessible to Individuals with Disabilities." The students are then asked to think about the material in the article and answer the following questions:
 - a. Software companies should strive to make their software accessible to individuals with disabilities and are sometimes legally required to do so. Suppose that you were making your lab 3 software available to the general public, describe an update that you could make to improve the accessibility of your software.
 - b. Select some software you use on a regular basis. Describe an update that could be added to the software to improve accessibility. Why would this update/addition improve accessibility?

Arts 104:

Project 4: Surrealist Collage

Use your knowledge of Photoshop tools, layers, and blending modes to transform/manipulate/remix a set of appropriated images to create a surrealist collage.

Your final image should contain elements from at least 15 distinct images found through a Google image search. No personal photographs or scanned images are permitted for this assignment. Though your source material will be completely appropriated, be careful to not create a derivative image. Make it your own!

Create a high-res version suitable for printing at a resolution of 300 DPI and an image size of exactly 11x17 inches (3300x5100 pixels) and post a jpeg to your blog that is (825x1275 pixels).

Briefly explain your concept for this piece and your process for creating it.
Review the collage slides for examples and inspiration.