Managing Large Anatomy and Physiology Classrooms

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Abstract
As demand for Anatomy and Physiology education increases faster than construction projects and budgets, instructors are finding themselves in front of ever-growing classroom sizes. Teaching large classes presents a number of challenges, including planning the courses, navigating technical equipment, handling exams and student accommodations, or simply, managing the 'foot traffic' of our students. Minor issues in small classrooms can quickly become big problems in large classes. Instructors of large Anatomy and Physiology classes will want to consider these potential issues and craft plans to circumvent big problems before they occur. In this article, several experienced instructors with large semester enrollments (300 to 800 students) discuss strategies and practices for navigating large Anatomy and Physiology classes so that teaching these large sections might be enjoyable instead of burdensome. doi: 10.21692/haps.2017.053

Keywords: Technology, assessments, accommodations, large groups

Introduction
As higher education budgets are stretched to accommodate increasing enrollments, instructors in Anatomy and Physiology are tasked with educating larger numbers. Anatomy and Physiology courses are in high demand, as the aging populace requires more health care providers, with the associated increase in enrollment in the pre-health professional majors. These large classroom enrollments can approach sizes comparable to small towns (300-800 students). In some situations, there are multiple large sections, requiring Anatomy and Physiology instructors to manage thousands of students every semester. This may not be the ideal teaching environment, but it is an environment that can work and lead to successful outcomes. If you are prepared and have carefully considered the specific challenges common to large classes, it is even possible to enjoy and have fun teaching large sections of Anatomy and Physiology!

Large classroom enrollments present a number of challenges to the Anatomy and Physiology instructor. These challenges include technology, assessment and overall classroom management issues. In this article, six experienced instructors of large Anatomy and Physiology classes, with combined enrollments of 4800 students per semester, discuss common challenges and their solutions to these problems.

General Course Preparation
Preparing course materials for a large class presents with its own unique challenges. While classes of all sizes syllabi have specific goals, there is less freedom and maneuverability for the instructor in a large class when it comes to the syllabus. Most large classes are introductory level courses with syllabi and learning objectives often outlined by committees or departments with the objective of providing the foundational knowledge necessary to advance through subsequent coursework. Failure to meet the learning objectives can

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have far reaching implications for the students matriculating through a degree plan. Thus, large classroom instructors need to plan their course carefully so as to meet the objectives.

While current classroom trends have shifted away from the traditional lecture model towards the active learning model, the large classroom has been shaped around the lecture presentation to teach as many students as can possibly fit into the large auditorium. An instructor in this environment must then consider how to create lectures that are both engaging and constrained so as to fit within the allotted time and meet course objectives. Certainly, the portrait of the large classroom environment is often painted as a lecturer on a stage with a multitude of stenographers in attendance to record the lecturer's every word. While many classes are managed this way, it is not necessary that the large classroom be just a lecture. The instructor can and should use all sorts of pedagogical tools at their disposal to engage the classroom such as clickers, minute essays, small group discussions, videos and animations, chalkboard demonstrations, and even skits. Reluctance to adopt these pedagogical tools arises from the lecture time these tools cost the instructor. Thus, the large classroom instructor needs to be an efficient time manager, being aware of not only how much time is required by the lecture, but how much time is needed for active engagement and how much time is needed to shift between the two with a large number of users. For example, if the instructor plans on using three clicker questions in a class of 500 students and students are given two minutes to respond to each clicker, then one might conclude that the instructor would need to allot six minutes for clicker activities. In a small classroom, transitioning between the lecture and the clicker and back can be managed efficiently and six minutes might be all one needs. However, in a large class, the transitions take longer with more students (for example, five minutes per clicker activity) and more time should be set aside.

The large-class lecturers need to prepare their courses around the clock and calendar. Their lectures need to be engaging but time-limited. Preparation needs to reflect and account for the timing of the syllabus. Student engagement does not need to be sacrificed in the large classroom, but awareness and preparation for transition lags between lecture and direct engagement is essential to success in the large lecture environment.

Managing foot traffic

An important logistical aspect of teaching large sections is that all of the students have to enter (or leave) the classroom in a short amount of time. On certain days, the students may also have to turn in quizzes or short, in-class assessments (e.g., minute papers) at once, and often when they are exiting the classroom. To manage the short time between classes, we suggest coordinating with the instructors of other large sections that precede and/or follow your class. For example, tudents can be directed to enter through the front doors of the auditorium and to leave through the rear doors. An instructor can effectively manage the movement of more than 650 students within ten minutes in such a scenario. When students need to submit papers, instructors can enlist the help of teaching assistants (TAs) and instruct students to pass the papers to the end of each row. Coordinating logistics with other instructors also allows the Anatomy and Physiology instructor to effectively respond to audio-visual equipment difficulties that arise. For example, a quick text to the next instructor saying (for example), "bring your laptop today, the desktop is acting up" or "Wi-Fi is down" is helpful to all and a great example of collegiality.

Exams and assessments

Exams can be daunting with large numbers of students, but there are several strategies to address questions during the exam and to curb dishonest exam behaviors when giving exams to large groups. Before the exam day it is conducive to have a graduate student or another faculty member take and/or edit the exam to catch mistakes, confusing question stems, and other issues. Even with careful editing, students will have questions. If space and time allows, the instructor may consider distributing blank notecards for students to write questions and pass to the instructor for answering. Many exams are held in crowded auditoriums and it might be necessary to set a "no questions" policy during examination. Alternately, you may have students sit every other row or 'two rows then skip a row' to allow space for instructors and proctors to reach students without disturbing others.

Emotions and stress are very high during exams and it can be difficult to monitor students' exam taking behavior. Instructors can use seating charts during exams to prevent students from sitting next to their friends. Another technique is to distribute three or more versions of the exam, in which questions and answer options are shuffled. Using colored paper for different exam versions (e.g. blue version, green version, etc.) will help the instructor manage versions and keys, while collating by color helps the instructor quickly ensure that adjacent students have different versions. Finally, recruit graduate students or undergraduate teaching assistants to monitor the room during the exam.

Disability and other accommodations

With large classes, the uncommon becomes common and there will undoubtedly be several students requiring accommodations. The list of possible requested accommodations that we have encountered includes exams printed in large font on blue paper, extra time on assessments, assistive listening devices and video captioning, notetaking assistance, no gum chewing in class, assistance with filling in examination forms and many others. These needs should be considered and discussed early to ensure adequate and reasonable accommodations are met. Colleges and universities vary in their approach to these situations, with some institutions providing minimal guidance and other

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institutions stipulating extensive policies and support to instructors. At institutions with extensive support via an office for disability support, instructors will be provided with the tools to address these needs each semester.

At some institutions, the instructor may need to independently craft a memorandum of understanding that outlines the instructor's policies and includes a list of reasonable accommodations that meet requirements. Signed and distributed early in the semester, it allows open communication between students and the instructors and enables the instructor to set fair and reasonable boundaries and policies.

Technology in the classroom

Technology is a cornerstone in contemporary education and the use of technology inside and outside the classroom is quite variable. Using technology just for the sake of using it is not always helpful and might be even harmful, particularly when it is overused by instructors or misused by learners. With attention spans declining, as students get easily distracted especially in large classrooms, there should be firm guidelines and agreement between the instructor and students regarding the appropriate use of technology during lecture time.

Besides using PowerPoint and other equivalent software presentations, there are many other tools available to help the lecturer engage the students particularly in the large classroom. One of these tools are clickers. New personal response software systems save the students from buying extra hardware and are available through computers or cell phones. In such situations, teachers would require students to bring their devices to the lecture room but should alert them not to use these devices for purposes other than learning, and to avoid checking emails, social media pages, chatting, or surfing the internet. The teacher is unable to monitor students in large classrooms, so it is almost left to the students' conscience to follow the rules. It is important to have the Wi-Fi capacity to support these devices in large auditoriums. Often students have more than one device that will connect to the Wi-Fi routers, and access can be slow. In one of our (CB) classrooms the seating is capped at 390 students but we have found that we need to have a Wi-Fi capacity for 600 devices in order for the personal response system to work efficiently.

When considering the technological resources that will help the instructor in a large classroom, we have found that a long-range presentation remote with a green laser pointer works best. You are not chained to a podium and the green laser has higher visibility for students in the back as compared to red lasers. Also, use of a lapel microphone will enable you to move about the classroom more freely. To conclude, using technology in large classrooms is encouraged if it helps the students learn better and enables the instructor to deliver his or her materials in a more efficient and engaging way.

Conclusion

Large Anatomy and Physiology classrooms can be challenging in terms of logistics and organization. In this article we discussed various organizational and management ideas that we have found successful in our classrooms. Once you have navigated (circumvented) the organizational challenges of a large classroom, you can focus on the enjoyable part of being an Anatomy and Physiology instructor: actually teaching Anatomy and Physiology. Although the authors focused primarily on logistics, the authors would like to reinforce the notion that standard and innovative engagement is possible even with 300 or more students. It is learning to manage classroom logistics that enable the instructor to overcome the *minor hurdles* in small classes that will ultimately scale to *big problems* within the large lecture hall.

About the Authors

We are a group of experienced Anatomy and Physiology instructors who consistently teach courses with large enrollments. Each semester, our combined enrollments approach 4800 students, with 300-750 students per instructor. We coordinate and teach human Anatomy and Physiology courses to allied health, nursing, biology, and other mixed majors.