HOW TO GET TO KNOW 200 STUDENTS (ALMOST) OVERNIGHT

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AAPT Winter Meeting
17 January 2000
Challenge

Large lectures, though unavoidable... are impersonal
Challenge

Large lectures, though unavoidable... are impersonal. Focus on information transfer.
Challenge

Large lectures, though unavoidable... are impersonal focus on information transfer don’t necessarily address students’ needs
Strategy

- Move some of the information transfer out of the classroom
Move some of the information transfer out of the classroom: assign reading
Strategy

- Move some of the information transfer out of the classroom: assign reading
- Use a web-based reading assignment to help students think about what they read

Use these assignments to:
Use these assignments to:

- find out what needs attention in class
Use these assignments to:

- find out what needs attention in class
- get to know your students!
Strategy

Reading assignment:
Strategy

Reading assignment:

- 2 questions on content
Reading assignment:

- 2 questions on content
- 1 feedback question
Reading assignment:

- 2 questions on content
- 1 feedback question
- graded on effort (semi-automated)
Sample reading assignment:

1. Suppose you observe an object that moves along a trajectory that is neither circular nor straight. Without determining the object’s speed, can you tell if its acceleration is zero or nonzero? Explain briefly.

2. Explain in your own words the difference between inertia and rotational inertia.

3. Please tell us briefly what points of the reading you found most difficult or confusing. If you did not find any part of it difficult or confusing, please tell us what parts you found most interesting.
What do you do with all this information?
Database-driven notebook

Instructor view of student responses
Database-driven notebook

Instructor view of student responses

Physics 1a Reading Assignments
Process Feedback

David Tam
11:02:50 11:03:05 PM
Responses sent: 3

1. Suppose you observe an object that moves along a trajectory that is neither circular nor straight. Without determining the object's speed, can you tell if its acceleration is zero or nonzero? Explain briefly.

Acceleration is dependent upon velocity, both are vector quantities. Thus, acceleration can be the result not only of a change of speed, but a change of direction. So if you look at the direction of the object's velocity at two successive moments, you can see if its change directions and thus if its acceleration is nonzero.

2. Explain in your own words the difference between inertia and rotational inertia.

Inertia is an intrinsic characteristic of an object, whether it's rotating or not. It is simply a measure of how hard it is to move something. Rotational inertia is dependent upon inertia, but is also dependent upon the object's location relative to the axis of rotation. So while you can't change an object's inertia, you can change its rotational inertia.

3. Please tell us briefly what questions you have after completing your reading assignment. If the reading was entirely clear and you have no questions, please tell us what parts of the reading you found most interesting.

I was a bit confused as to the relation between centripetal force and static frictional force (as in the case of the cube on the turntable). The answer in part B says that once the static frictional force reaches its maximum, the cube will fly off. Does this mean that the centripetal force is entirely confined in the static frictional force?
Database-driven notebook

Instructor adds reply to database
Database-driven notebook

Entries available for re-use
Student view of notebook

Students can read and search posted replies
Benefits

- better use of classroom time
- connects names and faces
- increases student-faculty interaction
- study resource for students
Funding: National Science Foundation

Programming: Andrey Gubarev

For a copy of this talk and additional information:

http://mazur-www.harvard.edu