**REMOTE PROCTORING PROTOCOL – WEBEX**

When students need to test at a time or place other than the planned administration, remote proctoring [promotes exam security](https://mus.edu/coronavirus/assess-learning.html) without requiring face-to-face interaction. Faculty may adapt the following recommendations within Webex or a [similar videoconferencing platform](https://youtu.be/ZH14w9JQ3eQ) to suit their test modality and the number of simultaneous examinees. When practical, faculty may also consider modifying assessment plans to include [alternatives](http://www.montana.edu/facultyexcellence/onlineteaching/assessment.html) to traditional, proctored exams.

*Technology required for student*:

* Device equipped with a webcam, microphone, Webex and a stable internet connection
* Secondary device with a stable internet connection (optional depending on exam format)
* Printer (optional depending on exam format)

*Technology required for proctor*:

* Device equipped with a webcam, microphone, Webex and a stable internet connection
* Secondary device (e.g., cell phone) with a camera and a stable internet connection (optional)

*To maximize bandwidth*:

* Use an ethernet connection, not Wi-Fi or a hotspot
* Restart your computer and close all applications except those needed for the exam
* Download Webex Meetings instead of running the application through a browser. Complete download (for [students](http://www.montana.edu/webex/student/index.html); for [faculty/staff](http://www.montana.edu/webex/facultystaff/index.html)) well before test day.
* Ask housemates to limit high-bandwidth activities like video streaming during test time
* Perform a Wi-Fi/Webex [HealthCheck](https://help.webex.com/en-us/ns63yvy/Health-Checker-for-your-Cisco-Webex-Meetings) at the beginning of the exam session

Renne Library offers technology, including webcams with microphones and PC laptops, for students, faculty and staff to [borrow free of charge](https://www.lib.montana.edu/request/tech-checkouts/) and has [study rooms](https://www.lib.montana.edu/spaces/group-rooms/#reservations) conducive to exam administration and test-taking.

**Meeting Set-Up – Instructor/Proctor**

1. Login to [Webex](http://www.montana.edu/webex/) with your NetID and password. Access issues? Call UIT helpdesk at (406)994-1777 opt. #2 or or email [helpdesk@montana.edu](mailto:helpdesk@montana.edu).
2. [Schedule a Webex meeting](https://help.webex.com/en-us/WBX5425/How-Do-I-Schedule-Webex-Meetings-Using-the-Quick-Scheduler) or invite student(s) to join your [Webex personal room](https://help.webex.com/en-us/nul0wut/Cisco-Webex-Personal-Rooms-in-Cisco-Webex-Meetings).
   1. If scheduling a Webex meeting, invite students and proctors by adding their emails to the Attendees list. The meeting invitation may be forwarded to additional participants as needed.
   2. If scheduling a Webex meeting, keep defaults except to **adjust the advanced options** **when setting up the meeting invitation**:
      1. ON > Require attendees to have an account on this site in order to join this meeting
      2. ON > Automatically start recording when the meeting starts. A recording of the session will store to the cloud and will be available several hours after the meeting concludes. You will receive an email from Webex with a link to your recording.
      3. [Attendee Privileges](https://help.webex.com/en-us/WBX9000028575/What-Are-the-Different-Roles-in-Webex-Meetings) > Participate in private chat with > ON for Host and Presenter > OFF for other participants
   3. Webex personal rooms share the link format [https://montana.Webex.com/meet/*netid*](https://montana.webex.com/meet/netid) (input your *NetID* to link to your personal room; note: this is a static link). Provide this address to invited participants.
      1. You may also sign in to montana.webex.com or the Webex desktop app to copy your Personal Room link.
   4. If inviting students to join your Webex personal room, keep defaults except to **adjust session settings at the beginning of the exam**:
      1. Record the session to the cloud by toggling the recorder button in the bottom bar menu
      2. In the top menu, adjust [participant privileges](https://help.webex.com/en-us/WBX9000028575/What-Are-the-Different-Roles-in-Webex-Meetings): Participant > Assign privileges > Participant can chat privately with > ON for Host and Presenter > OFF for other participants and ON Participant can chat publicly with everyone
3. Depending on the number of students and the length of the test, buffer an additional 15 - 30 minutes for check-in, check-out, breaks and troubleshooting.

**Student Set-Up**

1. Instructor notifies student(s) the exam will be administered through Webex and outlines clear expectations. As time allows, offer students (and proctors) a run-through prior to exam day especially when administering a group exam or in a [common hour](https://www.montana.edu/registrar/Schedules.html) setting. Students will benefit from an opportunity to demo technology, acclimate to videoconference monitoring, and confirm their workspace meets set-up requirements (see Exam Ready Position below).
2. Students should complete the exam in a distraction-limited environment on a clutter-free workspace. No other people or activities should be in the same room as the examinee, and students may be prepared to do 360-degree room scan at any point during the test. Students should arrange and maintain themselves and their workspace in the Exam Ready Position (see below) for the full duration.
3. If a student is not using their cell phone for monitoring, the cell phone should be turned off and always visible to the proctor. Other than the exam (on screen or on paper), cell phone, and allowable resources (pencil/pen, calculator, scratch paper, etc.), no other items should be in the examinee’s work area.
4. During the exam, students should stay within view of the Webex device with their audio and video feeds enabled.
5. If testing in a group, students should [refrain from eating](https://www.buzzfeednews.com/article/tanyachen/college-student-meatball-exam-accident), drinking and other behaviors that may distract classmates through the shared audiovisual feed.
6. Students must request accommodations from their instructor as soon as possible and, if needed, discuss how accommodations will be provided in a virtual exam environment. For guidance, contact the [Office of Disability Services](https://www.montana.edu/disabilityservices/) or [University Testing Services](https://www.montana.edu/testing/).

*Exam Ready Position*

Students will arrange lines of sight so proctors can monitor students’ workspace/computer screen, face, and hands for the duration of the exam. The level of security associated with any proctored exam, including a remotely proctored exam, should be commensurate with the intended end-use of test results.

* For paper-based exams:
  + At the designated time, the instructor provides access to the exam through Brightspace, Gradescope, email etc. and the student **prints and completes a handwritten hardcopy of the exam**.
  + Students need access to one Webex device and a printer and should close all other applications except Webex.
  + After accessing and printing the test, the examinee positions the Webex device at a wide enough angle the proctor can see the student and their work surface. The student may be asked to tilt or move the camera further away to achieve this.
    - The proctor should see the workspace and the student (including their hands) approximately in profile.
    - Unless communicating with the proctor, the student should not make eye contact with the Webex device while writing their exam.
  + In this configuration, students shall turn off and keep their cell phones within the proctor’s field of view
  + Some students qualify to use assistive technology like [ReadWrite screenreader](http://www.montana.edu/uit/rwg/) during their exams. Students must communicate accessibility requests to their instructors as soon as possible, and instructors should allow use of assistive technology during virtual exams. For guidance, contact the [Office of Disability Services](https://www.montana.edu/disabilityservices/) or [University Testing Services](https://www.montana.edu/testing/).
* For computer-based exams:
  + At the designated time, the instructor provides access to the exam through Brightspace, Gradescope, TopHat, email, etc. and the student **completes the digital exam on a computer**.
  + Students should close all other applications except those required for the exam.
  + If proctoring a single examinee, the student can [share their screen](https://www.webex.com/screen-sharing.html) in addition to the Webex audiovisual feed – only one student device is required to facilitate proctoring in this configuration
  + If testing multiple examinees, each student needs two devices with stable internet, one of which is Webex enabled:
    - On one screen, the student will access and complete the exam through an online interface like Brightspace.
    - The second screen monitors the exam and examinee through Webex and should be positioned such that the proctor can view the student (oblique profile and hands), the exam screen, and the workspace.
    - Unless communicating with the proctor, the student should not make eye contact with the Webex device while writing their exam.
  + In this configuration, the student’s cell phone is often the secondary, Webex enabled device. If not, students should turn off and keep their cell phones within the proctor’s field of view.
  + Some students qualify to use assistive technology like [ReadWrite screenreader](http://www.montana.edu/uit/rwg/) during their exams. Students must communicate accessibility requests to their instructors as soon as possible, and instructors should allow use of assistive technology during virtual exams. For guidance, contact the [Office of Disability Services](https://www.montana.edu/disabilityservices/) or [University Testing Services](https://www.montana.edu/testing/).

**Exam Check-In**

* If testing in multiple rooms/meetings, the instructor should provide each proctor a roster of expected examinees. Unless the proctor unequivocally recognizes the student, confirm identity by having the examinee hold a photo ID up to the webcam.
* Faculty may request that proctors have students scan their testing environment with the webcam. Students should be aware of this security step prior to the exam, and faculty should be sensitive to [privacy concerns](https://www.theverge.com/2020/4/29/21232777/examity-remote-test-proctoring-online-class-education).
* Proctor advises student(s) on arranging their workspace and Webex device into the Exam Ready Position. This is an important step to ensure exam security and may take several minutes per student to accomplish. The proctor should have a clear view of each examinee’s:
  + Workspace including the exam screen if the test is computer-based. All test materials (calculator, notesheet, scratch paper etc.) should be and should remain in the proctor’s field of view.
  + Face and hands – examinees should not be facing the Webex device directly and should not make eye contact with or use the Webex device during the exam except to communicate with the proctor. Students should not wear headphones/head coverings unless allowed as a testing accommodation.
  + Cell phone should be turned off and visible or arranged as a monitoring device
* Proctor should clarify exam details (duration, allowable resources, check-out procedure etc.) and give students a chance to ask questions. Unless the administration includes a break between exam sections, students should stay in view of the camera. Remind students of this expectation before beginning the exam.

**Exam Administration and Proctoring**

* Unless the exam is timed within an interface like Brightspace, the proctor should track test time and give a 10-minute warning as its end approaches.
* During the exam, the proctor should communicate any clarification or instructions both verbally and by typing in the chat window. Students with questions should communicate with the proctor in the chat window.
* Except when talking to students, the proctor mutes their personal microphone and may choose to turn off their video feed to be more discreet. Students should keep their microphones enabled, but the meeting Host can mute students’ microphones to limit distractions. If examinees are muted, the proctor should preform occasional spot-checks to listen for offscreen activity like typing, voices, papers shuffling etc.
* In addition to saving the chat log, document any irregularities and note their time to expedite review of the exam recording if concerns arise during or after the administration.
* The Webex video recording defaults to a thumb nail view of examinees obscuring some details. Use a secondary device like a cell phone to capture video/images of suspicious behavior in better resolution. Examples of suspicious behaviors include:
  + Exam, examinee or test materials leave the field of view. Proctors should watch for anything, like scratch paper or exam pages, that slides out of view and be mindful if an examinee is routinely looking at “something” beyond their workspace.
  + Students who arrive late or depart early; connectivity issues
  + Frequent or sustained eye contact with the Webex screen; typing on the Webex device that is not followed by a chat message to the proctor
  + Applications other than the exam open on a computer screen: “accidental” instant messages or other pop-ups; browser tools like dictionaries, add-on encyclopedia or calculator apps
  + Wandering hands or eyes; unchanging or guarded posture
  + Foot tapping, pen clicking, coughing etc. may be students communicating answers non-verbally to each other. Be attentive to these behaviors especially if they seem patterned or prolonged.
  + Unusual exam progression: errant page flipping/scrolling, lack of effort or steady progress, etc.
* Webex does not have functionality to “blind” students’ video feeds from the other examinees in the session meaning parts of the worked exam may be visible to the full group. Watch for examinees whose progress seems paired or coordinated. Unless communicating with the proctor, the student should not make eye contact with the Webex device.

**Exam Check-Out**

* For computer-based exams, students should submit the exam through the LMS interface (e.g., Brightspace).
* For paper-based exams, students will either:
  + Use their cell phone to take pictures of each worked page and submit through Brightspace, Gradescope, email etc.
  + Use a cell phone scanner app like [CamScanner](https://www.camscanner.com/user/download) to create a single .pdf file to submit through Brightspace, Gradescope, email etc.
  + Use a scanner, if available, and submit through Brightspace, Gradescope, email etc. [Adobe Pro DC](http://www.montana.edu/uit/purchase/adobe/) is free for students, staff and faculty and allows easy [combination of multiple .pdf’s into a single file](https://helpx.adobe.com/acrobat/using/merging-files-single-pdf.html).
* For paper-based exams, the student’s Webex device may be the same device used to scan and upload the completed exam. Students should remain in the Webex meeting while scanning and submitting their work. If the student needs to leave their testing area to scan the exam, they should bring their Webex device with them.
* The instructor/proctor should confirm receipt and readability before releasing the student from the exam session.
* Faculty should be aware that students will retain a copy of a paper-based exam. For computer-based exams that allow scratch paper, the proctor may ask the student to tear up, scribble over, or douse scratch paper before they leave the exam session to prevent retention of test content.
* When the Host exits the Webex meeting, a prompt will ask if they wish to save the chat log – say yes.
* Any additional examinee images or video and chat logs should be [stored securely](http://www.montana.edu/box/) and retained only as long as necessary. Instructors may consider [password protecting](https://help.webex.com/en-us/8zi8tq/Cisco-Webex-Best-Practices-for-Secure-Meetings-Hosts#concept_799B613B231702DE1F36A54DA7870292) the main exam recording and should retain only as long as necessary.

**Additional Considerations**

* In a virtual testing environment, the proctor to examinee ratio cannot reasonably exceed 1:15. Use multiple testing rooms/proctors for larger sessions by setting up multiple Webex meetings or personal rooms.
  + Proctors should have a back channel to communicate with the instructor as questions arise during the exam.
  + Instructors can join multiple rooms as an attendee but can host only one Webex meeting concurrently. Within separate rooms, instructors may designate an ancillary proctor as Host (alternate Host must be within MSU and have a NetID) and join all testing rooms as an attendee.
* [Breakout sessions](https://help.webex.com/en-us/8cckd2/Manage-Breakout-Sessions-in-Cisco-Webex-Training) in the Webex Training app allow instructors to divide larger groups into subgroups within a single Host session. However, breakout sessions cannot be recorded within Webex and therefore are not the best tool for exam proctoring. If you choose to use breakout sessions, assign a proctor to each breakout room and have them record their screen with [TechSmith](http://ato.montana.edu/technologies/techsmith/) or [PowerPoint](https://support.microsoft.com/en-us/office/record-your-screen-in-powerpoint-0b4c3f65-534c-4cf1-9c59-402b6e9d79d0?ui=en-us&rs=en-us&ad=us).
* Consider splitting longer exams into parts with a submission window and personal care break between sections. Release access to exam sections one at a time and if testing in a group, consider randomizing access to sections so not all examinees work the same problems at the same time.
* No virtual proctoring solution will be able to fully replicate the security of a testing center or in-person proctoring. As such, instructors might also consider having students sign an academic integrity statement and/or employ a [plagiarism checker](http://www.montana.edu/ecat/help/instructor_tutorials/third_party_tools/turnitin/index.html) for longer essay questions.
* Follow the same process for [reporting academic misconduct](https://www.montana.edu/deanofstudents/academicmisconduct/academicmisconduct.html) during a virtual exam as you would during a face-to-face exam.
* Provide students with a clear opportunity to request accommodations or inform you of any accessibility challenges they may be facing. For guidance, contact the [Office of Disability Services](https://www.montana.edu/disabilityservices/) or [University Testing Services](https://www.montana.edu/testing/).

*Acknowledge*:

Protocol developed by MSU Testing Services in consultation with Audrey Bentz, Anders Larsson, Kayla Ouert, and Tess Meacham. Some content adapted from the University of Delaware and the Hong Kong University of Science and Technology. Recommendations adhere to the draft Standard for Online Proctoring and Monitoring jointly developed by the Association of Test Publishers and the National College Testing Association.