



2022 Fall Individual Report FAS-MATH 136-Differential Geometry 001 Puskar Mondal

Project Title: **2022 Fall Harvard FAS Course Evaluation**

Course Audience: **39**

Responses Received: **33**

Response Ratio: **85%**

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.

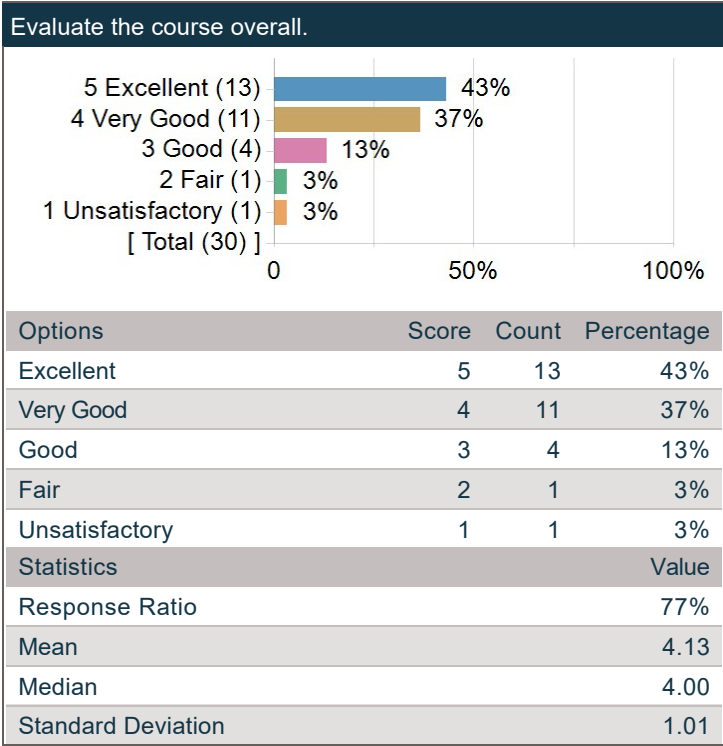
Creation Date: **Tuesday, December 20, 2022**

General Course Questions

Course General Questions

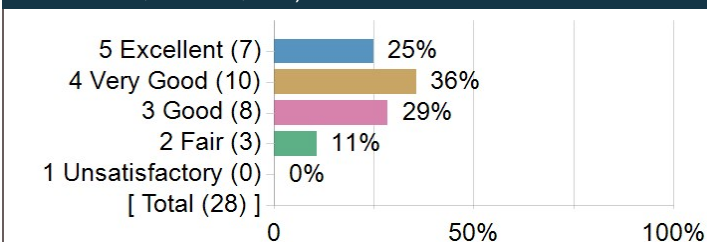
| | Count | Excellent | Very Good | Good | Fair | Unsatisfactory | Course Mean | Dept Mean | Division Mean |
|--|-------|-----------|-----------|------|------|----------------|-------------|-----------|---------------|
| Evaluate the course overall. | 30 | 43% | 37% | 13% | 3% | 3% | 4.13 | 4.04 | 4.08 |
| Course materials (readings, audio-visual materials, textbooks, lab manuals, website, etc.) | 28 | 25% | 36% | 29% | 11% | 0% | 3.75 | 3.99 | 4.13 |
| Assignments (exams, essays, problem sets, language homework, etc.) | 29 | 45% | 31% | 14% | 10% | 0% | 4.10 | 3.80 | 3.89 |
| Feedback you received on work you produced in this course | 29 | 59% | 21% | 10% | 10% | 0% | 4.28 | 3.89 | 3.93 |
| Section component of the course | 6 | 67% | 17% | 17% | 0% | 0% | 4.50 | 4.03 | 4.13 |

Evaluate the course overall.



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

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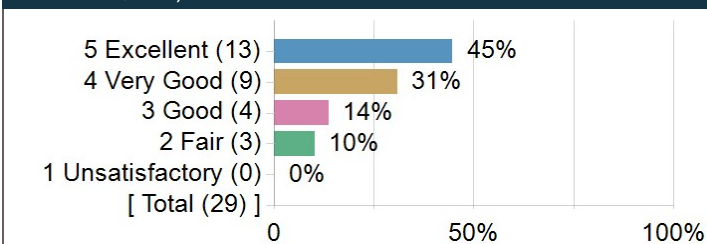
| Options | Score | Count | Percentage |
|--------------------|-------|-------|------------|
| Excellent | 5 | 7 | 25% |
| Very Good | 4 | 10 | 36% |
| Good | 3 | 8 | 29% |
| Fair | 2 | 3 | 11% |
| Unsatisfactory | 1 | 0 | 0% |
| Statistics | | | Value |
| Response Ratio | | | 72% |
| Mean | | | 3.75 |
| Median | | | 4.00 |
| Standard Deviation | | | 0.97 |

Add comments about course materials?

| Comments |
|--|
| A textbook would be helpful to fill in missing gaps. |
| There were no course materials outside of the TA's published notes. At the start of the class, the professor stated, "If we were just going to follow a textbook, then what's the point of this class??" He then proceeded to teach the course in the most exciting and engaging way. The lack of a textbook was not a problem, and, in fact, enhanced the course. |
| Notes were VERY helpful!!! Great job Wittmann |
| They weren't very clear, you had to decipher questions to answer them |
| Wittmann's lecture notes are amazing!!! |
| The two textbooks that we had were great companions to the material we learned in class. Without the class it would have been difficult to decipher the books, but combining both the knowledge from the class and the results in the books was a great way to learn differential geometry. |
| The main course materials were TF Wittmann's scribe lecture notes. These were extremely, extremely helpful for studying for the exams. |
| Great Course notes! Makes up for the 9 am class time because I never felt lost when I missed class. |
| The lecture notes were typed by the CA. They were very well-typed. |
| The textbook was not very useful to the course. Supplementary readings would be helpful. |
| No course materials. |

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

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

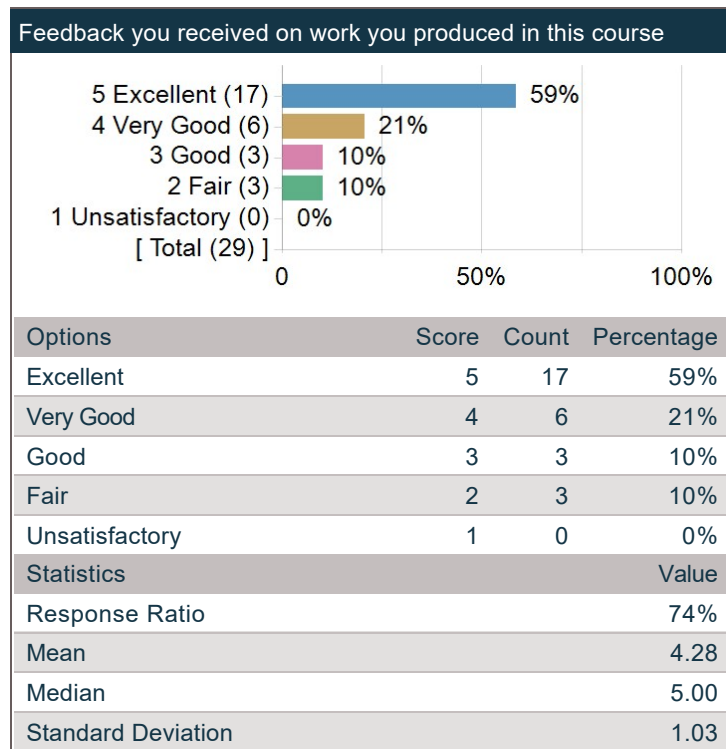


| Options | Score | Count | Percentage |
|--------------------|-------|-------|------------|
| Excellent | 5 | 13 | 45% |
| Very Good | 4 | 9 | 31% |
| Good | 3 | 4 | 14% |
| Fair | 2 | 3 | 10% |
| Unsatisfactory | 1 | 0 | 0% |
| Statistics | | | Value |
| Response Ratio | | | 74% |
| Mean | | | 4.10 |
| Median | | | 4.00 |
| Standard Deviation | | | 1.01 |

Add comments about course assignments?

| Comments |
|--|
| Manageable. Lots of extra credit is nice. |
| The problem sets were graded for understanding and comprehension, and they were very forgiving point-wise. The problem sets were assigned at a perfect pace – once every two weeks – which alleviated stress while still checking for understanding. |
| The psets were not released on a consistent schedule. One pset would be released on a Tuesday and due 2 wks later, and then the next wouldn't come for another week and would be released on a different day of the week. Wish they were released in an organized/scheduled manner |
| Not too difficult |
| I really appreciated the flexibility in taking few-day extensions for the psets. |
| I really liked the course assignments! |
| I think the exams were intellectually helpful, but they were sometimes not directly related to what we covered in class. |
| Interesting problem sets, though pset 5 was unnecessarily difficult. It's also unclear to students when so much extra credit is included if getting over 100 even guarantees an A. |

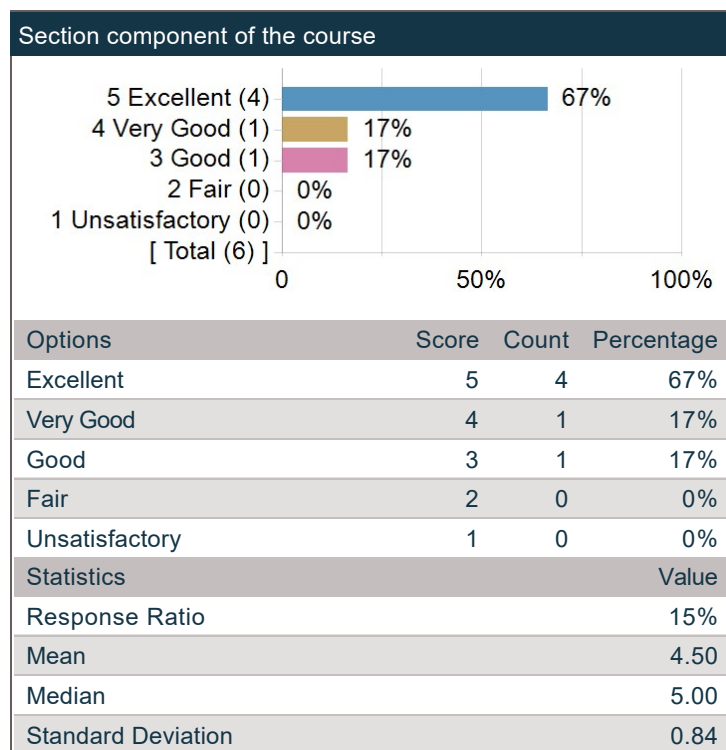
Feedback you received on work you produced in this course



Add comments about course feedback?

| Comments |
|--|
| The feedback was timely but there weren't many comments on it. Also, the grading policy was very unclear. All the assignments had a lot of extra credit, meaning the majority of people had over a 100 in the course. This made it very hard to judge how well I was doing in the course, and if it was necessary to do more extra credit work. After realizing that most people had over 100, Puskar told us that he'd use the final to distinguish between people, inadvertently giving the final significantly more weight than was alluded to in the syllabus. |
| Fair. |
| Wittmann's feedback was helpful, but a detailed rubric+answer key for psets would've been nice. Also wish there was an answer key released for the midterm |
| Wittmann always gave very detailed explanations for any time my answer was incomplete/wrong, which I really appreciated! |
| I wish that there had been solutions to the problem sets that were released. Otherwise, I really appreciated the feedback Wittmann gave! |
| I think the comments were not very timely. |

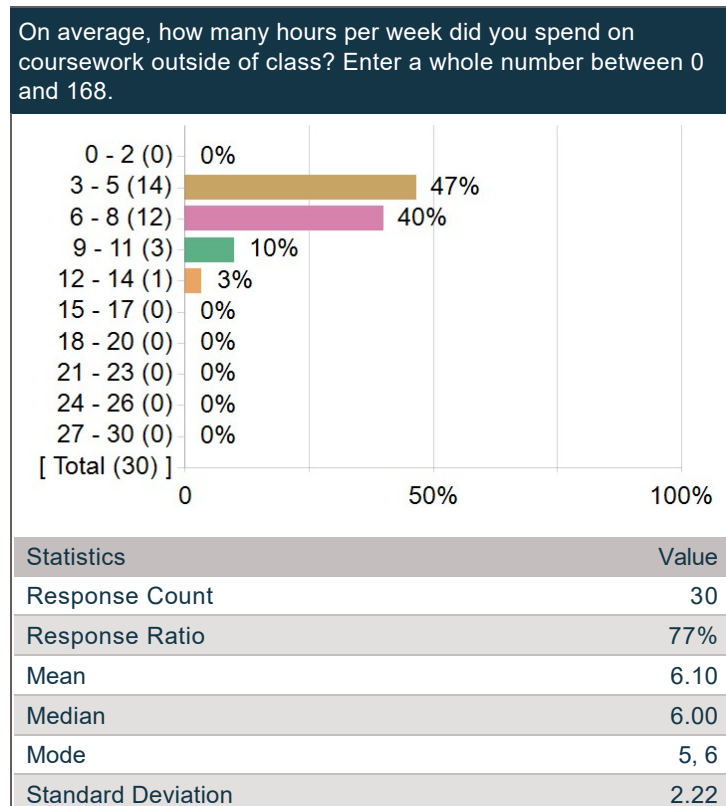
Section component of the course



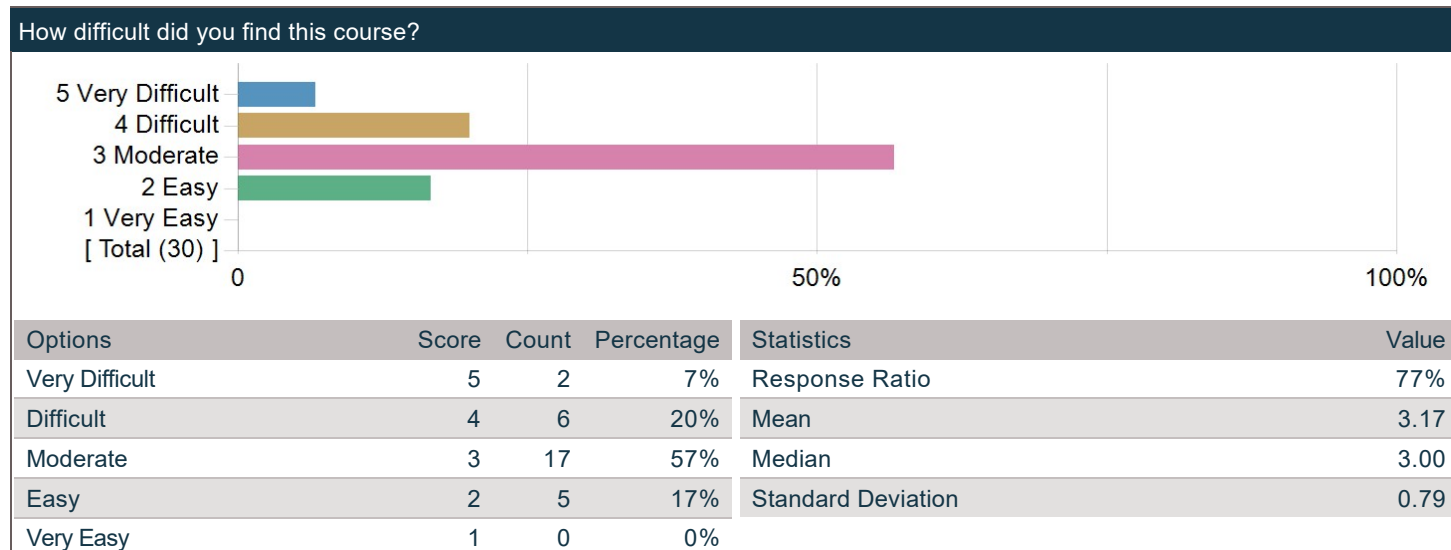
Requirements - What did this course require of you?

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?

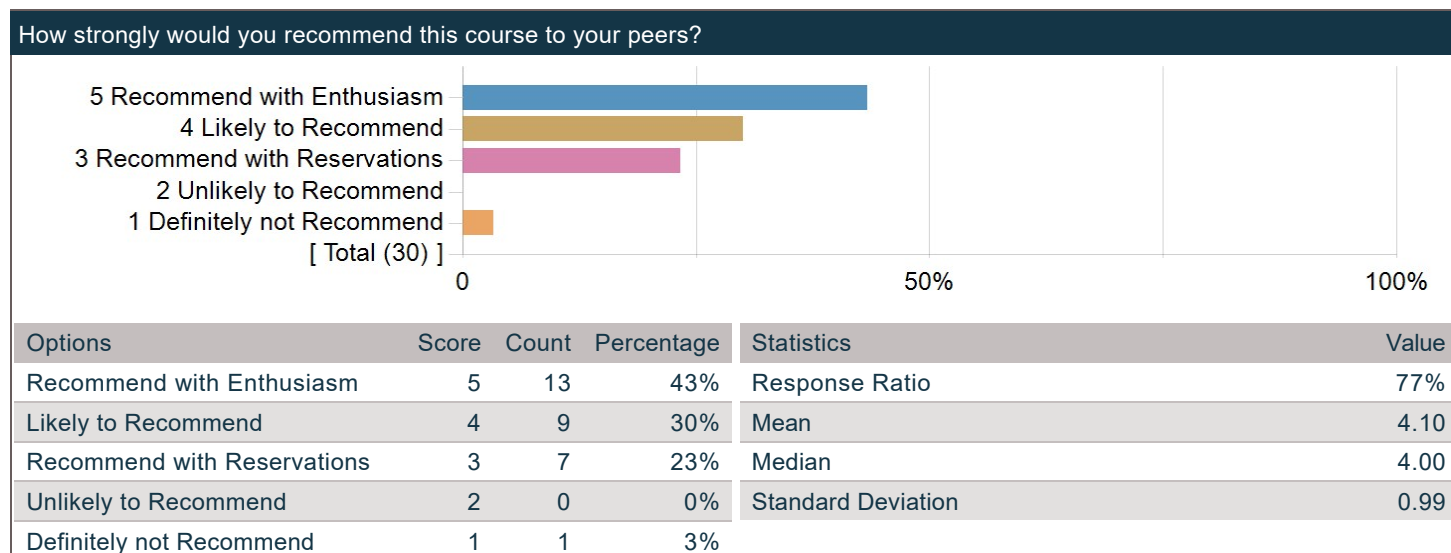


What was/were your reason(s) for enrolling in this course? (Please check all that apply)

| Options | Count |
|--|-------|
| Elective | 3 |
| Concentration or Department Requirement | 27 |
| 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?

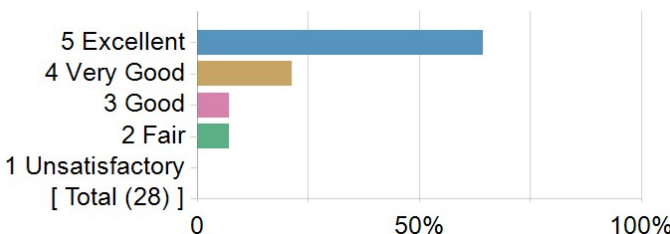
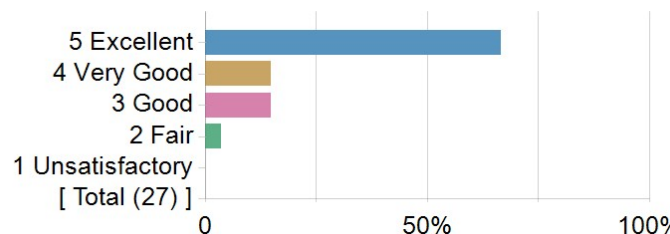


Evaluation of Instructors

General Instructor Questions

| | Count | Excellent | Very Good | Good | Fair | Unsatisfactory | Instructor Mean | Dept Mean | Division Mean |
|--|-------|-----------|-----------|------|------|----------------|-----------------|-----------|---------------|
| Evaluate your Instructor overall. | 28 | 64% | 21% | 7% | 7% | 0% | 4.43 | 4.49 | 4.44 |
| Gives effective lectures or presentations, if applicable | 27 | 67% | 15% | 15% | 4% | 0% | 4.44 | 4.37 | 4.31 |
| Is accessible outside of class (including after class, office hours, e-mail, etc.) | 26 | 92% | 4% | 0% | 4% | 0% | 4.85 | 4.57 | 4.46 |
| Generates enthusiasm for the subject matter | 26 | 92% | 0% | 4% | 4% | 0% | 4.81 | 4.57 | 4.53 |
| Facilitates discussion and encourages participation | 23 | 87% | 0% | 4% | 9% | 0% | 4.65 | 4.48 | 4.42 |
| Gives useful feedback on assignments | 17 | 65% | 24% | 6% | 6% | 0% | 4.47 | 4.40 | 4.40 |
| Returns assignments in a timely fashion | 18 | 72% | 17% | 0% | 11% | 0% | 4.50 | 4.27 | 4.40 |

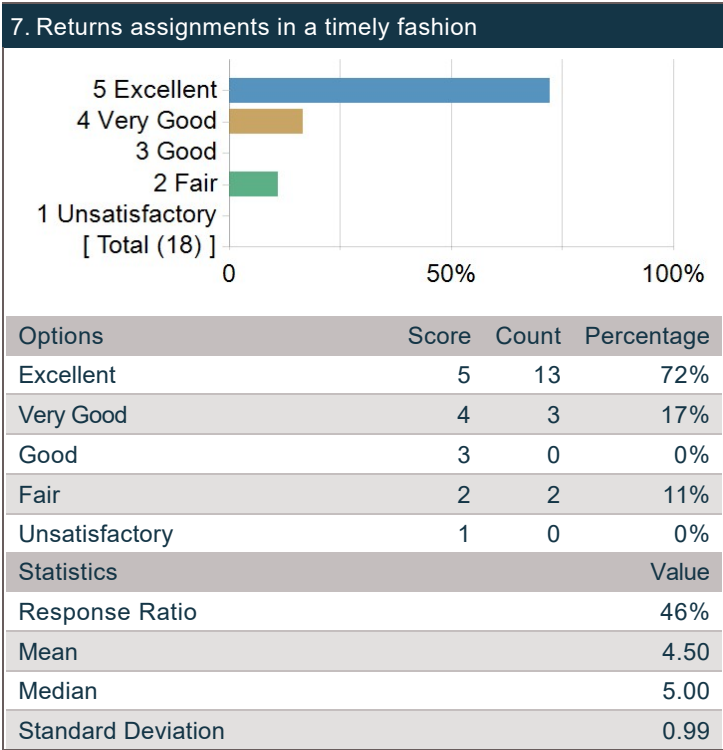
Instructor

| 1. Evaluate your Instructor overall. | | | | | 2. Gives effective lectures or presentations, if applicable | | | | |
|--|-------|-------|------------|-------|---|-------|-------|------------|-------|
|  | | | | |  | | | | |
| Options | Score | Count | Percentage | | Options | Score | Count | Percentage | |
| Excellent | 5 | 18 | 64% | | Excellent | 5 | 18 | 67% | |
| Very Good | 4 | 6 | 21% | | Very Good | 4 | 4 | 15% | |
| Good | 3 | 2 | 7% | | Good | 3 | 4 | 15% | |
| Fair | 2 | 2 | 7% | | Fair | 2 | 1 | 4% | |
| Unsatisfactory | 1 | 0 | 0% | | Unsatisfactory | 1 | 0 | 0% | |
| Statistics | | | | Value | Statistics | | | | Value |
| Response Ratio | | | | 72% | Response Ratio | | | | 69% |
| Mean | | | | 4.43 | Mean | | | | 4.44 |
| Median | | | | 5.00 | Median | | | | 5.00 |
| Standard Deviation | | | | 0.92 | Standard Deviation | | | | 0.89 |

| 3. Is accessible outside of class (including after class, office hours, e-mail, etc.) | | | | |
|---|-------|-------|------------|--|
| <div><div><div>5 Excellent</div><div>4 Very Good</div><div>3 Good</div><div>2 Fair</div><div>1 Unsatisfactory</div><div>[Total (26)]</div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div>0</div><div>50%</div><div>100%</div></div></div> | | | | |
| Options | Score | Count | Percentage | |
| Excellent | 5 | 24 | 92% | |
| Very Good | 4 | 1 | 4% | |
| Good | 3 | 0 | 0% | |
| Fair | 2 | 1 | 4% | |
| Unsatisfactory | 1 | 0 | 0% | |
| Statistics | | | Value | |
| Response Ratio | | | 67% | |
| Mean | | | 4.85 | |
| Median | | | 5.00 | |
| Standard Deviation | | | 0.61 | |

| 4. Generates enthusiasm for the subject matter | | | | |
|---|-------|-------|------------|--|
| <div><div><div>5 Excellent</div><div>4 Very Good</div><div>3 Good</div><div>2 Fair</div><div>1 Unsatisfactory</div><div>[Total (26)]</div></div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div>0</div><div>50%</div><div>100%</div></div></div> | | | | |
| Options | Score | Count | Percentage | |
| Excellent | 5 | 24 | 92% | |
| Very Good | 4 | 0 | 0% | |
| Good | 3 | 1 | 4% | |
| Fair | 2 | 1 | 4% | |
| Unsatisfactory | 1 | 0 | 0% | |
| Statistics | | | Value | |
| Response Ratio | | | 67% | |
| Mean | | | 4.81 | |
| Median | | | 5.00 | |
| Standard Deviation | | | 0.69 | |

| 5. Facilitates discussion and encourages participation | | | | |
| 5 Excellent 4 Very Good 3 Good 2 Fair 1 Unsatisfactory [Total (23)] 0 50% 100% | | | | |
| Options | Score | Count | Percentage | |
| Excellent | 5 | 20 | 87% | |
| Very Good | 4 | 0 | 0% | |
| Good | 3 | 1 | 4% | |
| Fair | 2 | 2 | 9% | |
| Unsatisfactory | 1 | 0 | 0% | |
| Statistics | | | Value | |
| Response Ratio | | | 59% | |
| Mean | | | 4.65 | |
| Median | | | 5.00 | |
| Standard Deviation | | | 0.93 | |
| 6. Gives useful feedback on assignments | | | | |
| 5 Excellent 4 Very Good 3 Good 2 Fair 1 Unsatisfactory [Total (17)] 0 50% 100% | | | | |
| Options | Score | Count | Percentage | |
| Excellent | 5 | 11 | 65% | |
| Very Good | 4 | 4 | 24% | |
| Good | 3 | 1 | 6% | |
| Fair | 2 | 1 | 6% | |
| Unsatisfactory | 1 | 0 | 0% | |
| Statistics | | | Value | |
| Response Ratio | | | 44% | |
| Mean | | | 4.47 | |
| Median | | | 5.00 | |
| Standard Deviation | | | 0.87 | |



General Course Questions - Comments

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

| Comments |
|--|
| This course was a lot of fun and made me a lot more fluent regarding derivatives. I think the problem sets were challenging but very accessible due to the hints, and it was interesting getting to think about the calculus I was familiar with extended to weird surfaces aka Manifolds! |
| Laid back. Lots of extra credit. |
| Problem sets were instructive and interesting, exams were fair. Puskar was engaging. |
| This course was taught in a small setting which allowed frequent interaction and even allowed the Professor to learn every student's name! |
| Puskar is very passionate about math and a nice person overall. Wittmann did an AMAZING job as a CA and his office hours were helpful. The lecture notes were a lifesaver |
| This class was amazing. The professor was excellent and explained concepts clearly as well being available to help all the time. I learnt a lot during psets and class and now feel prepared to jump into more advanced material. I heard some people grumbling about how the grading was done in the class but quite frankly the grading was completely fair – some people came into the class expecting an easy A and then got upset when they were graded down for sub-par work. If you turn up to class, participate in class and do the problem sets you will learn a lot and get a good grade. |
| Really good introduction to the intuition of topology and diffgeo, which I feel that the math department sometimes lacks (as in, a lot of math classes I've taken has just been theorem after theorem, and Puskar Mondal really does a good job motivating and connecting the dots between the theorems in a way that I haven't really experienced in this department). |
| Interesting material, detailed class notes (thanks Wittmann) |
| Easy, not stressful |
| The course was pretty small and intimate, which made it really easy to ask questions and engage with the professor, even during lecture. Puskar is incredible—he offers really engaging lectures, and he always stays after to answer questions. |
| The enjoyable class atmosphere |
| Math 136 was fascinating! Professor Mondal is an amazing lecturer. His passion is contagious, and he really makes you understand and appreciate the beauty of the concepts he's explaining. Wittmann is an amazing TF, and his lecture notes are some of the best lecture notes I've had in my classes at Harvard. |
| This course was great in pretty much all aspects. The instructor is very engaging and actually cares about whether you understand the material. |
| Prof. Mondal cares deeply for his students inside and outside of the classroom. The content in the course was also intentionally presented in an intuitive manner. |
| This course was the most generous with extra credit that I've ever seen. I'd also like to compliment the provided lecture notes as a supplement to my own. |
| Puskar is a great lecturer and he clearly cares a lot about the class understanding. He always answered many questions in class and the students were very willing to ask questions. |
| interesting topics that are not covered in great breadth elsewhere, interesting lectures, |
| Covered interesting material. |
| Lectures are very engaging and interactive. Professor is extremely funny and chill and a great lecturer. Really intuitive explanations of mathematical concepts. |
| Puskar is very talented to explain difficult concepts to students in a very easy way, and Wittmann was very helpful to write the lecture notes in tex |
| Very knowledgeable professor who was very good at answering questions of the class. |

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

| Comments |
|--|
| This course was a little disorganized and I think as a result we were not able to cover as much material as originally planned. I think specific readings to accompany lectures, or typed handouts would've been very helpful for this class. The notes the CA wrote were very very helpful, but something similar ahead of time would've been more helpful. Additionally, often times the class would get off track, or there would be a lot of distractions and interruptions. I brought this up to Puskar and he made a big change to how the class was operated that was quite helpful, although I wish it had been like this from the beginning. |
| Lecture did not feel very well motivated. |
| The course grading needs significant improvement and overhaul. It is unfair that extra credit is not actually treated as extra credit. A 100%+ should not result in a grade that is not an A. |
| The lectures could also be much more clear. |
| The pace of topics towards the end of the class could be made slower, especially since the difficulty ramps up towards the end. |
| There was a very wide range in the students' math background and I don't think much was done to help out the people who came from "lower" math courses. The prerequisites allow anyone from Math 19ab and up to take the course, yet it seemed to be tailored to the Math 55ers who were taking the class. There were several concepts in the class that students from Math 19 and 21 had never seen before but the 55ers had which was a bit unfair. The lectures were often dominated by males and Math 55ers, which made it incredibly uncomfortable for me to speak up in class out of fear of saying something stupid. Also, everyone's grades were very inflated (over 100%) to the point where we had no idea where we stood relative to our classmates and couldn't predict our grades. Unless 100%+ means a guaranteed solid A (which it honestly should be), there should be more transparency as to what scores will get an A or A-. Also there were NO ANSWER KEYS released for our PSets. I have never seen this in any of my other PSet classes. It is not fair to test us on material from the psets without giving us an opportunity to correct our work and know what the answer should have been. There was also a pset assigned during Thanksgiving Break and due the day before our final, which is not even allowed under Harvard's rules for reading/finals period. We were not able to get feedback on the pset before we took the final exam. This pset was also significantly longer than any of our previous psets. It should have been due by the first three days of reading period (Harvard's rule for assigning psets due during reading period) or not assigned in the first place. |
| Maybe a course textbook would be good but the class notes served as this very well. |
| The course may be a little *too* intuition-focused... maybe would've liked more rigor. |
| Psets were a bit too difficult at times, it would be helpful if the questions were more directly related to what is taught in class. |
| Better organization, better psets |
| At times it felt a little unorganized. It would be cool if the psets could be standardized between years so they can be iteratively honed, like in some other classes. They sometimes felt a little unclear. |
| More structure lessons, starting with larger concepts then more helpful examples |
| I would have liked to see some numerical computation examples just to see how all the theoretical results we derived apply in a concrete way. |
| I think it would be helpful to some students like me if we followed a textbook more closely. Also, some of the HW assignments seemed to be much more difficult / different from the material covered in lecture. |
| Maybe that English accent can use some improvement. |
| I think the class should follow a textbook, or at least have a textbook that it roughly follows. The lecture notes were very good, however I do feel that sometimes I was struggling to compare the concepts in class with what is in textbooks. |
| Have more notes and resources for students to review on their own time. |
| The course difficulty felt very basic and simple up until the last two weeks where things ramped up dramatically in a way that caught me and many other people off guard. I would appreciate a more linear increase as the semester goes on rather than such a sudden jump. |
| I hope there were some textbooks that are accessible to students (that the Harvard library has several copies of). Because it was very hard to get a copy which made me very dependent on the instructors of the course. |

Requirements Comments - What did this course require of you?

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

| Comments |
|---|
| Good grasp of Linear Algebra, derivatives, a willingness to be confused by notation! |
| Calculus, linear algebra. Some physics knowledge of mechanics helps. |
| proof-based math course |
| Exposure to topology and multi variable calculus (not necessarily at an extreme level) are recommended. |
| Math 55a |
| Linear algebra and basic multivariable calculus. |
| A working knowledge of linear algebra, ODEs, and multivariable calc would reaaally help. I'd forgotten a lot when I took the course and was getting a bit lost when we were doing Jacobians. It's fine because you can catch up but makes for some stressful lectures sometimes when you're lost in the sauce with the math. |
| One or more 100-level math course, solid backgrounds in linear algebra, calculus and topology |
| Any proof-based math course |
| Calculus and linear algebra |
| I think that at least one proof-based math course, and some basic calculus and linear algebra, should be enough. |
| Math 21a, 21b, or equivalents. Topology and analysis is helpful. |
| I think preparation at the level of Math 22 (knowing linear algebra and multivariable calc) or higher is a good foundation for what's needed to be successful in this course. Taking 132 (Differential Topology) would also help, but I didn't take it before and I learned the material very well, so if you took it, great, if not, don't worry about it! |
| Calculus, linear algebra |
| Experience in proof-based mathematics, multivariable calculus, and linear algebra. |
| Proof based math course would definitely be helpful! |
| just 21a/21b is fine though, but its a bit of a struggle |
| Geometry, calculus, and a vivid imagination |
| A solid understanding of multivariable calculus and a slight background in real analysis. |
| linear algebra, maybe some proof knowledge |
| Math 22ab |
| Calculus, Linear Algebra, maybe some topology. |

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 learned about curves and manifolds. My intuition of geometry is much stronger, particularly when it comes to considering low dimensional spaces in high dimensions (manifolds). |
| This course was the most fun math experience I've had in my life! I learned the basics of differential geometry and its motivations. Class was extremely engaging, and I will now only search for courses with the same approximate class size. I was able to comprehend the material so well because of how logically it was presented, and I have even decided to write my required paper on this class's topics! |
| I learnt a huge amount about differential geometry in this class and more generally got far more interested in pure math. |
| I really want to take more topology/diffgeo classes! This class has awakened me to how cool it is. |
| It challenged me and forced me to think more creatively. |
| This class made me appreciate the beauty of math more than before. I loved learning about topology, diffeomorphisms, manifolds. This class inspired me to take more maths courses in the future! |
| I think this course really made me enjoy math again. Usually a lot of math courses are not that engaging and have extremely difficult problems. I think that this course struck a great balance between teaching really hard material and giving a great computation as well as conceptual understanding of topics in addition to assigning problems that were reasonable to ask given what we had covered. I think this course has encouraged me to like differential geometry and I'm considering taking the 230A/B sequence. |
| I got a very solid introduction of differential geometry. I think the concept of manifolds and operating on a manifold can be quite helpful in Machine Learning and Statistics research. |
| I learned that I enjoy differential geometry! I found it interesting. |
| This course has made me more excited about upper level math. The course was interesting, challenging without being stressful, and overall very well-taught. |
| I learned differential geometry. |
| I was able to understand the mathematical concepts more in depth in order to use them in GR |

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

| Comments |
|--|
| This class is a lot of fun and a good class to fulfill the 130s requirement in the Math concentration! It is enjoyable, accessible, and is a fun new way to think about math. Puskar is the kind of teacher to joke with students and make lectures more fun by interacting with them frequently. |
| Take the class if you want to take relativity. You will be surrounded by physics people. |
| Course is okay. Not too hard, but interesting material nonetheless. The lectures are somewhat engaging. The grading is quite confusing — a grade over 100% did not result in an A, due to unclear expectations about what extra credit counts towards. |
| This class focuses on comprehending the material and is much easier for those who attend class. It moves at a great pace and is not a burden work-wise. The teacher is excellent and funny and clearly enthusiastic about mathematics, and he is the reason this course was my favorite class at Harvard so far. |
| The prerequisites are not really what they say there are on my.harvard. Despite the large range in students' math backgrounds, the class is really only tailored for students who have taken upper-level math courses. You will feel most welcomed and learn the most in the class if you come from a "higher" math background (i.e. 25 and 55). The course content is interesting, but it definitely assumes a background higher than what is officially listed in the course description. |
| This class was amazing. The professor was excellent and explained concepts clearly as well being available to help all the time. I learnt a lot during psets and class and now feel prepared to jump into more advanced material. I heard some people grumbling about how the grading was done in the class but quite frankly the grading was completely fair — some people came into the class expecting an easy A and then got upset when they were graded down for sub-par work. If you turn up to class, participate in class and do the problem sets you will learn a lot and get a good grade. |
| If Puskar Mondal is teaching this course, take it with him. The psets are relatively chill (and there are only 5 per semester), and the midterm and final are also.... pretty chill. (Maybe a bit too chill?) Dr. Mondal does a really good job of motivating each theorem we prove and connecting the dots between concepts, which I feel that the math department sometimes lacks from a pedagogical standpoint. Anyway, really cool introduction to differential geometry and topology, and I'll definitely be taking more in this area later |

| Comments |
|---|
| on. |
| This is a solid introductory course to differential geometry, but it is quite difficult, especially if you have little upper-math class experience. Go to lectures, try and understand the big-picture concepts before focusing on the tedious details, do your psets with peers/in office hours and ask lots of questions. A lot of the material will probably be brand new to you and may seem daunting at first but once you get the hang of things, it's a lot easier. |
| This is a great class! Very manageable material and super interesting concepts. I feel like I have a far better intuition about how calculus works, especially those later theorems in multi like generalized Stokes that feel really obscure. If Puskar is teaching it, I'd absolutely recommend; he's great. My only caveat would be that, if you really care about rigor in your proofs, this might not be the course for you—most of the arguments are geometric and hand-wavey, and I'm not sure I could write a formal proof of most of the later concepts in the course. |
| Take Math 136! Professor Mondal is an amazing lecturer. His passion is contagious, and he really makes you understand and appreciate the beauty of the concepts he's explaining. He also makes the effort to get to know all his students. Wittmann is an amazing TF, and his lecture notes are some of the best lecture notes I've had in my classes at Harvard. |
| This is the best math class I have taken at Harvard so far. Puskar is a great instructor who really cares about whether you understand the material or not, letting you ask questions during class and giving very nuanced insights into how results should be viewed as well as the strategy to derive them. If you're considering taking this class or 132, I would recommend this class because I didn't take 132 (which is sometimes looked at as a pre-req or at least is helpful to know) but I found that I was able to understand all the material here without that class, so if you want to take a class in the 130s I highly recommend this class. I would also recommend going to office hours because they are super helpful for getting to know the instructors and to also get help on the problem sets. |
| This course, in this current iteration, is relatively approachable up to about 1 week after the midterm. A lot of material seemed to be crammed in the last 2 weeks, which also ended up being the bulk of the final exam. Those last 2 weeks of material were quite difficult and hard to parse, at least for me. However, Prof. Mondal is a very, very patient and encouraging instructor who cares deeply about his students. If you need help, help is available. |
| This class was as gem-y as an upperclassman math course can get. That doesn't mean that the material was easy, just that psets gave many hints and grading is very lenient with loads of extra credit. Everyone has above a 100 average. What I don't really like is that Puskar told us that some of us were getting A's and some of us were getting A-'s. If I have above a 100 average I kinda expect to get an A. But I'm not going to complain too much because the course staff (literally two people) is very supportive and really wants you to know the content! The course notes are also so amazingly well-done. |
| This course is an absolute GEM. I was surprised at the amount of extra credit opportunities that I had, and if the course stays the same, so should you. That said, you need a vivid imagination to succeed. Sometimes the concepts as written seem really difficult, but then you realize that it's just a fancy way to say something really simple. As a basic example, just look at the world around you and put yourself in the suit of an astronaut in outer space. That's pretty much what a manifold is all about! |
| If you have a solid understanding of multivariable and want to learn about differential geometry, I'd give it a shot. I recommend taking it under Puskar. He cares a lot about the understanding of the class and is very willing to answer any questions that come up. Overall, I enjoyed the course a lot and would highly recommend it. The class was not as much work as other math courses that I've taken, but I also feel that I learned a lot. |
| This class is conceptually challenging, but very fascinating and worth taking. |
| Puskar is a very engaging and entertaining lecturer. I really liked him throughout the course. |
| However, I would advise against taking a class with him based on how he handled grading. In mid November, he promised the entire class that everyone would get A- or A. Then, after grading the final exam, he said everyone did well enough so that everyone would get B+, A-, or A. That was already a slight deviation from his initial promise. When he actually posted final grades, he sent an email to everyone saying that he "changed his mind" and decided to give grades from C to A. Furthermore, he included the following message: |
| "If you get (1) A/A-: you did really well; the only difference being performance in the final/class interaction (it did hurt me to give you guys an A- who would've got A otherwise only if been a bit careful in the final) (2) B+: you did pretty well (3) B: you did well (4) B-: You did ok (5) C+,C: you did bad" |
| For a student who was struggling, it is particularly unprofessional to go from promising an A- or above to promising a B+ or above to giving out C's and sending an email saying that "you did bad." That's just rude. I feel bad writing this because I really liked Puskar the entire semester. But if you're going to grade harshly, you can't promise not to grade harshly and send out emails to students saying "you did bad." That's very degrading to a student's confidence and mental health. If you're reading this and planning to apply to grad school, I would avoid Puskar because you may be led into a false sense of security about your grade only for it to all fall apart later on. |

Instructor Comments

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

| Comments |
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| Exciting, but sometimes confusing where ideas come from. |
| Puskar is very nice and supportive. Lectures could be a bit more engaging but otherwise interesting material presented. |
| Puskar made every effort to get to know his students and their names. He generated enthusiasm in the class and has a sense of humor that made lectures lively and engaging. |
| Puskar was a legendary lecturer. Explained concepts very well, was friendly and always available to help. |
| Puskar is sooooo accessible outside of class, like I emailed him pre-final panic questions and he responded pretty quickly, also was so willing to hold so many extra office hours the week of the final. I think he really cares about his students/cares about teaching. |
| Puskar is a great lecturer and instructor. He's very passionate about what he teaches and his lectures are very engaging. He's extremely knowledgeable and cares deeply about his students' learning. Highly recommend taking a course taught by him! |
| Puskar is very knowledgeable, but could be more organized. |
| Professor Mondal is an amazing lecturer. His passion is contagious, and he really makes you understand and appreciate the beauty of the concepts he's explaining. I appreciate how he made the effort to get to know his students and was always understanding and supportive. |
| Puskar is literally my favorite instructor that I've had so far. I really liked being able to ask questions in class and getting clear, straightforward answers that also provide insight into how to approach problems. I think that engaging with students is something he's really good at and it really helped me build great intuition for differential geometry and how to apply results. I would be very eager to see what classes Puskar teaches next because I would love to take them! |
| Prof. Mondal is a very patient and understanding instructor. He really goes out of his way to look out for students and encourage them to ask questions and participate. He was very willing to add office hours during reading period to help us prepare for the final, and was very open to student feedback. His focus on intuition / small examples during lecture was also very helpful for my learning. |
| I really enjoyed Puskar's teaching. He explained things in a simple, intuitive way first before jumping into the rigorous aspects. I think this helped the understanding of the class. I think he was the best math instructor I've had in quite awhile. |
| One of the best lecturers I've had during my time here. |
| Puskar is entertaining, engaging, and highly encourages class participation. All of these are good things. However, particularly at the end of the semester, Puskar often tried to brush over details (such as referring to the star on the push forward as just "notation") when in reality this just made things more confusing. The last few weeks of the course should be reworked since Puskar frequently confused the class when the material suddenly ramped up. |
| An important point: the class was scheduled to start at 9 am and end at 10:15 am, NOT to go from 9:05 am – 10:21 am. As someone with a class at 10:30, the fact that Puskar consistently ran late is one of my main issues with this course. It's not right at 10:18 to just say "give me a few more minutes." We have classes to get to, and the fact that Math 136 repeatedly ran late was not good. |
| Lastly, do not make promises about minimum grades being A– or higher and then go back on that and give C's and send out emails saying that students did badly. Especially for students applying to grad school for whom grades are critically important, that's just humiliating and rude. It leads students into a false sense of security only to snatch it away from them when grades are decided officially. |