

EE400D (Teaching Engineering): Classroom Observation

Faculty/Instructor: Susan Hautala

Date/Time of Observation: 11-4-19

Observer: Victor Cannestro

Course Number (Course Title): OCEAN 285 Fluid Mechanics and Waves

Format Observed (Lecture, Lab, Quiz Section): Lecture

Number of Students Enrolled: 35

Number of Students Attending: 30

Instructions

This observation worksheet contains both close-ended (Likert Scale) questions and open-ended (descriptive) questions regarding what the instructor is doing during the observed time period (session) and what the students are doing. Not all behaviors or activities are covered in the close-ended questions; those activities that are not included in the close-ended questions can be integrated into the open-ended questions. Please highlight your answers in a different, but legible color, minimize white space, and provide clean and consistent formatted in the completed observation.

The following were rated according to the rubric at the end.

<i>During the Observed Session:</i>	<i>Not at All</i>	<i>Somewhat</i>	<i>Satisfactory</i>	<i>Outstanding</i>
The instructor provides objectives for the class session (written, verbal, or both).			X	
The instructor relates the session content to learning outcomes for the course.			X	
The instructor uses visual aids that are clear, organized, and relevant.				X
The instructor uses practical, "real-world" examples to support teaching.				X
The instructor refers to the relevant portions of the textbook, reading, or other supplement.			X	
The instructor uses humor effectively to promote student engagement and rapport.				X
The instructor answers questions well and demonstrates knowledge of the subject.				X
The instructor shows clear interest or enthusiasm in teaching.				X
The instructor uses student names.	X			
The instructor asks specific questions.				X
The instructor pauses after asking a question.			X	
The instructor asks questions of students that result in responses from students.			X	
The instructor changes gears periodically from one style of teaching to another.			X	
The instructor engages students periodically through think/pair/share, problem solving, or other active learning exercises.			X	
The instructor uses guided notes.	X			

The instructor involves students periodically in what is to be covered during the session.	X			
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During the Observed Session:

Not at All

Somewhat

Satisfactory

Outstanding

The instructor uses more than one way to explain problems or concepts.				X (Framed the physics in many different contexts)
The opening of the class session gets students' attention.				X
The instructor provides a summary of what has been covered and accomplished at the end of the observed session.	X			
The instructor provides a preview of the next session or ideas of what to consider for the next class at the end of the observed session.				X (Mentioned how and why concepts will show up again, several times)
The instructor could be easily heard.				X
The instructor moves around in the classroom and refrains from standing/sitting in one place.		X (moved between screen and podium)		
The instructor uses analogies or metaphors to relate the concepts to students' experience.				X
The instructor emphasizes key points throughout the observed session.				X (Over 3 times)
The instructor makes eye contact with students.				X
The instructor uses open (not closed) body language during the observed session.			X (closed body language shown 4 times)	
The instructor engages in behaviors that develop rapport and trust with the students.				X (lots of interesting or humorous videos shown and she smiles often)

The instructor relates the material/concepts to personal or societal concerns.				X (Many relevant examples given)
The instructor is available before class.				X (15 minutes early)
The instructor is available after class.				X (15 minutes)

What types of visual aids (dry-erase board, chalkboard, powerpoint, etc) does the instructor use during the observed session? How are these visual aids used?

The instructor used videos to show real world applications or illustrations of various wave behaviors; PowerPoint slides with gifs, key equations, pictures of applicaitons, and quizzes; and PollEv to gauge anonymous student responses in real time.

In your opinion, what was the best/most effective teaching moment observed in this session?

After going through the equations describing sinusoidal wave propagation, showing gifs of it, and relating it to an ocean science example, she played a humorous video of a marching band implementing wave propagation to good reception.

In your opinion, what was the most unique teaching moment observed in this session?

I thought that her use of a thought provoking and stylish music video that illustrated wave behavior was an excellent way to motivate the session and capture students' attention.

In an organized paragraph with complete sentences, describe what the instructor did throughout the session (150-250 words).

The instructor arrived 10+ minutes early, setup, and projected a music video on the showing soundwaves interacting with sand and water to form standing wave patterns. The first slide displayed many examples of wave phenomenon along with several pictures illustrating the examples. She used a pointing stick to indicate specific examples. Next slide showed a picture from the textbook mentioned explicitly with relevant terms. She previewed that they'd go into this in more detail next week and encouraged students to brush up on their trig functions. She made lots of eye contact with the students and was facing them as she moved around. Gifs on the slide displayed wave behavior in real time. A rhetorical question was asked, "What creates oscillation?" and an analogy with a ball was made to make it concrete. The key concepts, Hooke's Law and the wave equation, were put in a box. Term by term she walked through the wave equation in the context of the harmonic oscillator and showed its solution. She made a connection to angular rotation from earlier in the quarter. Next, the concepts were extended to context of ocean waves, and she reminded students verbally and visually how this connects to previous lecture material. She asked another rhetorical question, "what are we going to get as the solutions in this case? Sines and cosines!" An example of an echosounder was shown on the next slide with the citation given. An analogy of a fish finder was made to explain the wave behavior in the picture. She asked, "Questions?" paused, moved on to another funny video example, and made a joke, "this has

got to kill your quads.” Then she told the class the math everyone will need to build up together to understand the examples and concepts developed next week. On the next slide, more gifs were shown displaying sinusoidal wave propagation in space. She connected the material to OCEAN 286 and encouraged students to ask for the resources if they were curious. Pictures of a superposition of waves with different frequencies were shown and then they walked through the solutions. Then she said, “Get out your phones” and initiated a PollEv. They were asked, “What is the frequency of the shorter period wave in the product?” She said that this is an example of a key concept. The next slide combined the concepts of the previous in the example of spring tides. She showed an interactive program, asking if the students had a chance to play with it yet since they’ll be using it on Friday. Then she asked guided questions, “What do you think is going to happen if...” She asked, “What happens when...” After class when answering a question, she used her hands to mimic the wave propagation.

During the Observed Session:

	<i>None</i> (0%)	<i>Few</i> (1,2 students)	<i>Some</i> (<10%)	<i>Many</i> (10-50%)	<i>Most</i> (> 50%)
Students maintain attention toward the instructor (for example – eye contact).					X
Students remain awake and alert during the observed session.					X
Students are using their cell phones or other electronic devices in activities unrelated to class.		X			
Students are over one minute late to class.	X				
Students pack up early at the end of class.	X				
Students are reading the newspaper or doing other non-electronic activities unrelated to class.		X			
Students interact with the instructor before class.		X			
Students interact with the instructor after class.		X			
Students initiate questions.		X			
Students respond to questions posed by the instructor.		X			
Students ask follow up questions.		X			
Students participate in class when asked to do so by the instructor.				X	
Students are taking notes.				X	

In your opinion, how would you best describe students’ interest in the observed session?

Based on the number of notes taken and laughter, students seemed mostly interested in the material covered.

In your opinion, how would you best describe students’ affect (emotion) in the observed session?

Students affect gradually changed from relaxed to awake and alert; then, towards the end of the class, to “checked out.”

In an organized paragraph with complete sentences, describe what the students were doing during the observed session (150-250 words).

Before lecture began, students filtered in, socialized, and watched the video. They joked about free time. Many looked curious and surprised at the video. As gifs and equations were introduced, most students began taking notes. Almost every student was alert and awake: making eye contact. After being asked about their previous physics courses and some students answered. A funny video was shown of a precision marching band implementing wave behavior and many students laughed during this. While viewing the slides on sinusoidal wave propagation, many students were taking notes. A few crossed their arms. Upon being prompted to poll their thoughts on a question via PollEv most students participated. The results were displayed to all in real time. The second poll occurred, and most students participated. After a question was asked to the class a student immediately answered. One student in the back yawned. The student behind me was flipping through papers the ENTIRE lecture. Some students were looking down or were on their phones. A student asked what seiches are, she answered, and showed two example videos. Students talked about midterms and gradually left. One student in the front asked many questions and the instructor clarified, showing the relevant slides.

Are there any items that you believe should be added to this classroom observations worksheet? If so, please describe.

During the Observed Session:	Not at All	Somewhat	Satisfactory	Outstanding
The instructor provides objectives for the class session (written, verbal, or both).	None provided	Objectives aren't very clear or observable; are barely mentioned and not written down	Mostly clear and observable objectives that are either easily visible and somewhat discussed OR somewhat visible and discussed in some detail	List of clear and observable objectives that are easily visible and are discussed in some detail
The instructor relates the session content to learning outcomes for the course.	None provided	Briefly mentions how the content will be helpful in the future	The instructor gives a clear explanation on how the session content relates to specific learning outcomes	The instructor gives a clear explanation of why they've done what they've done so far and how the current session's content relates to specific learning outcomes
<p><i>A good learning objective is:</i> <i>Clear – a student understands what it means and what he or she should be able to do as a result of the teaching at hand.</i></p>				

	<i>Observable – the instructor can observe whether the student has achieved the learning objective or not.</i>			
The instructor uses visual aids that are clear, organized, and relevant.	<p><i>Visual aids are:</i></p> <ul style="list-style-type: none"> <i>clear in that writing (on board, document camera, electronic device) is legible; PowerPoint slides are not overpowered or underwhelmed with text</i> <i>organized in that individual chunks of material (a single slide, single problem) are laid out such that the student can see a logical sequence in the material presented, images are close to the concepts they describe, organized notes are readily constructed from the visual aids, and less relevant material is spoken rather than spoken and written.</i> <i>relevant in that tangential equations and formulas are avoided; images reinforce the concepts and words as presented, and examples closely apply the concepts presented.</i> 			
	Visual aids contain none of the above elements as described	Visual aids contain one of the above elements as described	Visual aids contain two of the above elements as described	Visual aids contain all the above elements as described
The instructor uses practical, “real-world” examples to support teaching.	No real-world examples are provided.	One substantive real-world example is provided.	More than two examples are provided, but some are toy-examples.	More than two examples are provided, and all examples are substantive.
The instructor refers to the relevant portions of the textbook, reading, or other supplement.	Not at all	Instructor briefly mentions the text or supplements in an indirect or imprecise manner	Instructor clearly and directly refers to the text, etc.	Instructor refers to the materials directly and specifically, utilizing them in class
The instructor uses humor effectively to promote student engagement and rapport.	Not at all	Humor is attempted 1+ times, but there is silence	Humor is attempted 1+ times, and a few students laugh	Many students laugh at the instructor’s jokes and the atmosphere is light
The instructor answers questions well and demonstrates knowledge of the subject.	Not at all	The answers leave the students confused even though knowledge of	A clear verbal or visual explanation is given	Clear verbal and visual explanations are given, and students may even express

		the subject was demonstrated		appreciation in return
The instructor shows clear interest or enthusiasm in teaching.	Not at all	Shows some enthusiasm but is mostly bland and unenergetic.	Shows enthusiasms for most of the class but has moments in which the instructor is bland.	Instructor smiles, seems excited about the topic, give students positive energy.
The instructor uses student names.	1-2 students	5%-10%	10%-50%	Over half
The instructor asks specific questions.	Not at all	asks ambiguous questions that are difficult for students to respond	asks at least one question that generates responses from students	asks leading questions periodically to keep students thinking during the class session
The instructor pauses after asking a question.	Not at all	Pauses for less than 5 seconds	Pauses for 5-12 seconds	Pauses for 12+ seconds
The instructor asks questions of students that result in responses from students.	Not at all	1-2 students	>2 students but less than half respond	Over 50% respond
The instructor changes gears periodically from one style of teaching to another.	Not at all	The instructor changes gears to another form of teaching once during the session	The instructor changes gears to another form of teaching twice during the session	The instructor doesn't lecture for more than 15% of the allotted time before changing to another form of teaching
The instructor engages students periodically through think/pair/share,	None provided	Think/pair/share, problem solving, or other active learning exercises occurred once	Think/pair/share, problem solving, or other active learning exercises occurred 2 times	Think/pair/share, problem solving, or other active learning exercises occurred 3+

problem solving, or other active learning exercises.		during the session	during the session	times during the session
The instructor uses guided notes.	None provided	Guided notes are provided for the students, but the teacher doesn't use them during lecture.	Guided notes are provided for the students, and the teacher fills them out during the lecture but it's not their focus.	Guided notes clearly provide the space to fill out, include necessary information; instructor spends majority of class filling them out.
The instructor involves students periodically in what is to be covered during the session.	Not at all	The instructor asks for student feedback on material to be covered but doesn't implement change	The instructor asks for student feedback on the material to be covered 1 time and follows through with the changes accordingly	The instructor asks for student feedback on the material to be covered 2+ times and follows through with the changes accordingly

During the Observed Session:	Not at All	Somewhat	Satisfactory	Outstanding
The instructor uses more than one way to explain problems or concepts.	Not at all	2-3 different explanations.	4-5 different explanations.	5+ different explanations.
The opening of the class session gets students' attention.	<ul style="list-style-type: none"> Low energy Picks up where they left off in lecture 	<ul style="list-style-type: none"> Class announcements or objectives given OR Review of last session 	Any two of: <ul style="list-style-type: none"> Review of last session Provided a visual demonstration to add context to the remainder of the session An activity is given 	Any three of: <ul style="list-style-type: none"> Class announcements Provides a visual demonstration/ presentation to add context to the remainder of the session Reviews last session An activity is given

			<ul style="list-style-type: none"> Class announcements or objectives 	
The instructor provides a summary of what has been covered and accomplished at the end of the observed session.	None provided	A brief verbal summary is provided	A brief verbal and visual summary is provided	A clear verbal and visual summary of the content is provided and discussed in detail. (i.e. a roadmap)
The instructor provides a preview of the next session or ideas of what to consider for the next class at the end of the observed session.	None provided	Talks about what the next session will focus on	Verbal and visual lists that preview the next session or of ideas of what to consider for the next class	The previous point + they included a thought-provoking graphic or demonstration
The instructor could be easily heard.	Not at all	Those from the middle to the back of the class struggle to hear the instructor	Those in the back struggle to hear the instructor	Voice is clear even from the back of the room
The instructor moves around in the classroom and refrains from standing/sitting in one place.	Not at all	The instructor moves to one other place during the lecture (e.g. white board to podium)	The instructor moves to 2-3 other places during the lecture	The instructor moves to 3+ places during the lecture (including up the aisles to check on students)
The instructor uses analogies or metaphors to relate the concepts to students' experience.	Not at all	The instructor uses analogies or metaphors that are hard to understand or don't really relate to students' experience	The instructor uses 1+ analogies or metaphors that are easy to understand OR relate to students' experience	The instructor uses 3+ analogies or metaphors that are easy to understand and relate to students' experience
The instructor emphasizes key points throughout the observed session.	Not at all			
The instructor makes eye contact with students.	Not at all	Makes eye contact for less than 25% of the session	Makes eye contact for 25%-50% of the session	Makes eye contact for over 50% of the session

The instructor uses open (not closed) body language during the observed session.	Not at all	Closed body language is observed 3+ times during the session	Closed body language is observed 1-2 times during the session	Closed body language is never observed during the session
The instructor engages in behaviors that develop rapport and trust with the students.	Not at all			
The instructor relates the material/concepts to personal or societal concerns.	Not at all			
The instructor is available before class.	Not at all	The instructor arrives 1-5 minutes early	The instructor arrives 5-10 minutes early	10+ minutes early OR Office hours are scheduled right before class
The instructor is available after class.	Not at all	The instructor can talk with students, but leaves after 1-5 minutes	The instructor can talk with students and leaves after 5-10 minutes	10+ minutes after OR Office hours are scheduled right after class

During the Observed Session:	None	Few	Some	Many	Most
Students maintain attention toward the instructor (for example – eye contact).	0 students	1-2 students	<10%	10%-50%	Over half
Students remain awake and alert during the observed session.	0 students	1-2 students	<10%	10%-50%	Over half
Students are using their cell phones or other electronic devices in activities unrelated to class.	0 students	1-2 students	<10%	10%-50%	Over half
Students are over one minute late to class.	0 students	1-2 students	<10%	10%-50%	Over half
Students pack up early at the end of class.	0 students	1-2 students	<10%	10%-50%	Over half

Students are reading the newspaper or doing other non-electronic activities unrelated to class.	0 students	1-2 students	<10%	10%-50%	Over half
Students interact with the instructor before class.	0 students	1-2 students	<10%	10%-50%	Over half
Students interact with the instructor after class.	0 students	1-2 students	<10%	10%-50%	Over half
Students initiate questions.	0 students	1-2 students	<10%	10%-50%	Over half
Students respond to questions posed by the instructor.	0 students	1-2 students	<10%	10%-50%	Over half
Students ask follow up questions.	0 students	1-2 students	<10%	10%-50%	Over half
Students participate in class when asked to do so by the instructor.	0 students	1-2 students	<10%	10%-50%	Over half
Students are taking notes.	0 students	1-2 students	<10%	10%-50%	Over half