# SIGCSE Committee on Computing Education in Liberal Arts Colleges

**Charter Approved:** December 17, 2016

**Charter Last Updated:** February, 2024

**Facilitators:** Amanda Holland-Minkley, Washington & Jefferson College, Andrea Tartaro, Furman University, Jakob E. Barnard, University of Jamestown, & others.

# Background

Computing programs at liberal arts colleges differ from those at other institutions. This SIGCSE committee focuses on faculty perspectives and needs within a liberal arts context.

## Toward an Understanding of the Term, "Liberal Arts College"

Liberal arts colleges include post-secondary institutions that emphasize education for the breadth of graduates' career, civic, and personal lives, in contrast to institutions that focus on more narrow preparation (e.g., for a specific profession).

This definition describes a spectrum of higher education institutions, not a dichotomy. Nonetheless, the definition does highlight certain kinds of institutions and views of education:

* Liberal arts colleges focus on undergraduate education, as graduate education invariably concentrates on a single area.
* Although many liberal arts colleges are the undergraduate colleges of major universities (e.g., in the Ivy League or at flagship campuses of many state systems), independent liberal arts colleges are generally small, enrolling at most a few thousand students.
* Society in general, and some members of the liberal arts community itself, consider programs in the humanities, arts, and sciences central to (and in some views defining) the liberal arts. While liberal arts colleges may offer "professional" programs such as engineering, nursing, business, etc., those subjects are traditionally not considered part of the liberal arts canon.
* Graduation requirements at liberal arts colleges typically involve small majors relative to the number of general education and elective courses. Liberal arts colleges may explicitly constrain the size of majors or impose requirements on content or skills to be covered.

## Characteristics of Computing Programs at Liberal Arts Colleges

These characteristics of liberal arts colleges have a significant impact on computing programs. [The committee’s initial report of 2019](https://dl.acm.org/citation.cfm?id=3314027) identified or confirmed several distinct characteristics of liberal arts computing programs, briefly summarized here:

* Program requirements account for about one-third (38%) of students’ total graduation requirements at liberal arts colleges, versus half or more at top-ranked CS programs at national universities, according to our 2016 survey of committee members (based on the median). Liberal arts colleges commonly want students to devote significant time to activities outside their majors.
* Roughly half of surveyed liberal arts computing programs lead to a Bachelor of Arts (BA) degree, and half to a Bachelor of Science (BS) degree. Few such programs are ABET accredited.
* Graduates of liberal arts computing programs are often valued for their “soft skills,” such as communication and teamwork. Liberal arts computing curricula develop these skills in diverse ways, for example, through study abroad, participation in writing-across-the-curriculum programs, and courses that directly address the social consequences of computing.
* Liberal arts computing programs typically educate students with a broad range of academic and career interests, not just computing majors. This poses challenges for both curriculum and advising.
* Liberal arts computing programs sometimes struggle to educate non-computing faculty and administrators about what computing is, what it needs, and how it fits into a liberal education. Particular issues include the evaluation of disciplinary and interdisciplinary scholarship, faculty salaries, needs for research and teaching laboratories, and position within the institution (e.g., whether computing should be considered a science or a professional program).
* Liberal arts computing programs are often small programs in small colleges. The committee’s 2016 survey found that participating programs graduated a median 10 students a year, while the number of faculty advising computing majors ranged from 1 to 14 with a median of 3.
* Even with an emphasis on the fundamentals, liberal arts computing faculty are challenged to adapt to technology and language changes, and to keep courses current in areas outside of faculty expertise.
* Liberal arts computing programs face the same enrollment challenges as at universities, but often with less flexibility, fewer resources (e.g., no graduate students), and fewer opportunities for hiring.
* Finally, while liberal arts colleges provide unique opportunities for collegiality within and across departments, they are often geographically and, thus, professionally isolating.

## Historical Basis of Computing in the Liberal Arts

Since computing programs at liberal arts colleges are often small and schools may be spread geographically, several small-scale organizations have developed for faculty at these schools. In each case, an important objective has been to promote discussion, consider alternatives for curricula and pedagogy, identify common problems, and share/brainstorm possible approaches. To encourage substantive investigation and conversation, these groups have been reasonably small or regionally focused.

* The distinctive situation of computing programs in liberal arts colleges led to the formation of a [Liberal Arts Computer Science Consortium (LACS)](http://www.lacs.edu/) in 1984. This group has been continuously active since its founding, and consists of a modest number (15-20) of computer science faculty from leading liberal arts colleges who meet periodically to discuss problems facing their programs, share solutions, and synthesize approaches to curricula and pedagogy.
* Within Iowa, [Iowa Undergraduate Computer Science Consortium](http://www.cs.grinnell.edu/~walker/ia-cs/) has met since 1994 "to promote communication among CS faculty and facilitate discussion of common problems and issues." Meeting annually with about 25 attendees, many attend liberal arts colleges within the state (driving time under 3-4 hours). Some faculty from state universities also attend to discuss undergraduate curricula and to further connections between state and private institutions.
* The [Consortium for Computing Sciences in Colleges](http://www.ccsc.org/) was formed in 1985, focused initially just on small colleges before broadening its perspective to curricular and educational issues in computing at any institution in 2002. The Consortium “is concerned with the advancement of major programs in both Computer Science and Computer Information Systems, and with the use of computers in the Liberal Arts and Sciences.” The Consortium comprises 10 regional organizations, each of which sponsors an annual conference, and many liberal arts colleges participate in these regional conferences.

# SIGCSE Committee Charge and Goals

In its initial work, starting in 2016, the Committee established that computing programs in liberal arts colleges face two major needs. First, the liberal arts computing community needs an open organization to provide a voice in larger discussions of computing education. Second, faculty in liberal arts computing programs need a network for sharing ideas with similarly situated colleagues. The committee has established that these two needs are widespread and that meeting them requires an ongoing organization dedicated to supporting and representing liberal arts computing educators.

The committee will continue its work in support of liberal arts computing education with the following goals:

* Speak for the liberal arts computing community in larger discussions of computing education, such as the recent process of developing CS2023.
* Provide a network for faculty in liberal arts computing programs to share ideas with similarly situated colleagues, including organizing events and gathering opportunities.
* Produce reports and publications on current issues in and research about computing education in liberal arts colleges.

An outline of committee activities, including events sponsored and reports made, is available on the committee Web Repository, linked below. Input from the broader liberal arts computing community will continue to be solicited and incorporated into the committee’s ongoing efforts.

To disseminate information about its activities, the SIGCSE-LACs committee has worked with ACM and SIGCSE to establish a committee listserv. All ACM-established listservs may be found at listserv.acm.org. To join the discussion for this committee, SIGCSE members should log into their ACM account (available to SIGCSE members) at the ACM Listserv page and click the subscribe link for SIGCSE-LIBARTS-COMM.

Information about significant committee activities is stored on the [Web Repository,](https://computing-in-the-liberal-arts.github.io/) and announcements are typically sent out via the Listserv.