TEACHING STATEMENT

I believe the most powerful outcome of education is not the transmission of knowledge but the cultivation of curiosity, critical thinking, and independent learning. My goal as an educator is to guide students toward becoming independent thinkers who can evaluate evidence, ask meaningful questions, and approach problems systematically. In an era of rapid information growth and generative AI, fostering scientific literacy is more important than ever: students must be able to assess the quality and authenticity of information, not simply absorb it.

My teaching experience spans classroom instruction, mentoring, and scientific outreach. As a teaching assistant for <u>BIO201L: Introduction to Biology: Molecular Biology</u>, I led 15–17 students through a semester-long laboratory project in which they extracted yeast genomic DNA, cloned DNA fragments, and identified unknown sequences. I integrated active-learning strategies such as group-based problem solving, pre-class quizzes, and structured discussions. By the end of the course, students not only mastered molecular biology techniques but also presented the logic and significance of their projects with confidence. My effectiveness was reflected in consistently strong teaching evaluations, averaging **4.83 out of 5**. In <u>BIO220: Cell Biology</u>, I facilitated recitations that emphasized problem-based learning from primary literature. Students dissected real-world questions, designed experimental approaches, and debated interpretations, transforming what could have been a passive experience into an active process of discovery.

To deepen my pedagogical training, I completed Duke University's **Certificate in College Teaching** program. The coursework provided me with a strong foundation in course design, inclusive teaching strategies, and effective assessment methods. These experiences shape my vision for the classroom: interactive environments where students learn through discovery, practice critical evaluation, and gain transferable problem-solving skills.

Beyond the classroom, I have mentored undergraduates and Master's students through independent research projects in programs such as HHMI-VIP, Amgen Scholars, NSF-REU (Research Experiences for Undergraduates), and Columbia SURF (Summer Undergraduate Research Fellowships). My approach is to help each trainee take ownership of their project while continually asking the "what, why, and how": *What did you do? Why is this important? How did you approach this question?* This ensures they not only gain technical skills but also learn to think like scientists. Many of my mentees have presented their findings at regional or national meetings, and several have continued to graduate school or scientific careers.

I recognize that students bring diverse strengths and needs to the lab. Some thrive with independent exploration, while others benefit from more structured guidance. My mentoring philosophy is to tailor my approach to each trainee through open communication and individualized learning plans (with yearly review of their individual development plan, using myIDP). My ultimate goal is to foster confidence, independence and a lasting capacity for self-directed learning.

Looking ahead, I am prepared to teach undergraduate and graduate courses in **Molecular Biology**, **Cell Biology**, **Genetics, and Plant Biology**, as well as specialized topics in **cytoskeletal biology**, **organelle dynamics**, **microscopy**, **and quantitative imaging**. Regardless of the subject, my goal is to create classrooms where students experience the excitement of discovery, develop confidence in their abilities, and carry forward the tools of critical inquiry into their future endeavors.

Bio xxx Cell and Molecular Biology
Fall 20xx

Cell and Molecular Biology, Bio xxx Syllabus, Fall 20xx
Biology Department, Duke University
Curriculum Code: NS

Prerequisite: General Chemistry and Organic Chemistry

Lecture:
　　　　Day/Time:　　Monday and Wednesday, 10:05 AM to 11:20 AM
　　　　Location:　　　xx Hall, Room xxx
Instructor:　　Emily Jie-Ning Yang
Email:　　　　jie-ning.yang@duke.edu
Office:　　　　FFSC 3108
Office hours:　By appointment

Discussion sections (each student attends one section):
　　　1. Day/Time: Monday 1:30 PM-2:20 PM
　　　　　Location:　BioSci xxxx
　　　　　TA info:　　----
　　　2. Day/Time: Tuesday 11:55 AM-12:45 PM
　　　　　Location:　BioSci xxxx
　　　　　TA info:　　----

Course Overview:
　　　　Cells are the fundamental building block of a living organism. The recent improvement of molecular biology grant scientists to dissect and gain more knowledge of each part of cellular compartments works. To understand and appreciate the basic building block of life--cells, this course will start from the function of each cellular compartment. Topics include central dogma of biology: from DNA, RNA to protein; the structure and function of each organelle; cytoskeleton mediated vehicle transportation; protein targeting and sorting; signal transduction; gene regulation of cell growth and division; cancer biology. To think scientifically, we will introduce you the commonly used techniques we assay molecular biology questions. The discussion section will tackle one to two molecular biology questions each week to practice how to apply your biology knowledge to the real-world problems.

Student learning outcome:
　　1. Describe, and explain steps of central dogma of molecular biology and the function of cell organelles
　　2. Relate and contrast different cell signaling pathways and how these signaling pathways affect cell growth and division.
　　3. Apply the concepts and techniques of molecular and cell biology to analyze results from real experiments
　　4. Synthesize a hypothesis and design logical experimental plans to examine a given molecular biology question

Bio xxx Cell and Molecular Biology
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Resources and textbook:

Essential Cell Biology, xx Edition
Slides used for the lecture will be posted the day before each class.
Extra related scientific paper will be provided on Sakai a week before the lecture

Assessments, Evaluation, Participation:

Reading Assessment Test (RAT):

before the class: background material for each class will be posted a week before. Students need to complete a short quiz online before the class starts.

Discussion section:

Once each week. Will discuss an exam-style problem set in the class. Students will be broken down in to small groups and discuss/teach each other about how to solve the problem. At the end of the discussion, students will demonstrate how they deal with the problem. Students participate in the discussion section will earn 5% credit. Students should come to discussion sections to receive homework assignments, and turn in their assignments at the following discussion section. Students will receive full credit if they spend reasonable effort to answer the question. There will be 10 assignments, which will be 10 % toward the final grade.

Exams:

Exams will be problem-oriented, short answer questions. One page of letter size crib sheet allowed (2 sided), must be hand-written and turned in after the exam. Finals is cumulative, but you can bring all the crib sheets you have prepared (maximum 3 pages).

Reading Assessment Test (RAT)	**5 %**
Discussion section	**5 %**
Homework assignment	**10 %**
Exam 1	**25 %**
Exam 2	**25 %**
+) **Final (cumulative)**	**30 %**
total	**100%**

Disability Statement:

My teaching philosophy is to provide equal opportunity to each student and facilitate their learning. If you consider that you need special classroom accommodation, you can inform the lecturer and we can discuss the best way to suit your situation.

As the school policy stated, students with disabilities who believe that they may need accommodations in the class are encouraged to contact the Student Disabilities Access Office at 919.668.1267 or disabilities@aas.duke.edu as soon as possible to better ensure that such accommodations are implemented in a timely fashion.

You can find more information from here: access.duke.edu/students

Academic Integrity

Bio xxx Cell and Molecular Biology
Fall 20xx

Duke University is a community dedicated to scholarship, leadership, and service and to the principles of honesty, fairness, respect, and accountability. Citizens of this community commit to reflect upon and uphold these principles in all academic and non-academic endeavors, and to protect and promote a culture of integrity. To uphold the Duke Community Standard:

I will not lie, cheat, or steal in my academic endeavors;

I will conduct myself honorably in all my endeavors; and

I will act if the Standard is compromised.

A student found guilty of cheating on any exam will be reported to the Office of Student Misconduct and will receive 0 on the exam.

Schedule:

Date		Topic	Reading	Discussion
Week 1	Mon	Introduction, Cells, Model Systems, Commonly used technique	Ch1: pg x-xx	No Discussion
Week 1	Wed	Chemical Bonds & membranes Compartments The evolution of eukaryotes	Ch2: pg x-xx	
Week 2	Mon	Central dogma: Transcription and translation	Ch4: pg x-xx	Problem Set#1
Week 2	Wed	Gene regulation: transcriptional and post-transcriptional	Ch: pg x-xx	
Week 3	Mon	Nuclear Transport	Ch: pg x-xx	Problem Set #2
Week 3	Wed	Protein synthesis and quality control ER and protein sorting	Ch: pg x-xx	
Week 4	Mon	ER to Golgi: Vesicular trafficking, post-translational modification	Ch: pg x-xx	Problem Set #3
Week 4	Wed	Exocytosis and endocytosis	Ch: pg x-xx	
Week 5	Mon	Mitochondria: electron transport chain	Ch: pg x-xx	TA help desk
Week 5	Wed	Whole Class Review Session		
Week 6	Mon	Exam 1		
Week 6	Wed	Mitochondria: biogenesis	Ch: pg x-xx	Problem Set #4
Week 7	Mon	Mitochondria: apoptosis	Ch: pg x-xx	
Week 7	Wed	Chloroplasts & Photosynthesis	Ch: pg x-xx	Problem Set #5
Week 8	Mon	Pumps and Transporters	Ch: pg x-xx	
Week 8	Wed	Ion Channels	Ch: pg x-xx	

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Week 9	Mon	Cytoskeleton I	Ch: pg x-xx	Problem Set #6
Week 9	Wed	Cytoskeleton II	Ch: pg x-xx	
Week 10	Mon	Cell polarity: cytoskeleton/gradient	Ch: pg x-xx	Problem Set #7
Week 10	Wed	Whole Class Review Session		
Week 11	Mon	Extracellular Cell Junctions/ adhesion	Ch: pg x-xx	TA help desk
Week 11	Wed	Exam 2		
Week 12	Mon	Stem cells and cell lineage	Ch: pg x-xx	Problem Set #8
Week 12	Wed	Signal transduction - G proteins	Ch: pg x-xx	
Week 13	Mon	Signal transduction – RTK, Notch, Hh, Wnt	Ch: pg x-xx	Problem Set #9
Week 13	Wed	Cell cycle I	Ch: pg x-xx	
Week 14	Mon	Cell cycle II	Ch: pg x-xx	No Discussion Sections
Week 14	Wed	Cancer biology I	Ch: pg x-xx	Problem Set #10
Week 15	Mon	Cancer biology II	Ch: pg x-xx	
Week 15	Wed	Whole Class Review Session		
Final	TBD	**9 a.m. – 12 p.m.**		

My Report

Last Modified: 04/25/2015

Filter By: Report Subgroup

1. TA Name:

#	Answer		Response	%
1	Chris Shreve (Lab Sections 2, 10, 13)		0	0%
2	Becky Cary (Lab Sections 1,3)		0	0%
3	Tina Del Carpio (Lab Sections 6,7,11)		0	0%
4	Andrew Nevarez (Lab Section 22)		0	0%
5	Jola Mialidkowska (Lab Sections 4)		0	0%
6	Selcan Tuncay (Lab Sections 8 & 20)		0	0%
7	Nick Rizzo (Lab Section 9,18)		0	0%
8	Laryssa Baldridge (Lab sections 14 & 21)		0	0%
10	Abbe Labella (Lab section 5, 23)		0	0%
11	Yan Xue (Lab Section 15, 16)		0	0%
12	Emily Yang (Lab Section 19)		16	100%
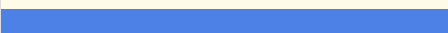
Statistic	Value
Min Value	12
Max Value	12
Total Responses	16

2. My TA is well prepared for teaching the lab each week.

#	Answer		Response	%
1	Strongly Agree		15	94%
2	Agree		1	6%
3	Neither Agree nor Disagree		0	0%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		16	100%
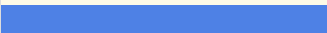
Statistic	Value
Min Value	1
Max Value	2
Mean	1.06
Variance	0.06
Standard Deviation	0.25
Total Responses	16

3. My TA demonstrates a thorough grasp of the material.

#	Answer		Response	%
1	Strongly Agree		15	94%
2	Agree		1	6%
3	Neither Agree nor Disagree		0	0%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		16	100%
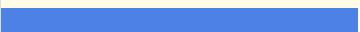
Statistic	Value
Min Value	1
Max Value	2
Mean	1.06
Variance	0.06
Standard Deviation	0.25
Total Responses	16

4. My TA clearly communicates the goals and objectives of the lab

#	Answer		Response	%
1	Strongly Agree		11	69%
2	Agree		5	31%
3	Neither Agree nor Disagree		0	0%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		16	100%

Statistic	Value
Min Value	1
Max Value	2
Mean	1.31
Variance	0.23
Standard Deviation	0.48
Total Responses	16
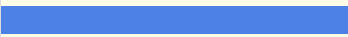
5. My TA presents material in a well-organized fashion.

#	Answer		Response	%
1	Strongly Agree		12	75%
2	Agree		2	13%
3	Neither Agree nor Disagree		2	13%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		16	100%

Statistic	Value
Min Value	1
Max Value	3
Mean	1.38
Variance	0.52
Standard Deviation	0.72
Total Responses	16

6. My TA integrates information from lecture into lab.

#	Answer		Response	%
1	Strongly Agree		11	73%
2	Agree		3	20%
3	Neither Agree nor Disagree		1	7%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		15	100%

Statistic	Value
Min Value	1
Max Value	3
Mean	1.33
Variance	0.38
Standard Deviation	0.62
Total Responses	15

7. My TA demonstrates interest and enthusiasm in his/her teaching.

#	Answer		Response	%
1	Strongly Agree		15	94%
2	Agree		1	6%
3	Neither Agree nor Disagree		0	0%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		16	100%

Statistic	Value
Min Value	1
Max Value	2
Mean	1.06
Variance	0.06
Standard Deviation	0.25
Total Responses	16

8. My TA is accessible out of class (via Help Desk or email).

#	Answer		Response	%
1	Strongly Agree		11	69%
2	Agree		4	25%
3	Neither Agree nor Disagree		1	6%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		16	100%

Statistic	Value
Min Value	1
Max Value	3
Mean	1.38
Variance	0.38
Standard Deviation	0.62
Total Responses	16

9. My TA encourages participation by all students in class.

#	Answer		Response	%
1	Strongly Agree		14	88%
2	Agree		2	13%
3	Neither Agree nor Disagree		0	0%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		16	100%

Statistic	Value
Min Value	1
Max Value	2
Mean	1.13
Variance	0.12
Standard Deviation	0.34
Total Responses	16

10. My TA uses additional examples during teaching to aid in comprehension of difficult subject matter.

#	Answer		Response	%
1	Strongly Agree		11	69%
2	Agree		4	25%
3	Neither Agree nor Disagree		1	6%
4	Disagree		0	0%
5	Strongly Disagree		0	0%
	Total		16	100%

Statistic	Value
Min Value	1
Max Value	3
Mean	1.38
Variance	0.38
Standard Deviation	0.62
Total Responses	16

11. Please list one or more specific things your TA does well to help you learn biology.

Text Response
She takes the time to describe anything that we do not understand.
Draws pictures on white board, answers individual questions
emily was amazing and helpful and enthusiastic!
She's enthusiastic and willing to restate the information in different ways to help you understand the material better.
Emily is always very available outside of class. She also encouraged all of her students to participate.
She is very well versed in the material and makes the lab material intuitive by integrating it to lecture material.
examples; gets participation, answers questions
She would review quickly and then give students more time to ask questions about the specific parts that confused them. She also made us interact with the material in class.
is helpful and willing to listen to all students
she's enthusiastic
She's good at integrating information with the lab so that we don't waste much time just waiting around.
Always willing to answer questions
Tries to get us to participate to make sure we understand the concepts
She focuses on the important aspect we need to know and repeats them over multiple lectures.

Statistic	Value
Total Responses	14

12. Please list one or more specific things your TA could improve upon to better help you learn biology.

Text Response
She often spoke extremely quickly and so it was often hard to understand her.
None
nothing
She talks very quickly! Maybe speak slightly slower.
Emily was sometimes a but disorganized, but she always came prepared.
Organization
clarify a lil more about watson/crick strands
She could speak slower.
sometimes hard to understand
english skills
I don't have any criticisms; I think she did a great job demonstrating the practical side of molecular biology.
providing analogies/examples/simplifying concepts
It would be helpful if the TA could have gone over why some of the materials were used.

Statistic	Value
Total Responses	13

13. Other comments about your TA in general?

Text Response
She is one of the nicest TAs that I have had.
Overall, a very enthusiastic and knowledgeable TA!
n/a
She's fantastic and very helpful and nice!
Emily is overall an amazing TA!
Very good TA, learned a great deal.
EMILY ROCKS. so so helpful and clear!
NA
She communicates information effectively and she's really passionate about lab!
none

Statistic	Value
Total Responses	10

14. Please comment on your overall impression of the lab project. Comment on whether you are found it a valuable learning experience and whether it is helped

with your overall conceptual understanding of molecular biology.

| Text Response |
| --- |
| I did find it a valuable learning experience. Coming from a high school with no AP Bio course, it was hard at first but really interesting at the same time |
| I enjoyed how each step built off the previous labs, and thought it was a nice supplement to lecture material |
| loved how it was a constant project and always related to lecture |
| Interesting and helpful integration of material from lecture. |
| The lab project was very interesting. I haven't ever conducted an ongoing experiment like this so it was fun to see the finished product. |
| I loved this, there was a sense of direction and an end goal. This was extremely successful in teaching me the lab material |
| i actually really liked this lab. i came from a chem 101 lab where the TA was THE WORST, the labs felt pointless, and the writeups were long and more about procedure and correct format//error analysis than actual learning. in contrast, i felt like this lab was helpful in terms of both connecting to lecture as well as kinda fun... maybe i just like bio better but i actually found the lab to be interesting, especially with the fact hat we built on it each week. It actually seemed practical vs. some really stupid labs in chem. In addition, the post-labs and pre-labs correlated with the material, confirming that we understood what was happening without getting bogged down in prodedure//format. The exrapolations made in the post labs from the lab time were thoughtful and legitimate. haha i don't know i thought it was fun and allowed me to connect the conceptual to the real life. |
| I enjoyed the lab project. I found it very helpful and engaging, and I thought it was really cool. |
| i thought it was very helpful and relevant to techniques I have been doing recently during my own research |
| I thought it connected to lecture well |
| I loved how integrated everything was; it really felt like I accomplished something at the end of the project and I was able to integrate the information together via the exit interview. |
| Greatly enjoyed this lab experience. Out of all my undergrad labs at Duke, this one felt like I was actually working towards a goal and accomplished something at the end. |
| I think it was a very valuable learning experience and appreciate all the skills and concepts we learned over the course of the semester, and getting to apply them through interesting laboratory techniques |
| I've done micropreps before so it wasn't as useful of a learning experience, however, for someone who has not done lab work before, the hands on experience would be extremely valuable. |

Statistic	Value
Total Responses	14

Emily Yang

Spring 2017 Bio201L End of Semester TA/Lab Survey

May 12th 2017, 3:27 pm EDT

Q1 - TA Name:
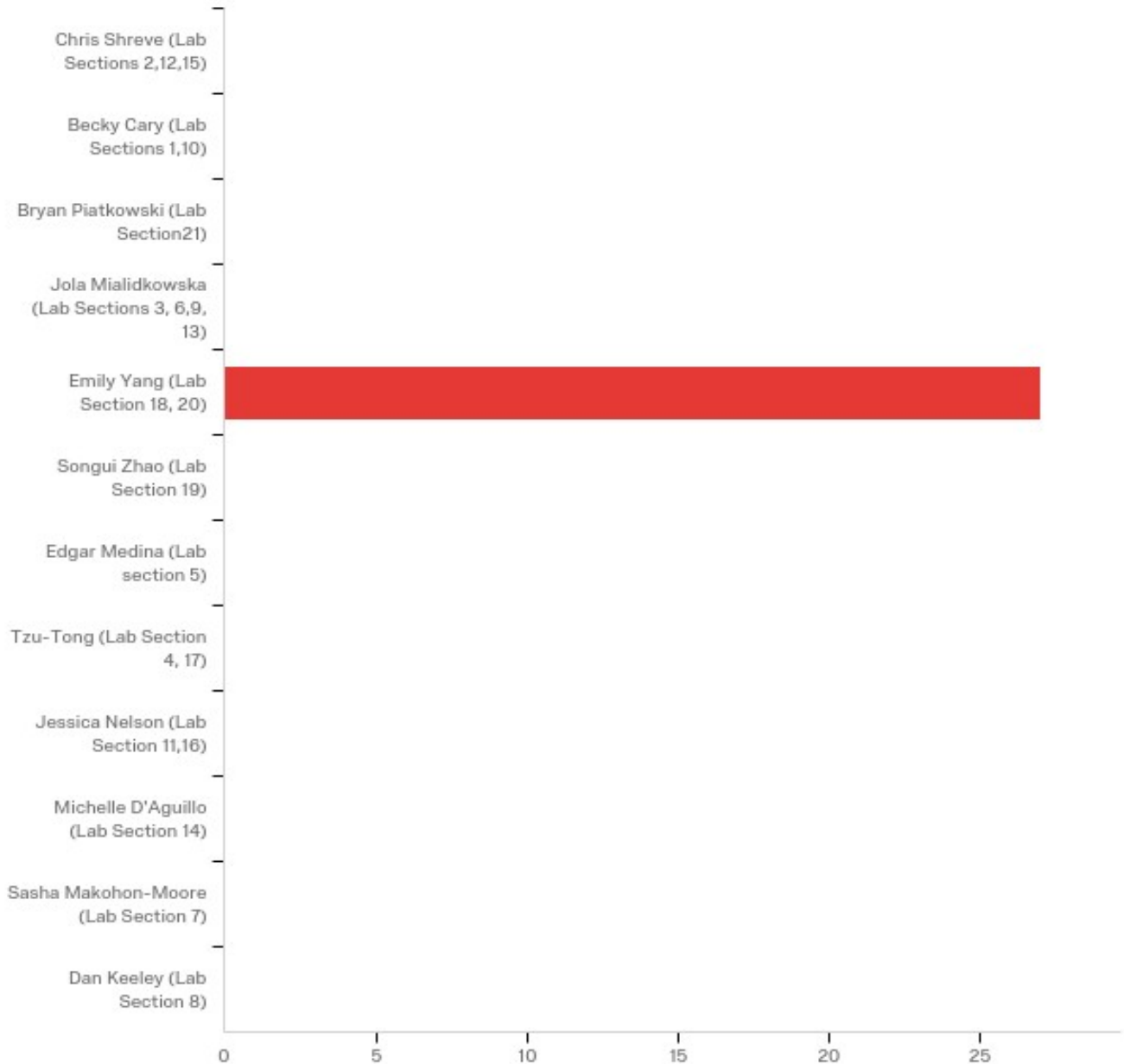
#	Answer	%	Count
1	Chris Shreve (Lab Sections 2,12,15)	0.00%	0

| 2	Becky Cary (Lab Sections 1,10)	0.00%	0
4	Bryan Piatkowski (Lab Section21)	0.00%	0
5	Jola Mialidkowska (Lab Sections 3, 6,9, 13)	0.00%	0
6	Emily Yang (Lab Section 18, 20)	100.00%	27
7	Songui Zhao (Lab Section 19)	0.00%	0
13	Edgar Medina (Lab section 5)	0.00%	0
14	Tzu-Tong (Lab Section 4, 17)	0.00%	0
16	Jessica Nelson (Lab Section 11,16)	0.00%	0
17	Michelle D'Aguillo (Lab Section 14)	0.00%	0
18	Sasha Makohon-Moore (Lab Section 7)	0.00%	0
19	Dan Keeley (Lab Section 8)	0.00%	0
	Total	100%	27

Q3 - My TA is well prepared for teaching the lab each week.
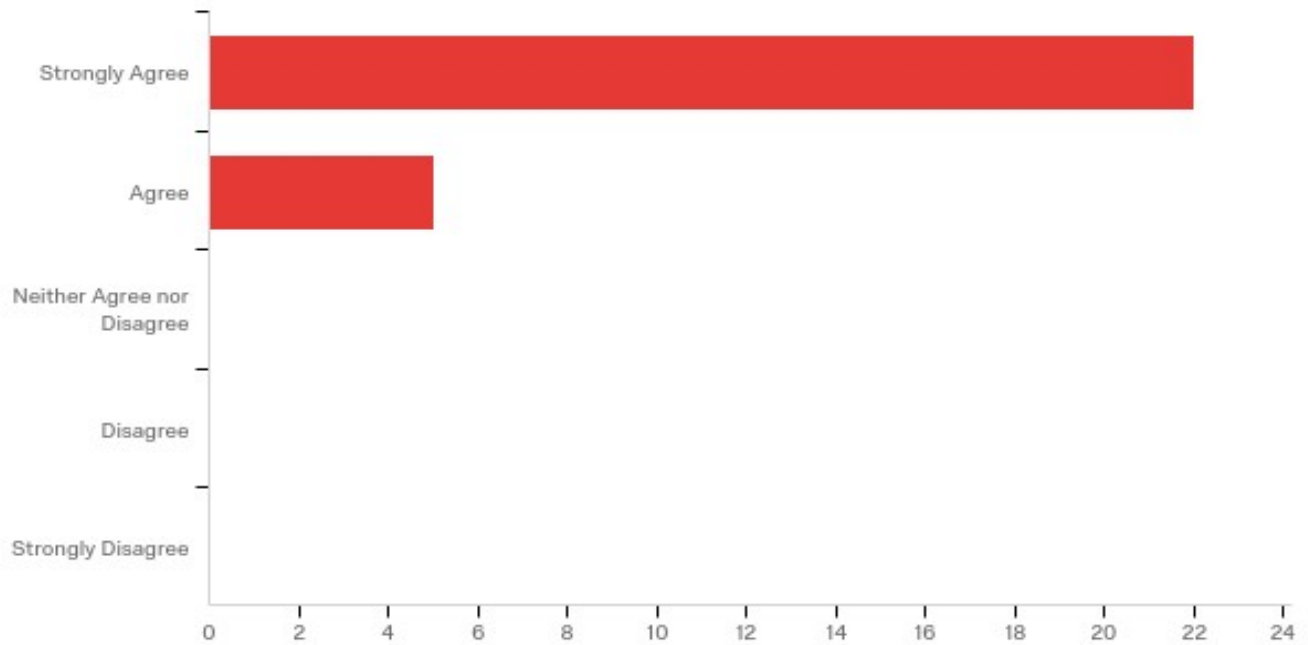
#	Answer	%	Count
1	Strongly Agree	81.48%	22
2	Agree	18.52%	5
3	Neither Agree nor Disagree	0.00%	0
4	Disagree	0.00%	0
5	Strongly Disagree	0.00%	0
	Total	100%	27

Q4 - My TA demonstrates a thorough grasp of the material.
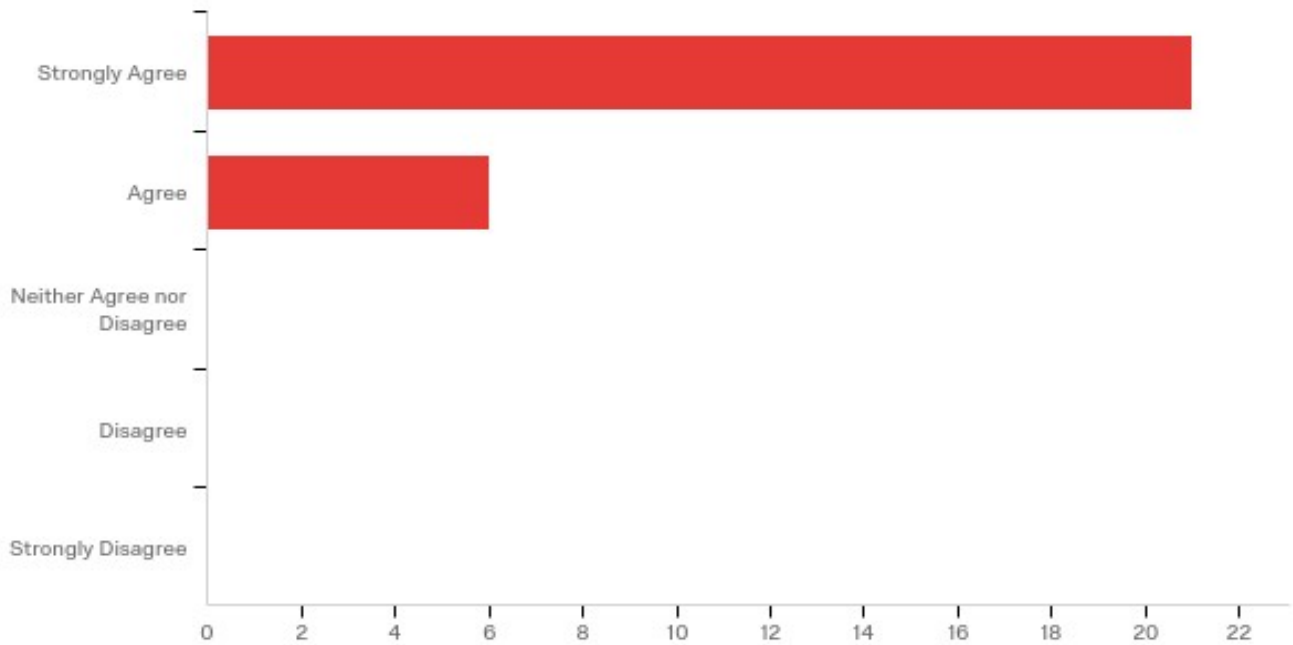
#	Answer	%	Count
1	Strongly Agree	77.78%	21
2	Agree	22.22%	6
3	Neither Agree nor Disagree	0.00%	0
4	Disagree	0.00%	0
5	Strongly Disagree	0.00%	0
	Total	100%	27

Q5 - My TA clearly communicates the goals and objectives of the lab
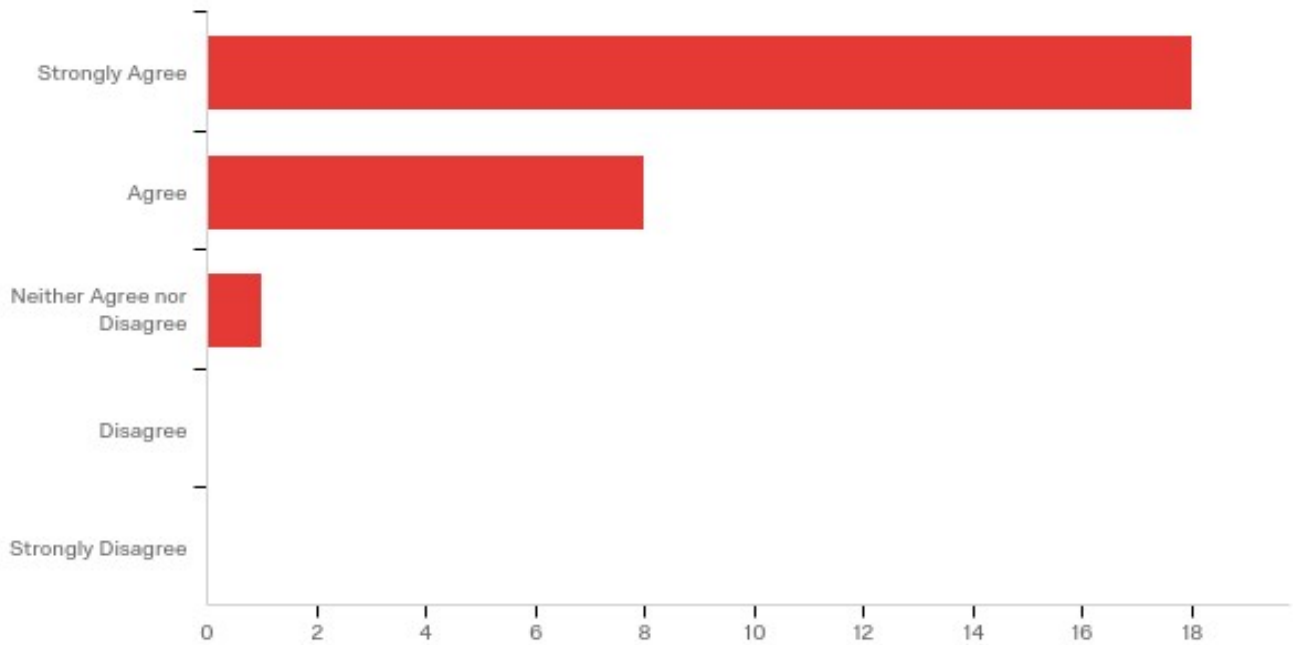
#	Answer	%	Count
1	Strongly Agree	66.67%	18
2	Agree	29.63%	8
3	Neither Agree nor Disagree	3.70%	1
4	Disagree	0.00%	0
5	Strongly Disagree	0.00%	0
	Total	100%	27

Q6 - My TA presents material in a well-organized fashion.
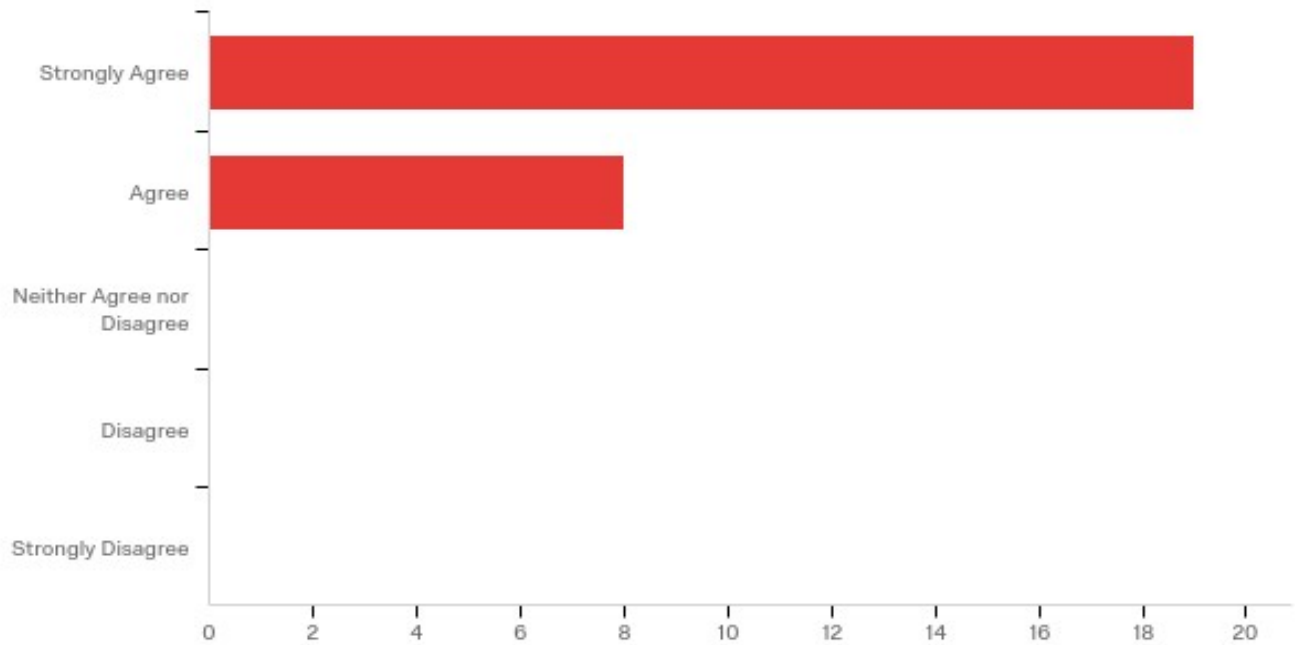
#	Answer	%	Count
1	Strongly Agree	70.37%	19
2	Agree	29.63%	8
3	Neither Agree nor Disagree	0.00%	0
4	Disagree	0.00%	0
5	Strongly Disagree	0.00%	0
	Total	100%	27

Q7 - My TA integrates information from lecture into lab.
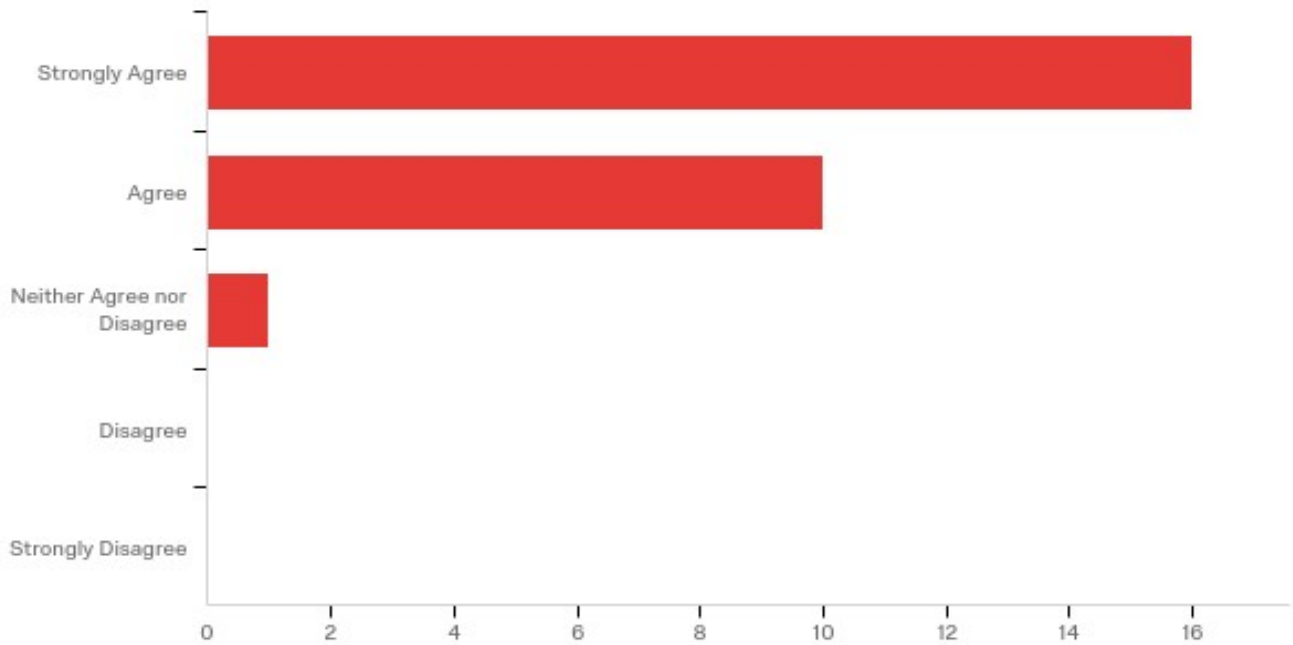
#	Answer	%	Count
1	Strongly Agree	59.26%	16
2	Agree	37.04%	10
3	Neither Agree nor Disagree	3.70%	1
4	Disagree	0.00%	0
5	Strongly Disagree	0.00%	0
	Total	100%	27

Q8 - My TA demonstrates interest and enthusiasm in his/her teaching.
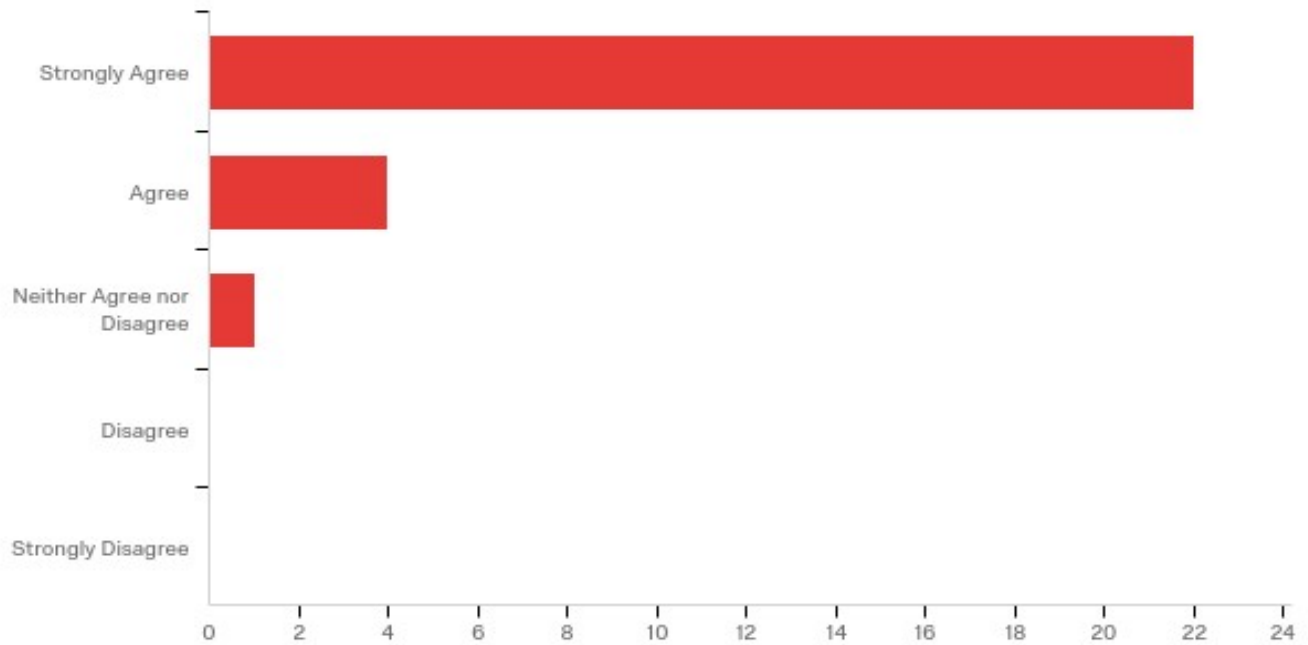
#	Answer	%	Count
1	Strongly Agree	81.48%	22
2	Agree	14.81%	4
3	Neither Agree nor Disagree	3.70%	1
4	Disagree	0.00%	0
5	Strongly Disagree	0.00%	0
	Total	100%	27

Q9 - My TA is accessible out of class (via Help Desk or email).
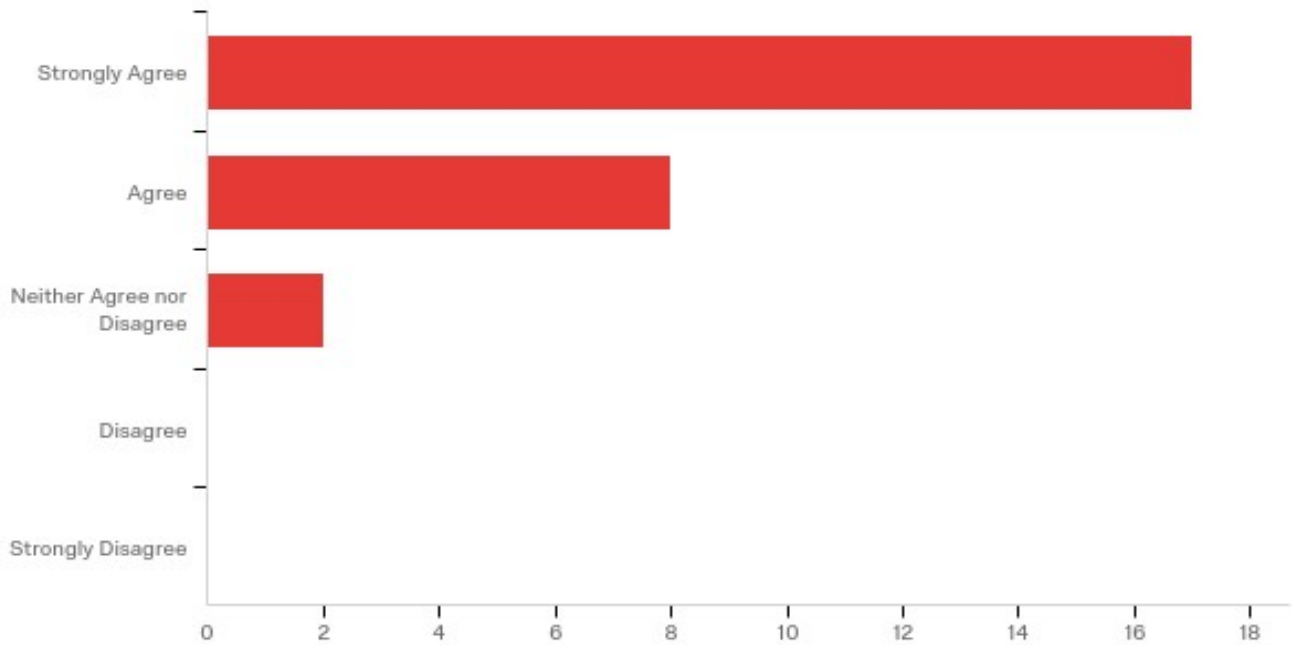
#	Answer	%	Count
1	Strongly Agree	62.96%	17
2	Agree	29.63%	8
3	Neither Agree nor Disagree	7.41%	2
4	Disagree	0.00%	0
5	Strongly Disagree	0.00%	0
	Total	100%	27

Q10 - My TA encourages participation by all students in class.
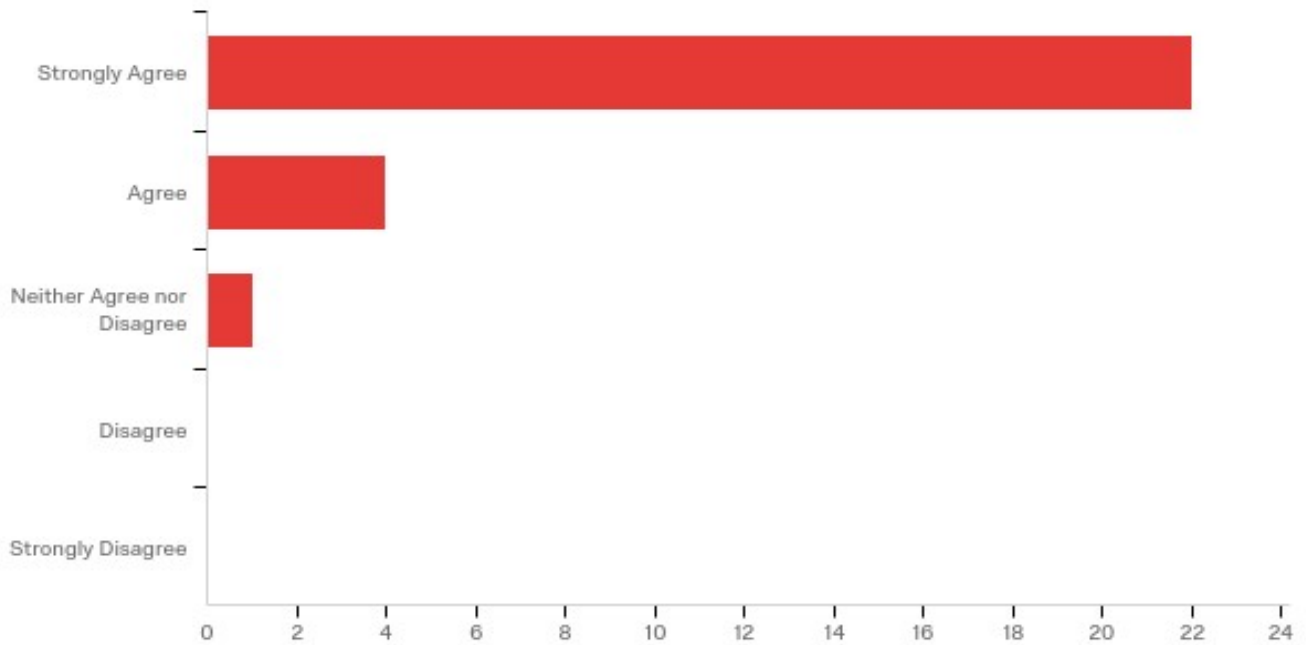
#	Answer	%	Count
1	Strongly Agree	81.48%	22
2	Agree	14.81%	4
3	Neither Agree nor Disagree	3.70%	1
4	Disagree	0.00%	0
5	Strongly Disagree	0.00%	0
	Total	100%	27

Q17 - My TA uses additional examples during teaching to aid in comprehension of difficult subject matter.
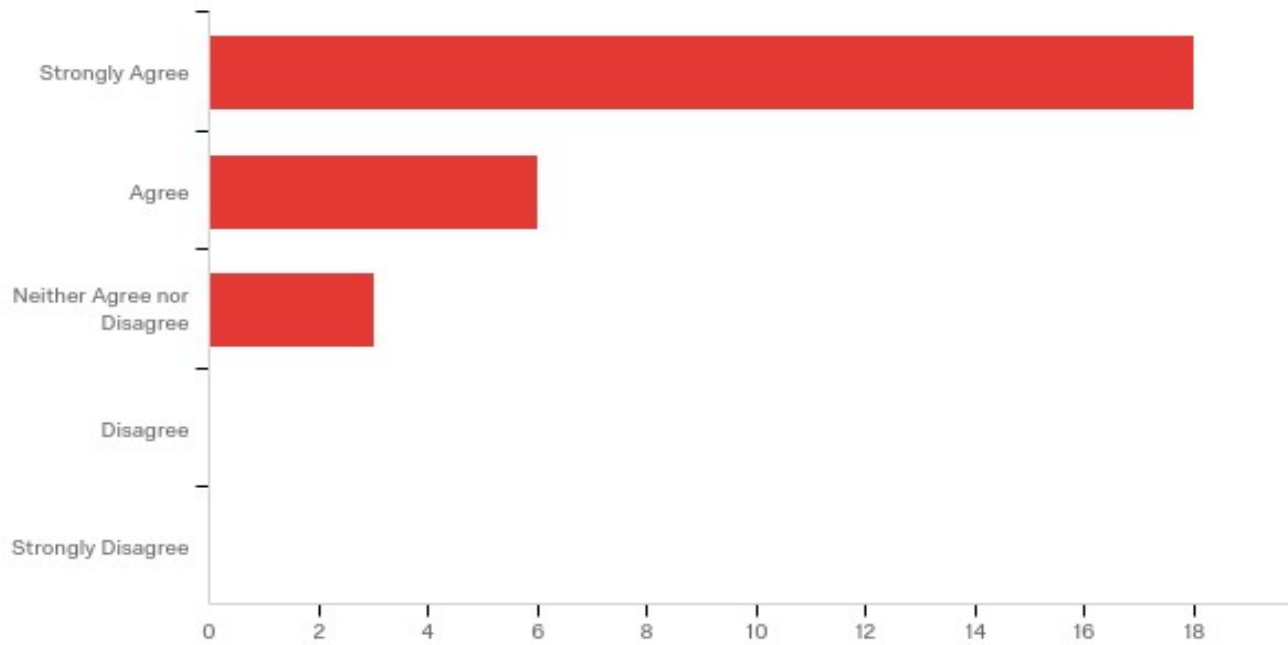
#	Answer	%	Count
1	Strongly Agree	66.67%	18
2	Agree	22.22%	6
3	Neither Agree nor Disagree	11.11%	3
4	Disagree	0.00%	0
5	Strongly Disagree	0.00%	0
	Total	100%	27

Q19 - Please list one or more specific things your TA does well to help you learn biology.

Please list one or more specific things your TA does well to help you learn...
She always kept the class engaged in the material. During the down time (waiting for things in lab), her exercises and lectures helped us learn lecture concepts better.
She compared what we were doing in lab to the material that we went over in lecture in a way that made sense to both the lab we were doing and the topics we were seeing in class.
Very helpful during powerpoint presentations and explains concepts step-by-step
Thorough with explanations
She is always very energetic.
Emphasizes important things
My TA gives clear instructions and demonstrations during lab.
Emily is fabulous. Even though our lab was so early in the morning she was always enthusiastic about the material, which made me want to understand it better. She also did a fantastic job integrating what we recently learned in lecture into the lab and helped to clear up the more difficult parts of lab and lecture. Additionally, she never gave overly complicated explanations, but always gave just enough information to help our understanding!
Lectures are very thorough
Emily is willing to take the time to explain lab content to me when I missed the labs.
Explains how the activities we do in lab relate to the material we need to know for tests and quizzes
When asking her a question on a process, she breaks it down for me and helps me understand the biology behind it.
Fields questions well
Emily is very enthusiastic and enjoys helping the other students learn throughout the lab section.
My TA pushes us to actively participate in class.
Emily was organized, enthusiastic, and always willing to answer questions no matter how basic they seemed.
She encourages everyone to talk to the people around them before we talk as a class, and asks that new people answer questions each time to force participation
Emily was very patient when I asked questions and very thoughtful in her answers.
Emily is very willing to discuss and work through any questions you may have.
Emily drew really comprehensive diagrams on the whiteboard which strengthened her explanations a lot!
My TA is very good at diagramming out certain concepts to get a better visual understanding.
Talks really eloquent
Emily used handouts and visual diagrams on the whiteboard which helped me understand on a basic level the labs we conducted. Her enthusiasm helped everything make more sense!

Q20 - Please list one or more specific things your TA could improve upon to better help you learn biology.

Please list one or more specific things your TA could improve upon to bette...
There really wasn't much she could do to improve. She was great. Maybe shorten the lectures a little since some of it seemed repetitive, but nothing major at all.
Post the PowerPoints online because it would be nice to be able to see the slides again while doing the post lab for that lab.
Draw/use pictures more. Pictures help me visualize the material
NA
More email follow-ups?
More integrative from class info
My TA could encourage more discussions before revealing answers
I always had trouble with the math portions of the post-lab, so if 5-10 minutes were allotted to understanding the math associated with each lab, I feel that grades would dramatically improve.
None
Go through common mistakes in pre and post labs
Not necessarily the TA's job, but I would have liked some more practice problem type activities in lab
Using different diction sometimes, because I don't understand it so she has to explain for longer.
Be a little less enthusiastic at times so we can better understand her
Sometimes the lectures were too long and the students would no longer pay attention. I think shortened lectures would be more effective.
Nothing.
Perhaps wait a few seconds after asking a question so that students have time to think about the answer if they don't know it immediately.
I don't have much feedback--maybe slightly more approachable in the classroom
At the beginning of the semester, Emily was a little intense and intimidating. That did not foster a particularly comfortable and welcoming lab environment the first few weeks.
She talks a bit quickly. It can be tough to follow the lecture.
Sometimes it felt a bit rushed/hectic-- I wished she would slow down at points.
I think my TA could be more interactive with students when we are answering questions so everyone is involved directly.
Listen more
Use of more animations like the PCR graphic would be helpful for visualizing processes like transformation.

Q21 - Other comments about your TA in general?

Other comments about your TA in general?
She was great! Would gladly have her as a TA again.
No
You did a great job
enthusiastic, well prepared
She's fabulous!
Emily is fabulous.
None
N/A
She was great.
Couldn't ask for a better TA
She is a great TA. She was well organized and very helpful throughout the semester.
Emily was very helpful and I learned a lot from her.
She's great!
Emily was great! By far the best TA I've had in science labs at Duke so far.
I can't think of anything.
She really cares about her students!
My TA was awesome, she knew what she was doing, and she was always very kind and helpful.
Like your outfit
I loved Emily! She was so kind, helpful, and understanding of issues students came to her with.

Q22 - Please comment on your overall impression of the lab project. Comment on whether you are found it a valuable learning experience and whether it is helped with your overall conceptual understanding of molecular biology.

Please comment on your overall impression of the lab project. Comment on wh...
I did find it valuable. It was slow at times, but it did help my overall conceptual understanding.
I enjoyed how both the lab lined up with what we were learning about in lecture and how it was built up through the entire year.
The lab project was interesting and I think it helped me understand DNA replication and genomes better.
Great, informative, unique, valuable for molecular biology lab skills
I think it could be more closely related to what we are learning in class
it was an interesting lab project and it helped me understand the concepts from class
I enjoyed the lab experience and how everything connects together. It sucks to stay the whole time when I finished everything, but I still couldn't leave because we have additional activities after everyone's done.
Though tedious, I felt the experience was extremely valuable! There were times when I felt a large disconnect between lecture and lab (for example, we learned about Sanger Sequencing WEEKS before it became relevant to the lab, but learned about transcription in lab far before we covered it in lecture) but aside from this, lab largely aided my understanding.
A valuable experience and I learned a lot
I liked the idea of having a large project run throughout the semester. But at some points, lab felt very detached to lecture content.
I loved the lab project, it is one of the first labs I have enjoyed. I think it really helped me understand the process of DNA replication and integration
I had no experience in the lab, so it was a very valuable learning experience. It did help with my overall conceptual understand of molecular biology.
Project was effective in teaching me about biology but could have been completed in 3 weeks. Too much time was wasted making lab a fourth lecture
I think the lab project was interesting and valuable to my biology experience. I helped me apply knowledge learned in lecture to practice.
The lab project was very interesting. I found it valuable.
The lab was my favorite part of the class. I loved being able to put theory into practice and use so many of the techniques that I'd learned about but never got to implement. It helped me draw classes and information together in an integrated and interesting way.
I really really enjoyed this lab because I not only came away thoroughly understanding it, but I love how this is cutting edge science that I got to take part in.
I liked how it was a semester-long project because it kept my interest better than short labs every week. It helped me with my overall conceptual understanding of molecular biology.
While this project was interesting, I don't know how much practical content I actually learned from it. The lab work felt disconnected from the large lectures, which more or less defeats the purpose of having a lab based class. I think I spent more time learning lab concepts than I did concepts from lecture just due to the amount of work associated with the lab, but at the end of the day, the MCAT won't test me on wether or not I can perform a BLAST sequence.

I thought the experience was very valuable but it felt like at times labs could have combined into one week or some activities could be taken out to make labs shorter. It felt sometimes like it was just trying to take up the time without teaching new concepts.

I thoroughly enjoyed the entire lab project this semester. It taught me a great deal about cloning, DNA sequencing, gel electrophoresis, and genome browsers. Also, it gave me a hands-on experience to remember and showed me some of the capabilities biology labs have.

Pretty cool how it all came together

The lab as a whole was an interesting learning experience which assisted in my gaining a hands on understanding of molecular biology!

Entirely too long - the entire protocol is commonly done in a normal laboratory setting in 2-3 days