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Department of Computer Science Guidelines on Preparation for Disruptions from COVID-19

The Department of Computer Science is preparing to transition to an online learning scenario in the event that COVID-19 becomes a continued threat to the health of students, faculty, and staff. Currently, Spring 2020 classes have been transitioned to online learning until April 19th 2020, and maybe beyond. The University will monitor the situation and will notify colleges and departments when and if further action is required. The guidelines listed below address short and long-term online learning scenarios and how the department should respond to ensure the health and safety of students, faculty and staff. Moreover, these guidelines ensure that students can continue to make progress towards completion of their courses and degree programs.

Possible Scenarios

Medium-term disruption (classes canceled for 2-4 weeks)
- Notify students immediately by email or through Canvas of cancellation of on-campus classes and what they should expect with regard to deliverance of course materials and evaluation.
- Post readings, assignments, and/or lecture material online.
- Post quizzes, tests, and accept assignments online. Low stakes quizzes and assignments can be dropped with greater weight put on remaining quizzes and assignments. Such a determination is left to the discretion of the course instructor.

Long-term disruption (classes canceled for more than a month up to end of semester)
- Notify students immediately by email or through Canvas of cancellation of on-campus classes and what they should expect with regard to deliverance of course materials and evaluation.
- Post readings, assignments, and/or lecture material online.
- Deliver quizzes, tests, and accept assignment submissions online.
- Disruptions effecting final exams need to follow the College Plan B Continuity Plan (see below under College of Science and Mathematics Plan B).
- Despite long-term disruption, the course must continue to offer instruction in a manner that students can meet the learning outcomes described in the course syllabus. Courses must continue to meet expectations of subsequent courses, degree requirements, and subsequent degree programs and professional schools.

Recommendations for Preparing for Cancellation/Closure and Implementing Alternate Formats

Faculty should be prepared on short notice to operate remotely in the extreme event that the campus is closed to all but essential personnel. Such preparation should include:

1. Taking your laptop/iPad home with you ASAP (before March 23rd 2020) unless you have a computer at home.
2. Having a copy of all course material backed up on a cloud service (e.g., Box, iCloud, DropBox, GoogleDrive, etc.).

Switching to online formats in short notice will be challenging depending on the type of course. The following are specific recommendations for lectures and labs.

Lectures

1. **Canvas**. Canvas is the most convenient and accessible means of delivering online instruction and evaluation for lecture course material at CSUN. Lectures can be posted in PDF, PPT, Keynote, or other formats. If using Keynote or PPT, you can annotate your lectures with audio recordings. This is recommended, unless you prefer to deliver the slides live via Zoom Video Conference with Screen Sharing (see Option 2). Quizzes, tests, assignments can also be distributed and submitted online via Canvas.

2. **Zoom.** You can deliver lectures via Zoom Video Conference and present your lectures as you would in class and also interact with students via audio or chat. See https://www.csun.edu/it/zoom for more information on Zoom. Zoom is compatible with nearly any devices that your students have with them. Zoom conferences hosted on a 2.7 GHz Intel Core i5 Macbook with 16 GB of RAM have been able to sustain 30 attendees without any hiccup or loss of performance.

   Recommendations:

   2a) You can share your Desktop with optional video thumbnail of yourself. On the shared Desktop, you can project your slides (as you would in a classroom) and voice-over narrate them.

   2b) You can mute student microphones if comments/sounds are disruptive, or leave them muted the entire lecture as desired.

   2c) You can accept student questions via text chat, in the Zoom chat pane.

   2d) For student anonymity, you can take periodic breaks in the lecture of the following type…

       2d1) post a review question or few questions for students to answer in the main chat

       2d2) ask students to take 5-10 minutes to email you their answers

       2d3) review student emails quickly and identify problem areas of understanding

> > 2d4) reconvene the live lecture and address student issues, without naming any students

3. **Lecture Capture.** If you have used lecture capture in your course within the last year, download your lectures. You can store them in CSUN Box and send links to the videos directly to your students via email or post links in Canvas. If you have not used Lecture Capture, then perhaps another instructor who has taught the course with Lecture Capture may be willing to download and share their videos. The Computer Science Department can assist you in identifying others who may have suitable lecture captures. Zoom can also be used to record lectures for later posting to Canvas.
4. **Record and post lectures.** CSUN has a license to [Camtasia](#) software for capturing and editing presentations. Lectures can be posted in YouTube or in CSUN Box.
5. **CSUN Box.** Videos, lecture material, assignments, syllabi can be posted in Box and shared with your students. You might consider creating a folder that will contain all of the materials you use in your course in the event you need access from home, or you need to share the material with a colleague in the event you are incapacitated.
6. **Email.** Materials may be delivered and submitted by email but may not be feasible for large classes. This solution is most effective for intro courses (100- or 200- level).

Labs

It may not be possible to deliver the same learning experience online as we would expect in the hands-on learning environment in our labs especially in regard to live in-class lab exercises. However, we must still provide instruction that permits students to meet the learning outcomes for our courses and programs. Here are some suggestions:

1. **Pre-packaged online labs**. Such exercises may be available in your course textbook, or via other website. One example of such a package is the netlab suite of cybersecurity labs, or sample projects/sketches available with the Arduino board/IDE.
2. **Textbook publisher digital content.** If you require a textbook in your class, you may already have access to interactive exercises and lessons that may cover the learning objectives of your lab (e.g. Zybooks). Consult your publisher representative on what may be available. The department can assist in connecting you with that person if you do not have contact information.
3. **Student Group Standup meetings.** Standup Scrum/progress meetings between student teams (e.g. Senior Design) could move to a video chat format (Zoom or Google Hangout) and may be recorded to share with course instructor.
4. **Student Group collaborative discussion.** Student team collaboration can move to the widely-adopted Slack platform, which is free for use at the most basic level. This could be accompanied by a periodic live/recorded Scrum standup meeting (see Labs, option 3) which students could perform once or twice weekly.
5. **Submission of programming project code.** Canvas and github both provide means for individual students or teams of students to submit project code. For lower division Computer Science and CIT courses, email submission (files attached to an email from student to instructor) are also appropriate.

6. **IT Infrastructure.** Hands-on networking or server equipment for use in CIT lab courses can be replaced with a virtual/cloud environment, as follows.
   a. **Netlab (or other):** such pre-packaged online labs fall under Labs, option 1, but can be employed by CIT lab courses as appropriate.
   b. **Local Virtual Machines**: locally hosted resources may be used in the form of Virtual Machines, hosted on student laptop or desktop hardware using a virtual machine hypervisor like VMWare (CSUN provides license) or Oracle VM Virtualbox (free). *Consider allowing students to submit screen-shots as evidence of lab completion, rather than submit prohibitively large virtual machine images.*
7. **Virtual Office Hours**. Zoom or Slack could be used to conduct virtual office hours in which code/drawings can be shared.
   a. **Zoom** provides a shared-desktop option, which can be exchanged between different participants in real time. This allows each participant to see what other participants are doing on their actual computers, and also allows a shared view of code/IDE/execution. Such office hours can also be captured and later posted to Canvas (see Lectures, option 3).
   b. **Slack** provides an easy way to seamlessly merge text-chat with file-exchange.
      i. **Zoom** chat and **Discourse** can also be used as text-chat platforms, but it should be noted that Zoom chat is not persistent, and as new users enter the chat, they will not be able to see previously posted messages.
   c. **Draw.io** is a free tool allowing users to quickly generate and share hand-drawn/mouse-drawn figures, and can substitute for a shared whiteboard in either live video (Zoom) or chat (Slack) environments. MS Paint or Mac Paintbrush (standard paint tools that are distributed with basic OS) can be used as well.
8. **Google Docs/Sheets.** Students and instructor each need a google account, and students may use their myCSUN login for this purpose. Google documents allow simultaneous editing by multiple parties with tracked changes, which enables the following:
   a. If you want the students to perform research and all of them see results in real time – they can be provided a link to a blank/formatted Google Sheet or Google Doc, and they can fill it in collaboratively from their own devices.
   b. If you want to be able to organize student answers for review – create a Google Sheet and share with students, but you may opt to disallow [student] editing.
   c. Google Docs can help with shared documentation, where multiple team members wish to edit different sections of a single document simultaneously, without a need for manual merging.
9. **Student Presentations.** Students can join Zoom and use the screen-sharing option to share one team-member's desktop, on which slides or other materials can be displayed. All team microphones will be activated, allowing them to take turns narrating the presentation, and other microphones can be de-activated or toggled to instructor preference.

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In the event of an emergency closure of the campus (as deemed necessary by the Administration) during finals week, there are several options that faculty members within the College are required to select from and indicate in their course syllabus. These are:

(1) Structure the course such that it has no scheduled final exam and the semester grade would be based entirely or partly upon multiple exams throughout the semester and a culminating experience before finals week;

(2) State that in the case an emergency is declared, one or more specific contingencies will be implemented from the following. (Faculty must be aware that if more than one contingency is stated, each student would have the choice of the one applied.)

   a) The final exam would be offered in an alternative format, e.g. online or take home, such that students would not be required to come to campus during closure;
   b) The semester grade will be calculated based upon scores earned prior to the final exam;
   c) The final exam would be offered on the originally scheduled date but at an offsite location prearranged by the Department Chair.
   d) The final exam would be rescheduled (under a title other than "Final Exam" such as "Alternative Exam" or "Follow-up Exam") after the emergency closure but before grades are due.

Only in rare cases when a suitable accommodation cannot be found from the above list should the student be given a grade of Incomplete. Other accommodations may be made but must be approved by the Department Chair in advance and also indicated in the syllabus.

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Helpful Links

Here are some GitLab instructions…

…for lecturers:
https://docs.google.com/document/d/11Rz_FZmxUYicd4HoWxkBRBl917wNdHr2gknx5zB5Ico/edit?usp=sharing

…for students:
https://docs.google.com/document/d/1Fut5QYke7c5HJs1ZF7fmihwDL0oKE9_ueF-4NwDIFC4/edit?usp=sharing

Creating Google Account: https://support.google.com/accounts/answer/27441?hl=en

Here is where you would initiate Google Docs/Sheets/Presentations:
https://www.google.com/docs/about/

Draw.io
https://www.draw.io/

Zoom, which can be used as fully-featured product with a CSUN account
https://csun.zoom.us

Discourse
https://www.discourse.org

Slack
https://slack.com

Canvas
https://canvas.csun.edu