

## Appendix 1. Section V.D. Domain 1a Evidence: COVID-19 Transition - Teaching Animal Anatomy on-line

The rapid transition to on-line teaching Spring 2020 resulted in some innovative teaching and assessment strategies that were well received by the students.

**A. BMS531 Gross Domestic Animal Dissection - *Virtual Table Checks*** - Each week students in BMS531 are typically assessed via Table Checks on the accuracy of their cadaveric dissection and their knowledge of the structures. In the on-line environment, dissection was interrupted but learning was not. Dissection students prepared in depth VoiceThread projects on assigned topics in the place of dissection and Table Checks went virtual using Microsoft Teams, Google slides and response forms, and rotatable 3D objects in Virtual Animal Anatomy (VAA).

**Method:** Students and faculty met in Microsoft Teams, where students were sent Google slides (Figure for their table check. Embedded links to rotatable objects in the VAA and the ability to share control allowed for students to identify anatomical structures remotely and as a team. Using a fillable Google response form answers were remotely recorded, collated, and then imported into the Canvas Gradebook. The link for the Thorax Table check can be found here: [https://docs.google.com/forms/d/e/1FAIpQLSfQ7yE9bVT8iCcW\\_4g\\_c4ad8TUJHGWHozobP3ZoeA3Ri7yWjg/viewform?usp=sf\\_link](https://docs.google.com/forms/d/e/1FAIpQLSfQ7yE9bVT8iCcW_4g_c4ad8TUJHGWHozobP3ZoeA3Ri7yWjg/viewform?usp=sf_link).

**Outcome:** While we hope to be back in the dissection laboratory again soon, the use of fillable Google response forms was highly useful and will remain a mechanism for capturing and collating assessment data from multiple reviewers in real-time. Although students in BMS531 agreed (1-7 scale, 7 strongly agree - see Table 2 in Educator's CV, mean+SEM) that dissection is necessary for a deeper understanding of anatomy (6.76+0.1), they also agreed that the COVID-19 transition was a success (mean 5.76+0.1) and Table Checks guided their study and self-assessment (mean 6.6+.3) in BMS531.

**Figure 1. Slides Provided to BMS531 Students Virtual Thorax Table Check**



**B. BMS305 Domestic Animal Anatomy - Zoom Open Lab, VoiceThreads, & Guided Quizzes**- Each week students in BMS305 typically attend 2 hours of a regularly scheduled laboratory session and then are encouraged to spend time in the additional open laboratory periods. Weekly written "tours" in the BMS305 Laboratory Guide (developed in 2015) are designed to guide the students through the laboratory specimens and integrate the key lecture and laboratory concepts for the week. With the elimination of all laboratory sessions following the COVID-19 transition, three strategies were utilized to replicate the laboratory experience: 1) Zoom Open Lab; 2) VoiceThreads; and 3) guided quizzes linked to course content and the Virtual Animal Anatomy program.

### **Methods:**

1. **Zoom Open Lab:** One continuous Zoom meeting was established from March 15-May 20th. The meeting link and password were shared with all students, teaching assistants (TAs) and the teaching team. A claim host code was shared with TAs and instructors to allow anyone joining the meeting to claim the host status. More than 40 hours each week of Zoom Open Lab time hosted by TAs, with additional hours hosted by the faculty. Zoom was also used to provide support during exams and for the faculty to collaborate on teaching. **EXAMPLE: Video 1: Equine Ascending Colon Dance** - I developed this learning strategy several years ago to help students in BMS305 remember how to start the equine ascending colon (with the right ventral colon and sternal flexure). Normally we do it in the laboratory with an actual equine colon for a demonstration. Feedback from veterinary students and equine surgeons (Diana Hassel, CSU) is that this total physical response mechanism has created lasting, learned content - and the dance is very handy in the middle of colic surgery to identify parts of the equine colon. One former student even thanked me because this knowledge was required to answer a NAVLE question and she was able to recall the dance mid-test! With COVID-19 moving that unit on-line, we had to make sure that students were provided this dance, but we had to get a little creative and recorded it in Zoom. Please note that Zoom will reverse a person's image and I do know my left from my right (most of the time).
2. **VoiceThreads** were created for specific topics to facilitate integration of the material and engagement. During the weekly TA meeting (which continued remotely), the TAs would indicate topics that students were finding challenging, followed by discussion of how to best meet the needs of the students. Often these discussions resulted in a mini-video using VoiceThread. **EXAMPLE:** To introduce the Thorax, Abdomen, and Pelvis unit, I created this VoiceThread <https://voicethread.com/myvoice/thread/14117710/86760928/79967140>
3. **Guided Quizzes** were formative assessments (7.5 pts each x 6) created for the last two units of the semester following the online transition. Students were given two attempts and unlimited amount of time per attempt, with a due date of 8am on the exam day for the unit. Following each question was a review, linked content to the virtual program, images from lecture and the questions "are you ready to move on?" - so while not adaptive, these assessments were intended to guide engagement with the course content.

## Video 1. The Equine Ascending Colon Dance



**Outcome:** Like their counterparts in BMS531, the BMS305 students (n=117/131 respondents) agreed (1-7 scale, 7 strongly agree - see Table 2 in Educator's CV, mean+SEM) that the COVID-19 transition was a success ( $n=15.5\pm 1.5$ ). When asked to rank their top 3 most useful resources after the transition, students indicated that the Students found the guided quizzes were the most helpful new resource. The course has previously used low stakes weekly lecture content ("check-in") quizzes as well as laboratory quizzes, but these guided quizzes will likely be added to the course for 2021.