

DCS 1100: Introduction to Digital & Computational Studies

Professors

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Learning Assistants

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Course Description

We invite you to make sense of the chaos of digital devices, apps, and algorithms that we confront every day. We use so many of these objects (or they are used on us), and some of them work well, but others aren't great. We encourage you to use your enthusiasm for your favorite app or internet-of-things gadget to imagine something better. Our hope is that you gain a habit of asking five types of questions whenever you encounter a digital artifact to restore agency and power to you in a technological world that often seems out of our control. Our approach is collaborative so that you can immediately apply what you have learned and draw on the perspectives and experiences of your classmates to identify nuances, seek solutions that work for broader communities, and be actively involved in every class.

Learning Goals

1. Bring together perspectives from different fields of study in the liberal arts to evaluate the structures, advantages, and limitations of digital artifacts.
2. Use the Analytical Framework of DCS to examine apps, devices, and "smart" objects as artifacts with histories that interact via infrastructures, represent abstractions of processes, and have consequences for the agency of users related to systems of social, ethical, and environmental accountability.
3. Tell the story of a digital artifact beyond where to click to make it work (functionality). Talk about it as code, visual or physical object, and as an argument. Compare and contrast

evaluations made by different users with different purposes. Imagine improvements or alternatives.

Time commitments this semester to meet those goals:

In terms of workload, Bowdoin asks for a minimum of 3 hours in class plus 9 hours of preparatory work, labs, discussion sections, film viewings, etc. for each course credit. Our estimates below of ~5-7 hours recognizes that completion time varies by student.

Weekly Journal Entry 45 min. 20% of the final grade

- At least 300 words per week with substantive engagement with reading(s)
- Always connects to prior week and looks ahead to upcoming class meetings
- Ideally completed before coming to class on Thursdays

Conversational Python Activities 45-90 min. 15% of the final grade

- Includes any pre-recorded lectures
- Connects to class meetings
- Ideally completed before coming to class on Thursdays

Class Meetings (2 per week) 170 min.

- Discussion, construction, application, and extension of readings and activities
- Being present, staying on task, contributing to the shared documents
- *Up to 2 classes can be missed without penalty. Tardiness counts towards absences. We will deduct 2 points from your final grade for each absence above the limit. Please contact the professor if you encounter any challenges. Note: the 2 class limit is built on the assumption that you will be sick/have appointments, etc. once or twice a semester. Exceptions will only be made when accompanied by a note from the dean's office (see below).*

Reading 60-90 min. Included below

- Includes any related lecture video
- Builds on prior classes, often connects to Python theme

In class concept checks In class 15% of the final grade

- Weekly quizzes
- Covering the readings, lectures, and class discussions

5As Assessments 45-60 min. 50% of the final grade

This is broken down as follows:

- An in class exam covering the Artifacts and Abstraction sections (20%)
- A video presentation covering the Architecture section (10%)
- A final exam covering the Agency and Accountability sections (20%)

The exams will cover the readings and any further material discussed in class. Students will be expected to analyze digital artifacts according to the particular A's that we are covering in each exam.

In the case of Architecture, students will work in groups to produce a short video analyzing the Architecture of a well known digital artifact such as a social media app, or a popular AI system. In addition to the video, there will be a reflective component where students will react to videos produced by other students.

Schedule - Big Picture for the Semester

<i>Week 1</i>	<i>Sep 03 - 05</i>	<i>Module 1 Introductions, The 5As</i>
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A1: Artifacts

<i>Week 2</i>	<i>Sep 10-12</i>	<i>Module 2.1 Artifacts</i>
<i>Week 3</i>	<i>Sep 17-19</i>	<i>Module 2.2 Artifacts</i>

A2: Abstraction

<i>Week 4</i>	<i>Sep 24-26</i>	<i>Module 3.1 Abstraction</i>
<i>Week 5</i>	<i>Oct 1-3</i>	<i>Module 3.2 Abstraction</i>
<i>Week 6</i>	<i>Oct 10</i>	<i>Module 3.3 Abstraction (Fall break)</i>

Exam 1 will take place on **Oct 15, 2024**

A3: Architecture

<i>Week 7</i>	<i>Oct 15-17</i>	<i>Module 4.1 Architecture</i>
<i>Week 8</i>	<i>Oct 22-24</i>	<i>Module 4.2 Architecture</i>
<i>Week 9</i>	<i>Oct 29-31</i>	<i>Module 4.3 Architecture</i>

The Architecture video will be due on November 8 at 5:00 p.m.

The Architecture reflection will be due on November 15 at 5:00 p.m.

A4: Agency

<i>Week 10</i>	<i>Nov 5-7</i>	<i>Module 5.1 Agency</i>
<i>Week 11</i>	<i>Nov 12-14</i>	<i>Module 5.2 Agency</i>

A5: Accountability

<i>Week 12</i>	<i>Nov 19-21</i>	<i>Module 6.1 Accountability</i>
<i>Week 13</i>	<i>Dec 3-5</i>	<i>Module 6.2 Accountability</i>
<i>Week 14</i>	<i>Dec 10-12</i>	<i>Module 6.3 Accountability and 5As Major Challenges</i>

Exam 2: Exam 2 will take place during the scheduled final exam period for the course.

Schedule - Weekly Routine

Prior to Tuesday's class	Reading
During Tuesday's class	Concept Checks
Prior to Thursday's class	Weekly Journal
	Conversational Python

Course Materials

- We will be using a course website to share assignment descriptions, links to materials, and the content of modules.
- You will be using a web-based DCS Organizer to share your work with professors. It will contain your Weekly Journals.
- There are no books or equipment to purchase.
- All videos, handouts, and assessment materials are the property of the instructors and are distributed for use of individual students only. They are not to be shared.
- All recordings are subject to FERPA legislation. For reasons of privacy, clips or screen captures cannot be shared outside of class.

Please contact the professors if there are any obstacles to accessing the course materials.

Terms & Conditions

Collaboration

One of the principal components of a DCS course is collaboration. However, you should always be clear on what part of the work you hand in is your own, what parts come from other sources, and what parts are collaborative. As a general rule, we distinguish between interacting with another student using any written medium (e.g. pencil and paper, email, looking at their code, screen sharing) and having broad discussions with them. Unless you work with another student in a group, you are not allowed to exchange information through a written medium with them or directly providing answers to activities such as problem sets through conversation. This is a zero-tolerance policy. You are allowed to talk about problem sets, just not give the answers.

It is permissible to use materials available from other sources such as the Internet (understanding that you get no credit for using the work of others) as long as: 1) You acknowledge explicitly which aspects of your assignment were taken from other sources and what those sources are. 2) The materials are freely and legally available. 3) The material was not created by a student at Bowdoin as part of this or another course this year or in prior years. To be absolutely clear, if you turn in someone else's work you will not receive credit for it; on the other hand, if you acknowledge it, at least you will not violate the Honor Code. All write-ups,

reviews, documentation and other written material must be original and may not be derived from other sources.

AI Policy for Weekly Journal Writeups

All writing that you turn in for this course should be your own. You may not use AI tools such as Chat-GPT, Gemini, or Claude as generative writing aids except to the extent that they might help you find references and sources, though as we'll see in class, this is unlikely. Using AI for help with grammar and tone on your writing is acceptable but should be documented.

Attendance Policy

You can request two excused absences due to health-related issues. If you need more accommodations, please, reach out to your academic dean, and they will work with you and your instructors on the best strategies to address your needs.

Since our in-person meetings are core components of the course pedagogical strategy, 2 points will be deducted from your final grade for each unexcused absence. To be clear, absences beyond the first two can only be excused by the dean's office. If, for example, you tell a professor that you will be away for the next class and they say "ok" they are not excusing your absence, they are merely acknowledging it.

Grading Policies

Credit/D/F. DCS 1100 can be a requirement for the coordinate major and the minor in DCS. You retain the option to change your grading option to Credit/D/F until a few weeks into the semester. We would be glad to talk to you about this decision. For students planning a major or minor in DCS, you would then need to take DCS 1200 for a grade to satisfy the introductory course requirement.

Late work. This semester might go smoothly for us all or it might be full of surprises for everyone. If things feel out of control, prioritize being in class and doing the reading. Be a good community member first. We can work with you on the timing of the individual responsibilities. Importantly: we can't help if we don't know what is going on. Please stay in touch! If we do not hear from you before the deadline, two points will be deducted from the assignment grade for each day after the due date.

No material will be considered for grading after the scheduled final for the course.

Religious Holidays

Please be in touch with the professors as soon as possible if deadlines conflict with religious holidays. We will make course materials for the week available on Fridays to allow for flexibility when completing any activities, but again, we can't resolve a problem if we don't know about it.