

Will this be on the exam? Encouraging students to do *more than make the grade.*

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If you put a group of TAs together in a room for long enough, the topic is bound to circle around to the lack of motivation observed in the undergraduate population. Not every student is going to be interested in, much less enjoy, the course that you are teaching. Thus, while some students will thrive, some inevitably just will not care. This is especially evident in lower division courses for non-majors. While a general lack of motivation in students can be frustrating enough, students are often motivated to simply memorize material in order to earn a good grade. So, as a TA, perhaps the most hated question that we receive from students is the infamous, “Will this be on the exam?” TAs are often baffled by students who do not want to *think* about the material, but

would rather be told exactly what they must memorize in order to receive a good grade on the final exam. When students approach learning from this perspective, it has a negative effect on their education. In fact, studies have shown that many students who earn an A in a course through rote memorization typically forget the material within the next semester. Less quantitative studies have also shown this learning style to increase frustration and the number of headaches experienced by TAs.

Perhaps the undergraduates are not lazy or unmotivated; perhaps the problem lies in our teaching strategies. A paradigm shift in teaching at the university level has occurred over the past decade, particularly within the natural sciences, characterized by moving away from the traditional ‘lecture style’ of university teaching to something referred to as ‘scientific teaching.’ This style of teaching involves active learning techniques that encourage students to think critically about course material. Evidence shows that replacing lectures with active learning strategies can improve the knowledge retention of students and enhance learning. These teaching strategies encourage students to take responsibility for their learning, requiring that students come to class prepared to learn and participate, rather than just passively listening to a lecture (while surfing Facebook at the same time). This teaching style may change the focus of some undergraduates from “Will this be on the exam?” to comprehending the course material and, hopefully, the scientific method. If you are facing the challenge of



inspiring students to *understand* instead of memorize, to want to work hard instead of having the TA regurgitate facts for them to memorize, here are some ideas to help you out. Note that you don't have to teach in the physical sciences to implement some of these strategies into your discussion sections.

- **Involve**: Active learning strategies are student-focused, and encourage students to participate in discussions or activities. Try incorporating small group work into a discussion so that students can build a sense of community within the class or their major by learning to communicate their ideas with one another. Asking students to help with demonstrations or lead discussions can also be a way to incorporate active-learning into the course. This engages students to be invested in the course physically and mentally, and also works to address the ever-challenging problem of reaching a diverse set of learning styles. By actively engaging students during a course period, they are forced to think about the material in that moment, instead of waiting to think about the material until one week prior to the exam.
- **Mix it up**: A fifty minute lecture can be torture for students and TAs alike, and although lecture can be a necessary part of any course, try to mix-up each class meeting by

sandwiching a class activity between two shorter bouts of lecture. This can help keep the attention of students (which is said to only last for approximately 20 minutes at a time) and will help the students *apply* what they have just learned from the lecture to solve a problem or debate an issue. The monotony of lectures can also be broken by using clicker based questions, a one minute essay or quiz in the middle of lecture. These quick, low-risk, formative assessments can also be used to quickly gauge the level of understanding of the class. This allows for both the instructor and the students to evaluate their practices and knowledge quickly and in real-time and make any necessary changes.

- **Incorporate**: Students will be more invested in understanding material if they can see how it may pertain to their own lives. Try incorporating examples of core course concepts to which students can relate. Look into the most exciting research relating to the course, and attempt to integrate it into a class period, perhaps asking the students to look at and interpret data and write a summary of how this new information affects their lives. In a world constantly increasing in scientific and technological advances, it can be important for all of society, and thus students, to be well practiced in



scientific literacy. The more personally invested a student becomes in course material, the higher the likelihood of them succeeding in understanding the course material.

- Invigorate: This might seem like it should not need to be said, but show some excitement in what you are teaching! If your goal is to inspire students to be excited about a subject, it will help if you demonstrate enthusiasm through your teaching strategies. Also, do

not be afraid to challenge your students. Have students solve problems that become incrementally more challenging. This can help build self-confidence in students at early, less challenging stages and will motivate them to continue the hard work during the latter, more challenging stages. As students discover that they can tackle the challenging questions/assignments that you present to them, they will be more motivated in general, and hopefully more motivated to challenge themselves.

