



2024 Spring Individual Report FAS-MATH 166R-Introduction to semi-Riemannian geometry 001 Puskar Mondal

Project Title: **2024 Spring Harvard FAS Course Evaluation**

Course Audience: **18**

Responses Received: **13**

Response Ratio: **72%**

Report Comments

Note:

The order that the questions appear on this report is not the same as the way the questions were displayed to students. The order has been changed to make the report more readable.

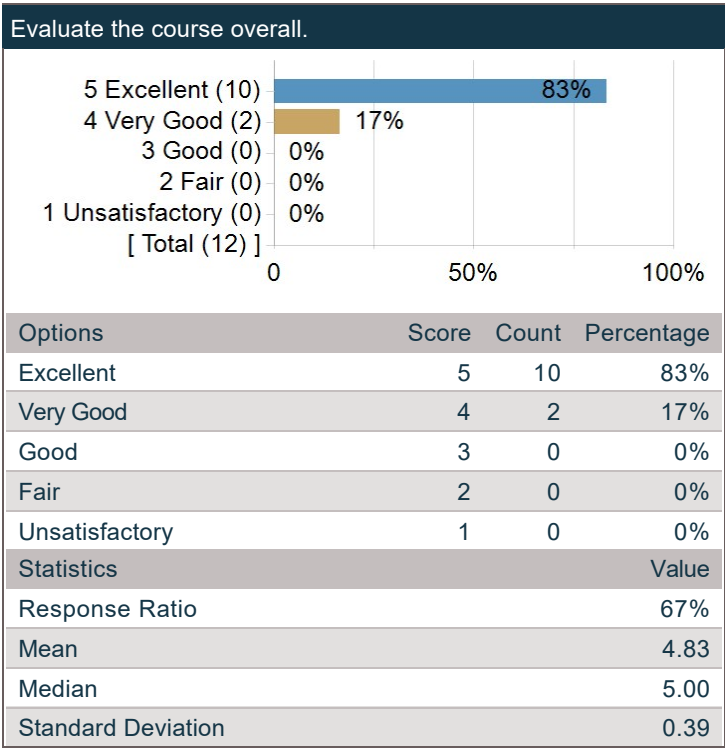
Creation Date: **Tuesday, May 14, 2024**

General Course Questions

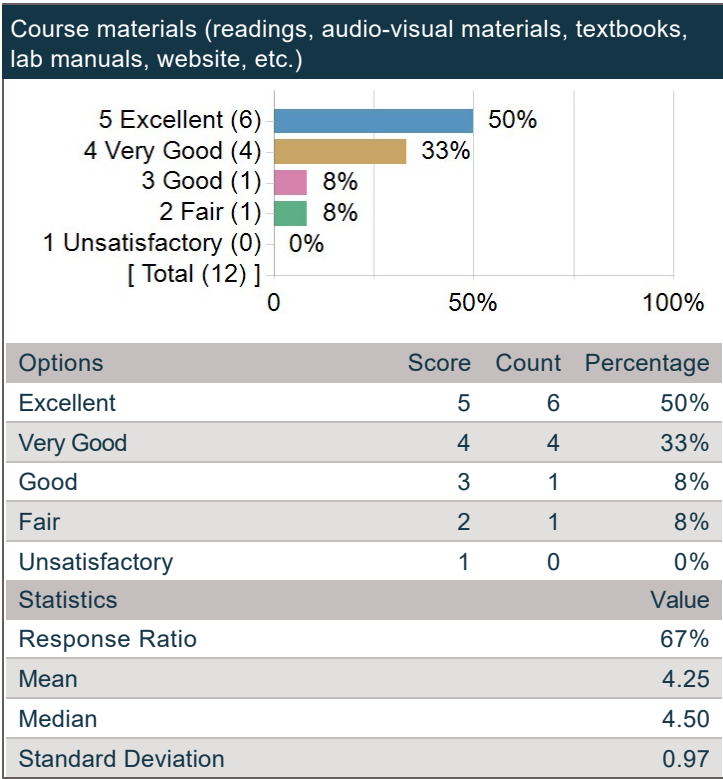
Course General Questions

	Count	Excellent	Very Good	Good	Fair	Unsatisfactory	Course Mean	Dept Mean	Division Mean
Evaluate the course overall.	12	83%	17%	0%	0%	0%	4.83	4.09	4.11
Course materials (readings, audio-visual materials, textbooks, lab manuals, website, etc.)	12	50%	33%	8%	8%	0%	4.25	4.08	4.15
Assignments (exams, essays, problem sets, language homework, etc.)	11	82%	18%	0%	0%	0%	4.82	3.85	3.96
Feedback you received on work you produced in this course	11	82%	18%	0%	0%	0%	4.82	3.92	3.97
Section component of the course	5	100%	0%	0%	0%	0%	5.00	4.20	4.18

Evaluate the course overall.



Course materials (readings, audio-visual materials, textbooks, lab manuals, website, etc.)

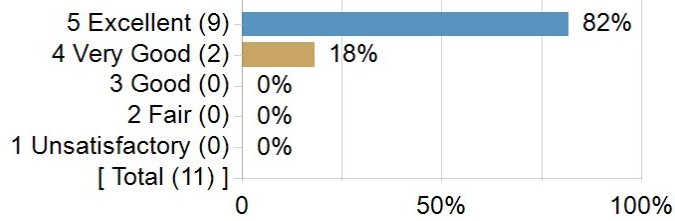


Add comments about course materials.

Comments
Puskar wrote elaborate notes after every class and uploaded them in a timely fashion. These were invaluable to understanding the (very difficult) content.
Some external materials could have been a nice addition, as it is always nice to have supplementary videos that help understand the geometric intuition I find.
The official class notes were student-taken after a certain point, so they did not get updated in a timely fashion towards the end of the course

Assignments (exams, essays, problem sets, language homework, etc.)

Assignments (exams, essays, problem sets, language homework, etc.)



Options	Score	Count	Percentage
Excellent	5	9	82%
Very Good	4	2	18%
Good	3	0	0%
Fair	2	0	0%
Unsatisfactory	1	0	0%
Statistics			Value
Response Ratio			61%
Mean			4.82
Median			5.00
Standard Deviation			0.40

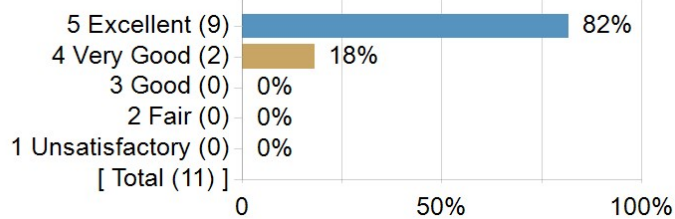
Add comments about course assignments.**Comments**

Short but difficult.

Homeworks and quizzes were straightforward

Feedback you received on work you produced in this course

Feedback you received on work you produced in this course



Options	Score	Count	Percentage
Excellent	5	9	82%
Very Good	4	2	18%
Good	3	0	0%
Fair	2	0	0%
Unsatisfactory	1	0	0%
Statistics			Value
Response Ratio			61%
Mean			4.82
Median			5.00
Standard Deviation			0.40

Add comments about course feedback.

Comments
Puskar gave excellent feedback, especially in person. He wants you to succeed, and it is clear in the feedback you receive.
Feedback was given in a timely fashion and was descriptive

Section component of the course

Section component of the course			
5 Excellent (5) 4 Very Good (0) 3 Good (0) 2 Fair (0) 1 Unsatisfactory (0) [Total (5)] 0 50% 100%			
Options	Score	Count	Percentage
Excellent	5	5	100%
Very Good	4	0	0%
Good	3	0	0%
Fair	2	0	0%
Unsatisfactory	1	0	0%
Statistics	Value		
Response Ratio	28%		
Mean	5.00		
Median	5.00		
Standard Deviation	0.00		

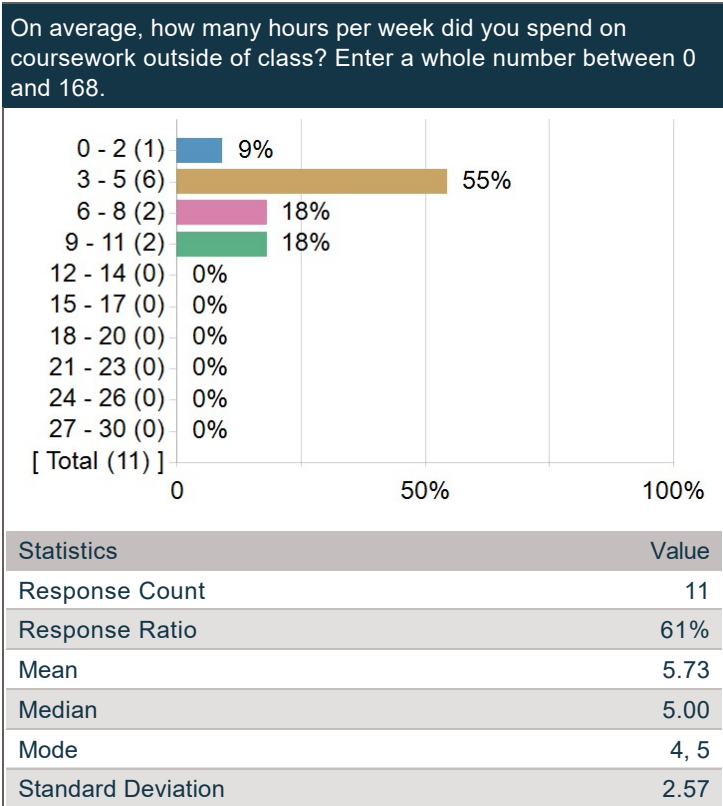
Add comments about the course section.

Comments
I have never been in a section that was more communal; Puskar fostered a true community who bonded together to learn.

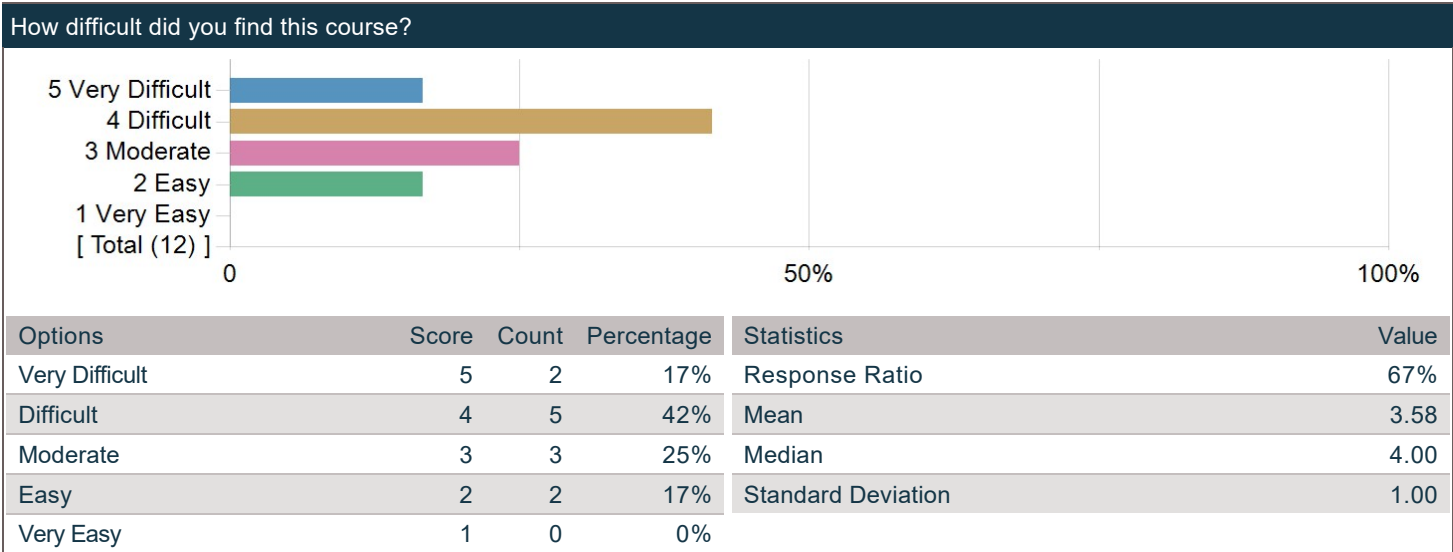
Requirements - What did this course require of you?

On average, how many hours per week did you spend on coursework outside of class? Enter a whole number between 0 and 168.

Frequency chart and mean excludes students who answered 31 or more hours.

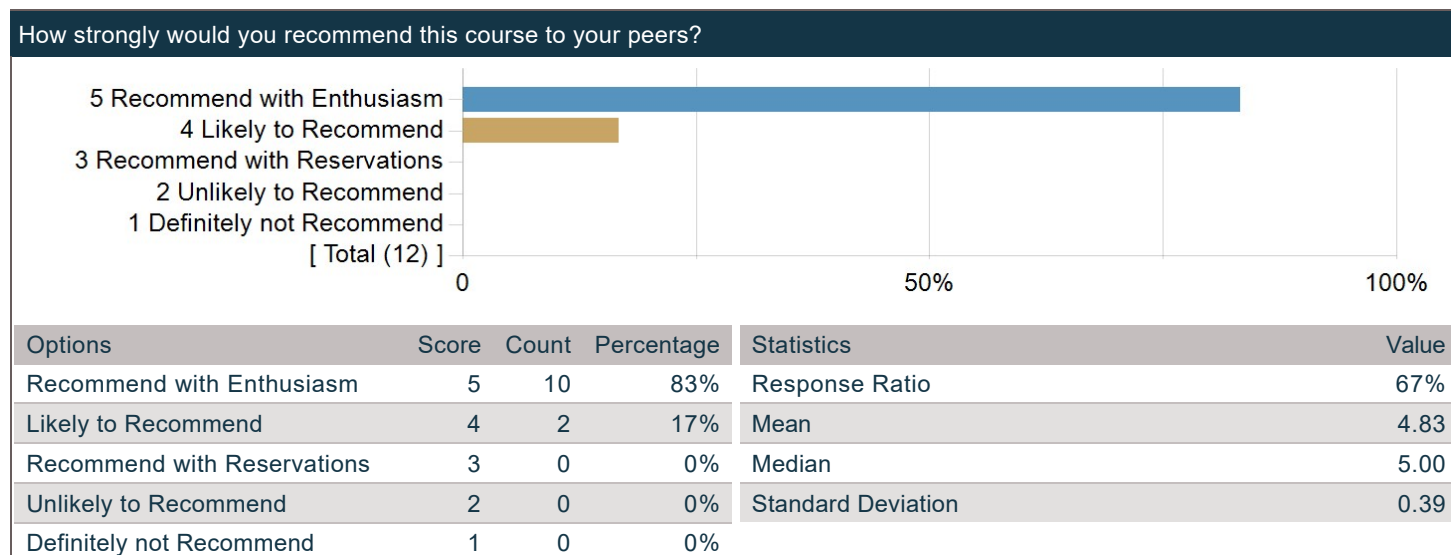


How difficult did you find this course?



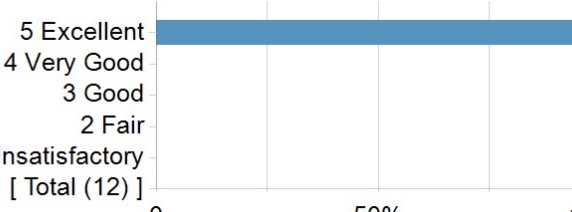
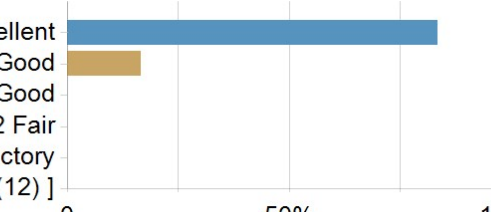
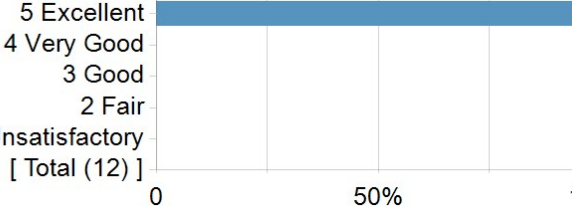
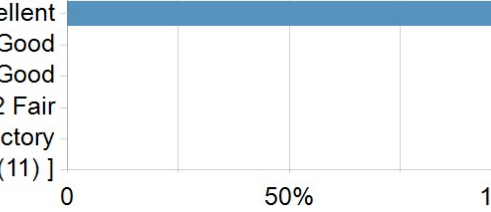
What was/were your reason(s) for enrolling in this course? (Please check all that apply)

Options	Count
Elective	6
Concentration or Department Requirement	9
Secondary Field or Language Citation Requirement	0
Undergraduate General Education Requirement	0
Expository Writing Requirement	0
Foreign Language Requirement	0
Pre-Med Requirement	0
Divisional Distribution Requirement	0
Quantitative Reasoning with Data Requirement	0

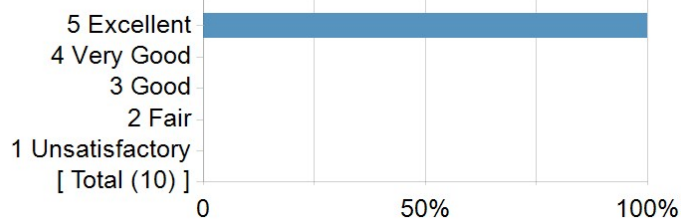
Recommendations - Would you recommend this course?**How strongly would you recommend this course to your peers?****Evaluation of Instructors****General Instructor Questions**

	Count	Excellent	Very Good	Good	Fair	Unsatisfactory	Instructor Mean	Dept Mean	Division Mean
Evaluate your Instructor overall.	12	100%	0%	0%	0%	0%	5.00	4.51	4.51
Gives effective lectures or presentations, if applicable	12	83%	17%	0%	0%	0%	4.83	4.41	4.40
Is accessible outside of class (including after class, office hours, e-mail, etc.)	12	100%	0%	0%	0%	0%	5.00	4.55	4.51
Generates enthusiasm for the subject matter	11	100%	0%	0%	0%	0%	5.00	4.58	4.60
Facilitates discussion and encourages participation	10	100%	0%	0%	0%	0%	5.00	4.53	4.55
Gives useful feedback on assignments	10	80%	20%	0%	0%	0%	4.80	4.50	4.48
Returns assignments in a timely fashion	11	91%	9%	0%	0%	0%	4.91	4.49	4.49

Instructor

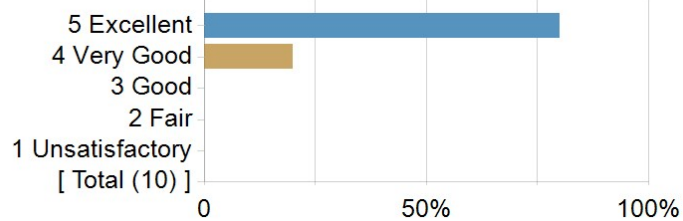
1. Evaluate your Instructor overall.					2. Gives effective lectures or presentations, if applicable				
 5 Excellent 4 Very Good 3 Good 2 Fair 1 Unsatisfactory [Total (12)]					 5 Excellent 4 Very Good 3 Good 2 Fair 1 Unsatisfactory [Total (12)]				
Options	Score	Count	Percentage		Options	Score	Count	Percentage	
Excellent	5	12	100%		Excellent	5	10	83%	
Very Good	4	0	0%		Very Good	4	2	17%	
Good	3	0	0%		Good	3	0	0%	
Fair	2	0	0%		Fair	2	0	0%	
Unsatisfactory	1	0	0%		Unsatisfactory	1	0	0%	
Statistics				Value	Statistics				Value
Response Ratio				67%	Response Ratio				67%
Mean				5.00	Mean				4.83
Median				5.00	Median				5.00
Standard Deviation				0.00	Standard Deviation				0.39
3. Is accessible outside of class (including after class, office hours, e-mail, etc.)					4. Generates enthusiasm for the subject matter				
 5 Excellent 4 Very Good 3 Good 2 Fair 1 Unsatisfactory [Total (12)]					 5 Excellent 4 Very Good 3 Good 2 Fair 1 Unsatisfactory [Total (11)]				
Options	Score	Count	Percentage		Options	Score	Count	Percentage	
Excellent	5	12	100%		Excellent	5	11	100%	
Very Good	4	0	0%		Very Good	4	0	0%	
Good	3	0	0%		Good	3	0	0%	
Fair	2	0	0%		Fair	2	0	0%	
Unsatisfactory	1	0	0%		Unsatisfactory	1	0	0%	
Statistics				Value	Statistics				Value
Response Ratio				67%	Response Ratio				61%
Mean				5.00	Mean				5.00
Median				5.00	Median				5.00
Standard Deviation				0.00	Standard Deviation				0.00

5. Facilitates discussion and encourages participation



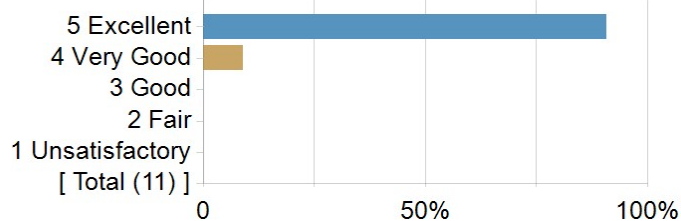
Options	Score	Count	Percentage
Excellent	5	10	100%
Very Good	4	0	0%
Good	3	0	0%
Fair	2	0	0%
Unsatisfactory	1	0	0%
Statistics			Value
Response Ratio			56%
Mean			5.00
Median			5.00
Standard Deviation			0.00

6. Gives useful feedback on assignments



Options	Score	Count	Percentage
Excellent	5	8	80%
Very Good	4	2	20%
Good	3	0	0%
Fair	2	0	0%
Unsatisfactory	1	0	0%
Statistics			Value
Response Ratio			56%
Mean			4.80
Median			5.00
Standard Deviation			0.42

7. Returns assignments in a timely fashion



Options	Score	Count	Percentage
Excellent	5	10	91%
Very Good	4	1	9%
Good	3	0	0%
Fair	2	0	0%
Unsatisfactory	1	0	0%
Statistics			Value
Response Ratio			61%
Mean			4.91
Median			5.00
Standard Deviation			0.30

General Course Questions - Comments

What were the strengths of this course? Please be specific and use concrete examples where possible.

Comments
I really enjoyed Math 166. The course material is super interesting! The lectures were always clear and engaging. Puskar is an amazing lecturer, and also extremely friendly, approachable, and funny! He is always eager to answer questions during or after class (or at office hours), and makes you excited about differential geometry and its beautiful applications.
Puskar Mondal.
Puskar.
Puskar is one of the best professors. He is incredibly supportive and is willing to really step into your shoes to walk you through your misunderstandings.
Excellent teaching. The lectures were so much fun and were presented in a way that just made the whole course really exciting. Topics were always motivated with geometric explanations through Puskar's remarkable drawing skills. Proofs always felt connected to the central thread of the class. As a physics major, I was extremely satisfied by the unravelling of GR as well as the many other topics that we connected to the material. I feel like I know a lot more about a lot of things after taking this course and am seeing connections all over the place in a really satisfying way.
This course ventures deeply into topics applicable to differential geometry research and general relativity.
Lectures were extremely clear

How could this course be improved? Please use concrete examples where possible and provide constructive suggestions.

Comments
It would have been cool if we had more time to talk about black holes and other physical applications of the material that were mentioned at the end of the syllabus. I would have also appreciated a little more organization, like a more detailed syllabus of what would be covered in each lecture.
Honestly, I struggle to see how this is possible. Puskar was simply excellent.
Course notes having typos was a bit of a problem after students started scribbling. Perhaps some checking would help it.
This course might have benefitted from having a CA, even though the professor did a great job of making himself approachable and accessible outside of class.
Cover more material

Requirements Comments - What did this course require of you?

In your opinion, what preparation or background is necessary to take this course?

Comments
Math 136 (differential geometry) should be strongly recommended for the class.
Math 136
I came into the course with no background in topology, geometry, or proof writing, so it was definitely much harder for me than for most. That being said, under Puskar's excellent instruction, I got to love in the course I was very happy with.
Math 136, Lin alg, Calc.
Differential geometry – 136. I came without this and was fine, but it clearly would have been really helpful. Topology, group theory, and some analytical mechanics from physics would all enrich your understanding but definitely not required.
Math 136, 121
Students should be slightly familiar with differential geometry (understanding tangent spaces and topological manifolds) before taking this course
Basic differential geometry at the level of 136

Recommendations Comments - Would you recommend this course?

What did you take away from your experience in this course? What did you learn? How did this course change you?

Comments
I gained a deeper understanding of differential geometry and the math behind general relativity.
The universe is beautiful.
I learned a lot that will be applicable to theoretical physics
This course has furthered my interest in differential geometry and has made me reconsider taking physics!

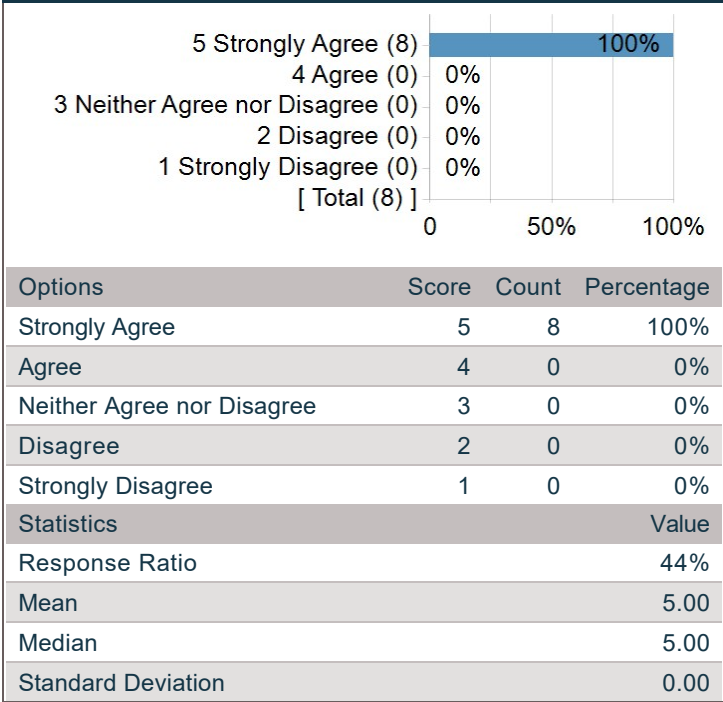
What would you like to tell future students about this class? (Your response to this question may be published anonymously.)

Comments
I really enjoyed Math 166. The course material was super interesting and the workload was very manageable! The lectures were always clear and engaging. Puskar is a great lecturer, and also extremely friendly, understanding, and funny! He is always eager to answer questions during or after class (or at office hours), and makes you excited about differential geometry and its beautiful applications.
Puskar is great!
If Puskar is teaching this class, take it.
Cool class that gives glimpses of physics.
TAKE ITTTTT.
Puskar is the best !!!! I am not sure if he will teach this class again, but if he is take it. The class is low-stress in the best way possible where you can really learn a ton. As a physics major, this was a really cool intro to GR from a mathematically rigorous perspective. The connections to physics are endless and certainly do not end at GR, learning differential geometry in this way is crucial for understanding all kinds of theoretical stuff. Highlights included the geometric proofs of Noether's theorems and of course the derivations of the Einstein equations. Puskar did a great job of motivating concepts and proofs with geometric intuition that made abstract concepts pretty intuitive. I did not take 136 and got by fine, but would definitely recommend taking it before if possible. This class is like a substantially lighter version of 230b.
Loved this class; interesting content and reasonable assignments (4–5 psets + final project). Definitely recommend to fulfill geometry requirement!
The material in this class can be very difficult, especially if you don't have previous experience with tensors and have to build intuition for it during the class. However, Puskar is a wonderful instructor and he makes this class definitely worth taking. He is extremely patient, kind, encouraging, and enthusiastic in his interactions with students. No doubt my favorite lecturer at Harvard!

Open Discourse in the Classroom

In this course, most students listen attentively with an open mind and a willingness to change their point of view as they learn more about the topic.

In this course, most students listen attentively with an open mind and a willingness to change their point of view as they learn more about the topic.

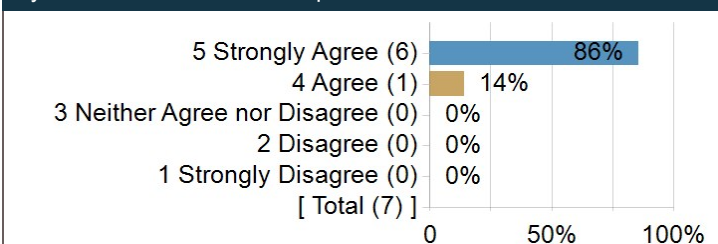


Add comments about this question.

Comments
Very good energy in the classroom

In this course (including sections), I feel comfortable expressing my views on controversial topics.

In this course (including sections), I feel comfortable expressing my views on controversial topics.



Options	Score	Count	Percentage
Strongly Agree	5	6	86%
Agree	4	1	14%
Neither Agree nor Disagree	3	0	0%
Disagree	2	0	0%
Strongly Disagree	1	0	0%
Statistics			Value
Response Ratio			39%
Mean			4.86
Median			5.00
Standard Deviation			0.38

Add comments about this question.

Comments
The teacher welcomed active participation during lectures and always started his response with encouragement like "that's a great question!"

Instructor Comments

Please comment on this person's teaching. (Your response to this question may be published anonymously.)

Comments
Puskar is a great lecturer, and also extremely friendly, understanding, and funny! He is always eager to answer questions during or after class (or at office hours), and makes you excited about differential geometry and its beautiful applications.
Puskar is quite literally one of the most brilliant and simultaneously enjoyable professors I know. He generates enthusiasm like no other and makes everyone feel validated. I did not take Math 136 like most students in the class, but he spent time with me explaining the most basic things such as notation. Puskar's classroom isn't just a classroom, it is a community that he fostered and we are all quite grateful for it.
Best lecturer I have had at Harvard thus far.
Puskar made me like math again.
Excellent teacher, made difficult concepts intuitive, made many connections to other material, was very approachable during OH and after class. Classes were always exciting and the content always felt well motivated, there was a clear narrative to the course which made it really engaging.
Puskar is the best math instructor; he generates so much enthusiasm for the subject and teaches/explains in such a clear and effective manner. Also an all around wonderful person. Highly recommend any course taught by him!
Puskar is an incredible teacher and possibly the most approachable course instructor you will find at Harvard. In just a few weeks, he memorizes the names of everyone in the class and remembers who asked which specific question when referencing it later in the course. He can become very animated when explaining a topic and radiates enthusiasm to the entire classroom. He is clearly very knowledgeable but encourages students at all levels to ask questions, always addressing them with patience and encouragement. He is also a monster on the basketball court!

