Standards and Guidelines for Academic Technologies

The phrase *Academic Technologies* evokes a wide range of tools and processes to facilitate learning, so this list is necessarily incomplete, and will likely always be that way.

With that said, the Architecture Review Board (ARB) has seen quite a few academic technologies both succeed and fail, so these are some guidelines for instructors, administrators, and program leads when considering new learning technologies.

Learning Management Systems

Overview

Learning Management Systems (LMSs) are systems such as Desire2Learn, Canvas, Moodle, Blackboard, and many others that allow instructors to post online course materials and quizzes. At CU Boulder, we are standardizing on the Canvas LMS, so Canvas should be used unless there are very compelling reasons to choose a different LMS. (As of this writing, Desire2Learn (D2L) is still in use, but will be retired after the Spring 2019 term. Also, many Computer Science (CSCI) courses use a Moodle instance.) If you desire to use an LMS other than Canvas, be ready to present justifications to the ARB describing the reasons that Canvas cannot be used, and be ready to defend the usability, security, accessibility, and extensibility of your alternate LMS. Also, if you receive approval to use a non-Canvas LMS, it's a good practice to also set up parallel courses in Canvas, even if these Canvas courses are just pointers to the courses in your other LMS. This allows students to quickly find their online course, and is used by CSCI to point to their Moodle courses.

If you use a non-Canvas LMS, you should use a SaaS (aka hosted aka cloud-based) solution instead of a system hosted on-premises. It's very unlikely that an on-prem solution will be able to approach the uptime of a hosted solution, and Saas solutions automatically handle things like backups and load-balancing.

IDs

In order to identify students and courses, most LMSs have the concept of an "org-provided ID" as well as the system's internal ID. The choice of this org-provided ID is important: besides being unique, it should be something that students and instructors are already familiar with. For example, good org-provided student IDs are

dir_uid (aka identikey) or student ID (aka sid). Students and instructors are used to using these identifiers; they are printed right on the students' Buff Cards. Bad choices would be uuids or constituent IDs; these are not known to students and only familiar to programmers and database users at CU. For courses/sections, something like "20191-B-ECON2020-100" works, as does 105005-01-2187-B-100-19853. The latter is a bit more opaque but is in common use across campus. (Keep in mind that the primary key for sections in Campus Solutions--what makes them unique--is (term, session_code, course, section).)

Provisioning

Once you have identified an LMS, whether it's Canvas or something else, you'll need to provision students and courses, and enroll and drop students to and from courses. If you're using Canvas, you will get much of this for free. Nearly every individual who has a potential academic need to access Canvas--students, faculty, and staff--already have a Canvas user created. For course provisioning, we provide a self-service interface to instructors, exposed through myCUInfo, that allows creation of Canvas courses for Campus Solutions courses, as well as more complicated cases such as combining sections into a single Canvas course. If your course is not in Campus Solutions, you can open a ServiceNow help ticket and route it to the Academic Technology Applications team, and they can create what's called a Community Course.

If a Canvas course exists, Campus Solutions enrollments and drops should be transmitted to the course within 5 minutes of being entered into CS. For Community Courses, enrollments will need to be handled another way; often the instructor manually maintains the class roster.

If the course is not a CS course, but you can identify a well-defined group of students who should be enrolled in it, there's a good chance that the Development and Architecture team can help you enroll students automatically. Integrations that we have helped with in the past include the new student courses (NSFP and OIEC), and language placement exam courses.

MOOCs (Massive Open Online Courses)

A MOOC environment shares some similarities with the LMSs described above, but typically platforms like Canvas are not good fits, since Canvas is designed to complement in-person courses, and has hard limits on the numbers of students, assignments, etc. A platform like Coursera is a better choice. CU is moving into the

MOOC space, so if you are considering developing a new MOOC, please consult with the ARB and we can put you in touch with subject-matter experts.

TODO: Classroom Technologies

iClicker, Kubi, etc. What are our recommendations on these?