2023 Fall Individual Report FAS-MATH 293X-Topological modular forms 001 Stephen McKean

Project Title: **2023 Fall Harvard FAS Course Evaluation**

Course Audience: **50**
Responses Received: **17**
Response Ratio: **34%**

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.
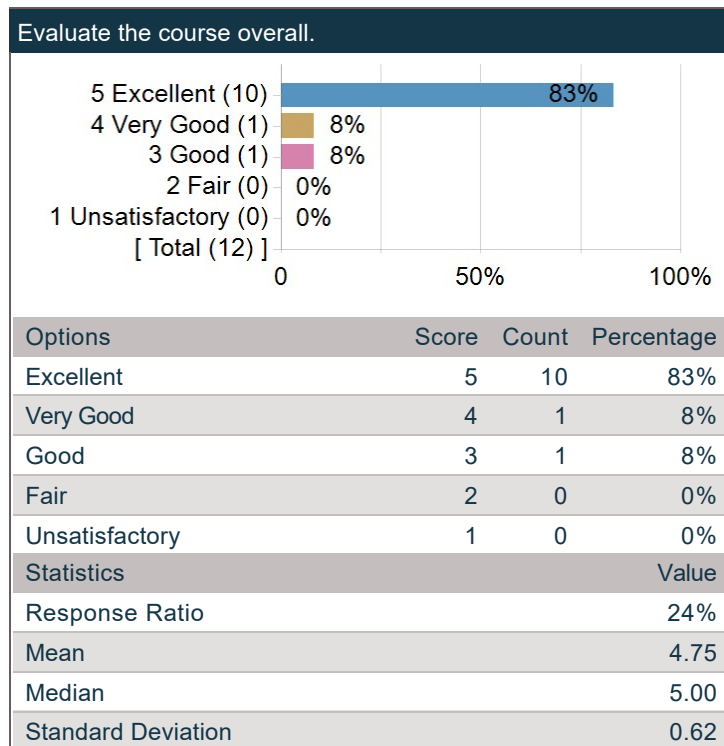The order has been changed to make the report more readable.

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%	8%	8%	0%	0%	4.75	3.77	4.06
Course materials (readings, audio-visual materials, textbooks, lab manuals, website, etc.)	12	83%	8%	8%	0%	0%	4.75	3.92	4.13
Assignments (exams, essays, problem sets, language homework, etc.)	10	70%	20%	10%	0%	0%	4.60	3.66	3.91
Feedback you received on work you produced in this course	10	80%	20%	0%	0%	0%	4.80	3.71	3.95
Section component of the course	2	100%	0%	0%	0%	0%	5.00	3.91	4.16

Evaluate the course overall.

Evaluate the course overall.			

Options	Score	Count	Percentage
Excellent	5	10	83%
Very Good	4	1	8%
Good	3	1	8%
Fair	2	0	0%
Unsatisfactory	1	0	0%
Statistics			Value
Response Ratio			24%
Mean			4.75
Median			5.00
Standard Deviation			0.62

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

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

5 Excellent (10) — 83%
4 Very Good (1) — 8%
3 Good (1) — 8%
2 Fair (0) — 0%
1 Unsatisfactory (0) — 0%
[Total (12)]

Options	Score	Count	Percentage
Excellent	5	10	83%
Very Good	4	1	8%
Good	3	1	8%
Fair	2	0	0%
Unsatisfactory	1	0	0%
Statistics			Value
Response Ratio			24%
Mean			4.75
Median			5.00
Standard Deviation			0.62

Add comments about course materials?

Comments
The course notes were very well–written and very useful.
The lecture notes are great.
I really appreciated the written–up lecture notes!

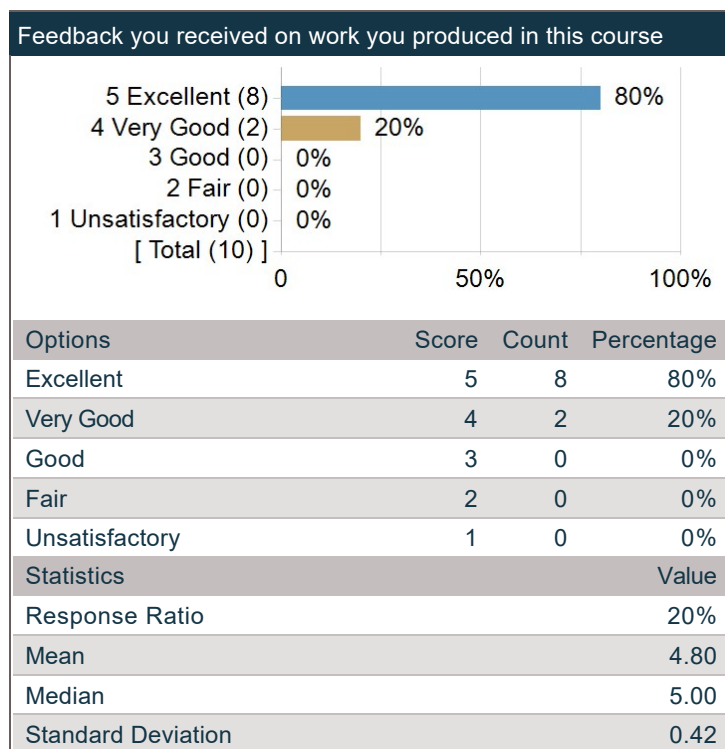## Assignments (exams, essays, problem sets, language homework, etc.)

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

5 Excellent (7)	70%
4 Very Good (2)	20%
3 Good (1)	10%
2 Fair (0)	0%
1 Unsatisfactory (0)	0%
[Total (10)]	

Options	Score	Count	Percentage
Excellent	5	7	70%
Very Good	4	2	20%
Good	3	1	10%
Fair	2	0	0%
Unsatisfactory	1	0	0%
Statistics			Value
Response Ratio			20%
Mean			4.60
Median			5.00
Standard Deviation			0.70
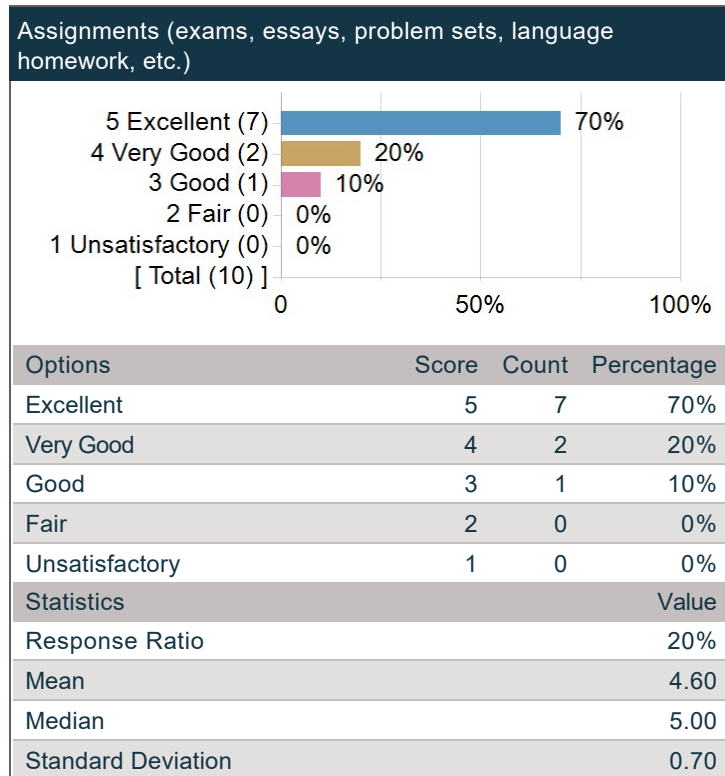
Add comments about course assignments?

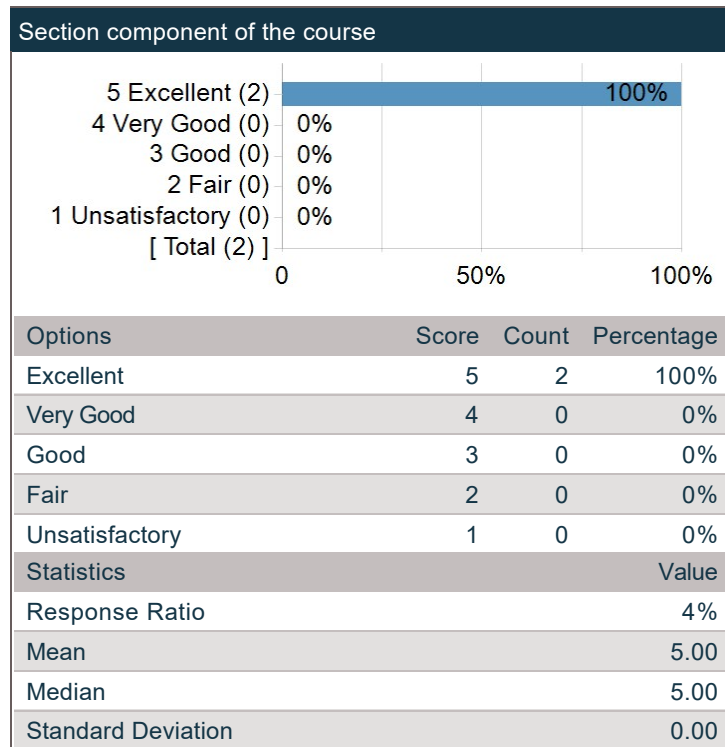| Comments |
|---|
| I appreciated the flexibility in the assignment/grading structure — it really allowed me to focus on learning/understanding the material, and allowed me to deep dive into the topics I found most interesting |

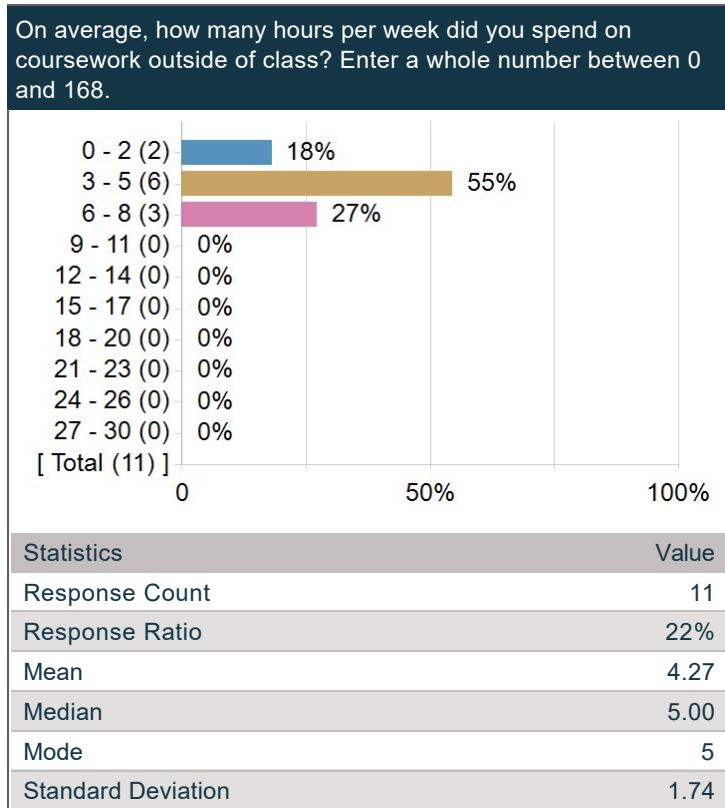## Feedback you received on work you produced in this course

Feedback you received on work you produced in this course

5 Excellent (8)	80%
4 Very Good (2)	20%
3 Good (0)	0%
2 Fair (0)	0%
1 Unsatisfactory (0)	0%
[Total (10)]	

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			20%
Mean			4.80
Median			5.00
Standard Deviation			0.42

Section component of the course

Section component of the course			
5 Excellent (2)			100%
4 Very Good (0)	0%		
3 Good (0)	0%		
2 Fair (0)	0%		
1 Unsatisfactory (0)	0%		
[Total (2)]			

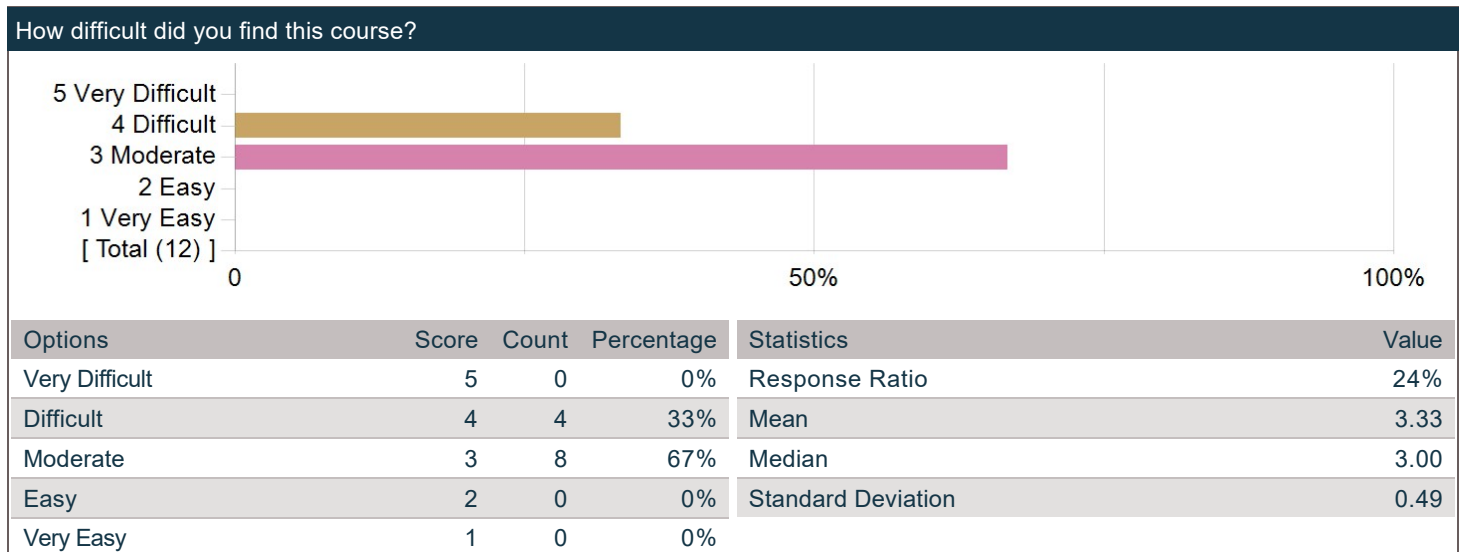| Options	Score	Count	Percentage
Excellent	5	2	100%
Very Good	4	0	0%
Good	3	0	0%
Fair	2	0	0%
Unsatisfactory	1	0	0%
Statistics			Value
Response Ratio			4%
Mean			5.00
Median			5.00
Standard Deviation			0.00

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.

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

0 - 2 (2)		18%
3 - 5 (6)		55%
6 - 8 (3)		27%
9 - 11 (0)		0%
12 - 14 (0)		0%
15 - 17 (0)		0%
18 - 20 (0)		0%
21 - 23 (0)		0%
24 - 26 (0)		0%
27 - 30 (0)		0%
[Total (11)]		

Statistics	Value
Response Count	11
Response Ratio	22%
Mean	4.27
Median	5.00
Mode	5
Standard Deviation	1.74

How difficult did you find this course?

How difficult did you find this course?

Options	Score	Count	Percentage		Statistics	Value
Very Difficult	5	0	0%		Response Ratio	24%
Difficult	4	4	33%		Mean	3.33
Moderate	3	8	67%		Median	3.00
Easy	2	0	0%		Standard Deviation	0.49
Very Easy	1	0	0%			

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

Options	Count
Elective	5
Concentration or Department Requirement	7
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?

How strongly would you recommend this course to your peers?
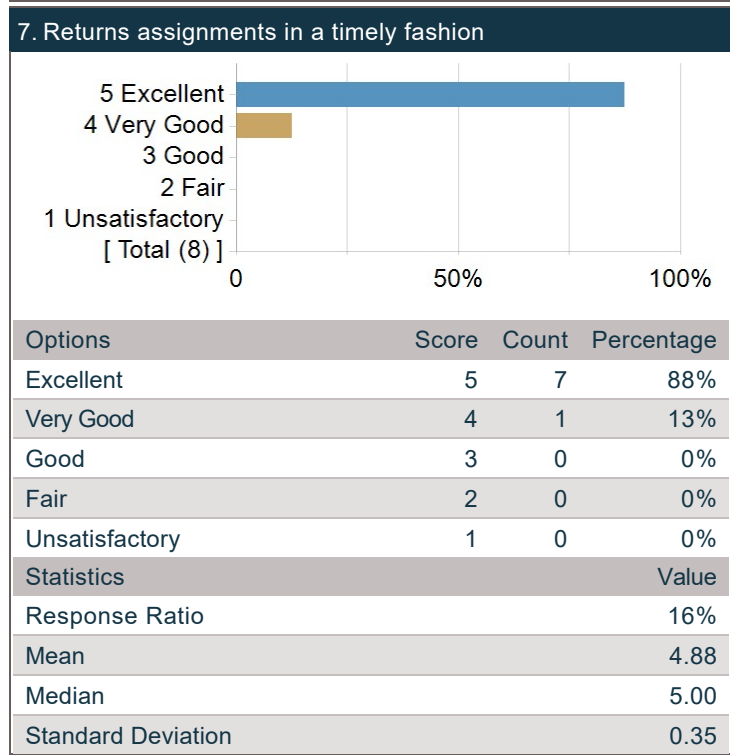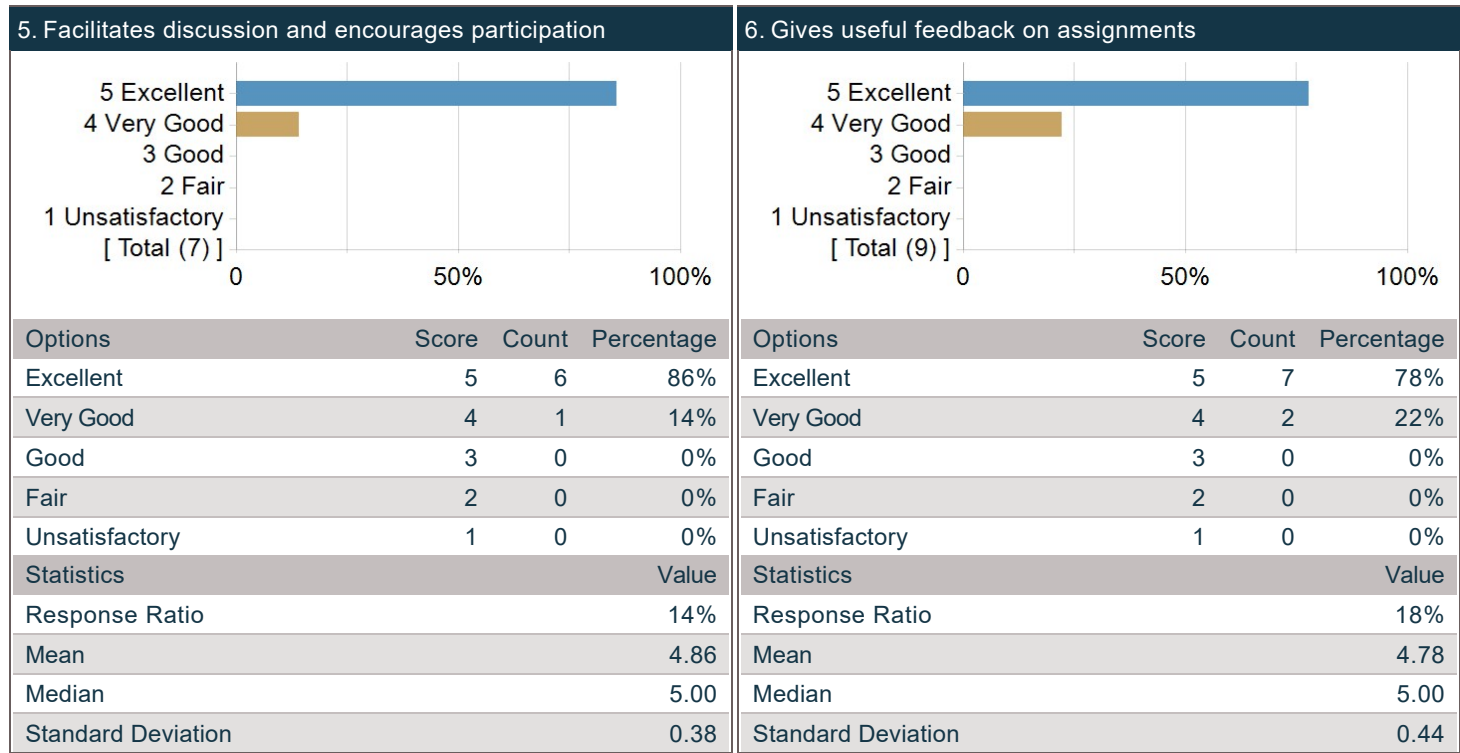
Options	Score	Count	Percentage	Statistics	Value
Recommend with Enthusiasm	5	9	75%	Response Ratio	24%
Likely to Recommend	4	2	17%	Mean	4.67
Recommend with Reservations	3	1	8%	Median	5.00
Unlikely to Recommend	2	0	0%	Standard Deviation	0.65
Definitely not Recommend	1	0	0%		
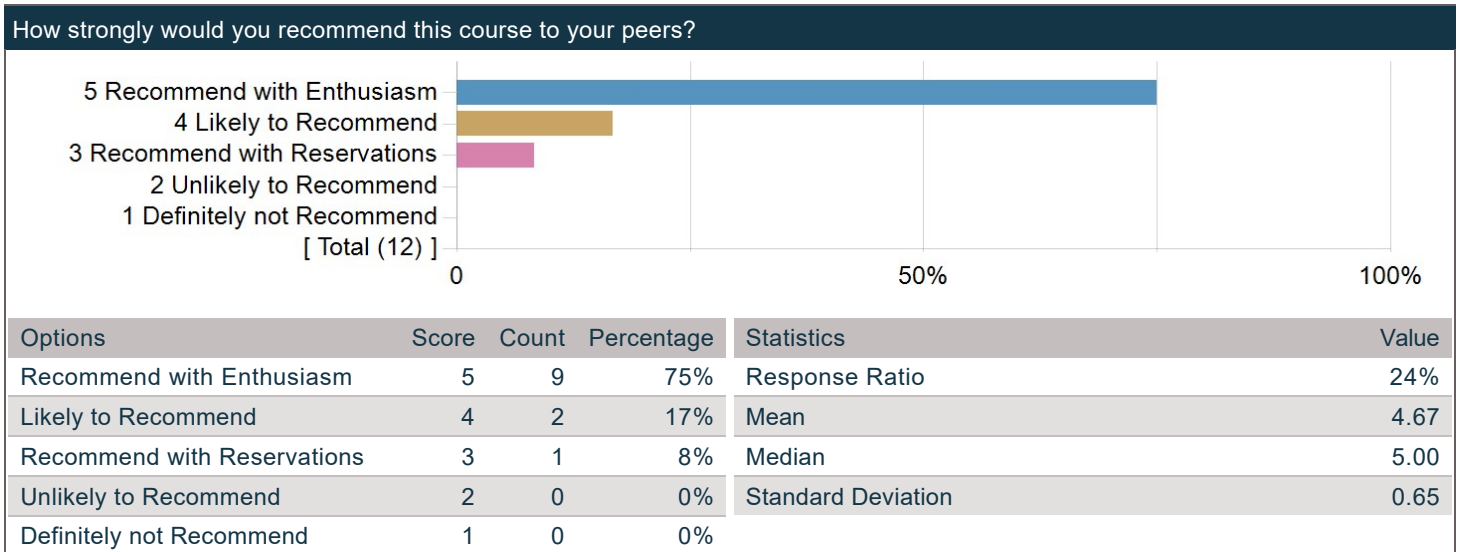
Evaluation of Instructors

General Instructor Questions

	Count	Excellent	Very Good	Good	Fair	Unsatisfactory	Instructor Mean	Dept Mean	Division Mean
Evaluate your Instructor overall.	13	85%	15%	0%	0%	0%	4.85	4.24	4.46
Gives effective lectures or presentations, if applicable	13	92%	0%	8%	0%	0%	4.85	4.03	4.33
Is accessible outside of class (including after class, office hours, e-mail, etc.)	12	100%	0%	0%	0%	0%	5.00	4.44	4.49
Generates enthusiasm for the subject matter	13	100%	0%	0%	0%	0%	5.00	4.43	4.53
Facilitates discussion and encourages participation	7	86%	14%	0%	0%	0%	4.86	4.38	4.48
Gives useful feedback on assignments	9	78%	22%	0%	0%	0%	4.78	4.21	4.45
Returns assignments in a timely fashion	8	88%	13%	0%	0%	0%	4.88	4.15	4.45

Instructor

1. Evaluate your Instructor overall.

Options	Score	Count	Percentage
Excellent	5	11	85%
Very Good	4	2	15%
Good	3	0	0%
Fair	2	0	0%
Unsatisfactory	1	0	0%
Statistics			Value
Response Ratio			26%
Mean			4.85
Median			5.00
Standard Deviation			0.38

2. Gives effective lectures or presentations, if applicable

Options	Score	Count	Percentage
Excellent	5	12	92%
Very Good	4	0	0%
Good	3	1	8%
Fair	2	0	0%
Unsatisfactory	1	0	0%
Statistics			Value
Response Ratio			26%
Mean			4.85
Median			5.00
Standard Deviation			0.55

3. Is accessible outside of class (including after class, office hours, e-mail, etc.)

Options	Score	Count	Percentage
Excellent	5	12	100%
Very Good	4	0	0%
Good	3	0	0%
Fair	2	0	0%
Unsatisfactory	1	0	0%
Statistics			Value
Response Ratio			24%
Mean			5.00
Median			5.00
Standard Deviation			0.00

4. Generates enthusiasm for the subject matter

Options	Score	Count	Percentage
Excellent	5	13	100%
Very Good	4	0	0%
Good	3	0	0%
Fair	2	0	0%
Unsatisfactory	1	0	0%
Statistics			Value
Response Ratio			26%
Mean			5.00
Median			5.00
Standard Deviation			0.00

5. Facilitates discussion and encourages participation

Options	Score	Count	Percentage
Excellent	5	6	86%
Very Good	4	1	14%
Good	3	0	0%
Fair	2	0	0%
Unsatisfactory	1	0	0%

Statistics	Value
Response Ratio	14%
Mean	4.86
Median	5.00
Standard Deviation	0.38

6. Gives useful feedback on assignments

Options	Score	Count	Percentage
Excellent	5	7	78%
Very Good	4	2	22%
Good	3	0	0%
Fair	2	0	0%
Unsatisfactory	1	0	0%

Statistics	Value
Response Ratio	18%
Mean	4.78
Median	5.00
Standard Deviation	0.44

7. Returns assignments in a timely fashion

Options	Score	Count	Percentage
Excellent	5	7	88%
Very Good	4	1	13%
Good	3	0	0%
Fair	2	0	0%
Unsatisfactory	1	0	0%

Statistics	Value
Response Ratio	16%
Mean	4.88
Median	5.00
Standard Deviation	0.35

GSAS Module Questions

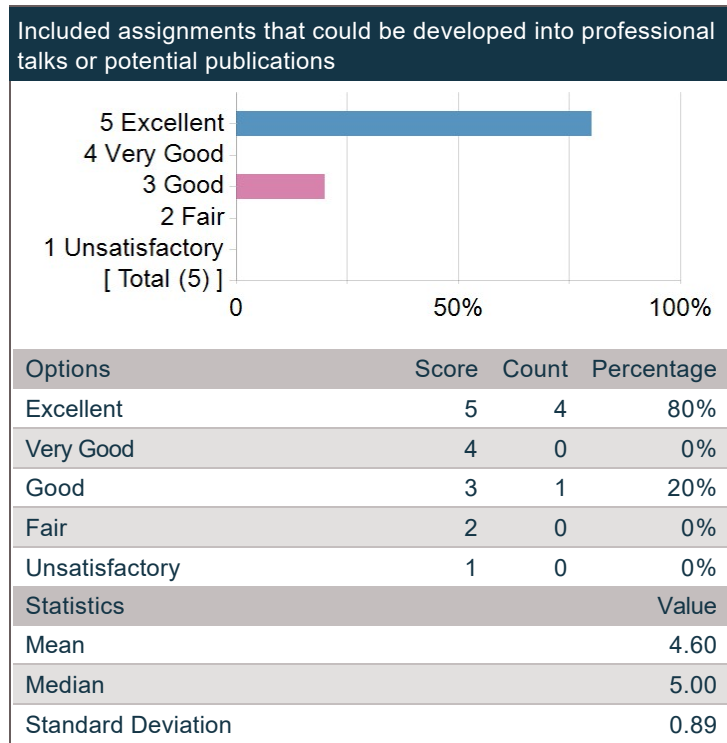### Included discussion or assignments that pointed to a potential dissertation topic, or, in the sciences, a potential research lab
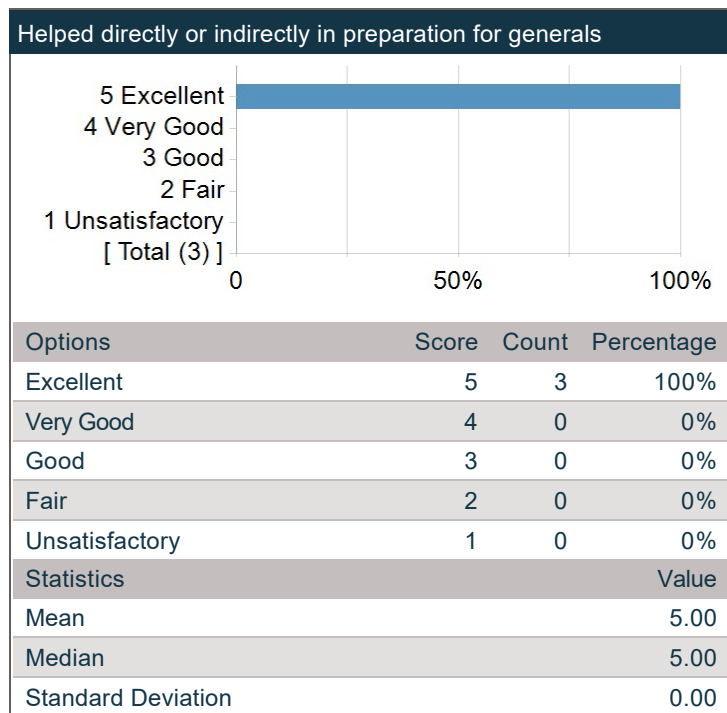
Included discussion or assignments that pointed to a potential dissertation topic, or, in the sciences, a potential research lab

Options	Score	Count	Percentage
Excellent	5	4	100%
Very Good	4	0	0%
Good	3	0	0%
Fair	2	0	0%
Unsatisfactory	1	0	0%
Statistics			Value
Mean			5.00
Median			5.00
Standard Deviation			0.00
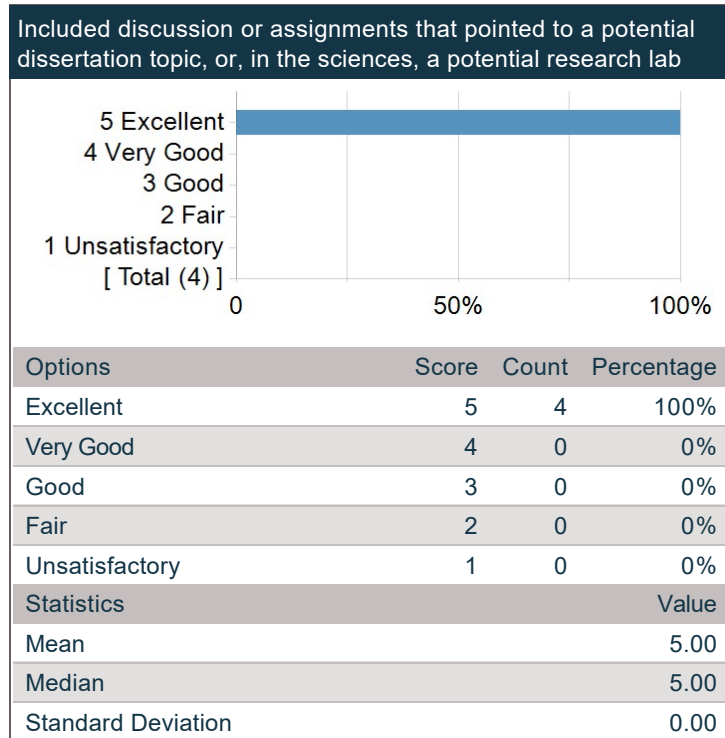
Included assignments that helped to develop necessary research skills for a potential dissertation topic

Included assignments that helped to develop necessary research skills for a potential dissertation topic

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

Included assignments that could be developed into professional talks or potential publications

Included assignments that could be developed into professional talks or potential publications

Options	Score	Count	Percentage
Excellent	5	4	80%
Very Good	4	0	0%
Good	3	1	20%
Fair	2	0	0%
Unsatisfactory	1	0	0%
Statistics			Value
Mean			4.60
Median			5.00
Standard Deviation			0.89

Helped directly or indirectly in preparation for generals

Helped directly or indirectly in preparation for generals

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

Comment on aspects of the course as they relate to professional development, including preparation for future teaching.

Comments
Very good, one could write up expository work as a grading scheme in the class and get feedback on it which I think is great

General Course Questions - Comments

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

Comments
This course covered a broad range of topics and allowed students to see connections between a wide range of mathematical disciplines.
The topic is hugely interesting. The teaching is down–to–earth and effective. Topological modular forms link algebra, topology, and analysis in a really sophisticated way, and yet this topic is taught in a way accessible to beginning grad students. Also, the lecture notes for the class are maintained really well, they helped me understand the material when I couldn't follow in class or when I missed lectures.
This course was a unique glimpse at the intersection of physics, algebraic geometry, and homotopy theory.
This course/the instructor did a wonderful job of giving an overview of the discovery/construction of TMF and did a good job of catering to the many different backgrounds of people in the class.

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

Comments
The course seemed to be very uneven in terms of its prerequisites and the choice of topics––one day we were talking about the moduli stack of elliptic curves and another day reviewing the fundamentals of algebraic varieties, and I am very skeptical that it is possible to design a course that can successfully does both.
I would make the description of relevant background more clear, indicating in particular that "topology" includes not just point–set topology, but also cohomology. I would also make the meeting time somewhat later than 9:00am.

Requirements Comments - What did this course require of you?

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

Comments
Some mathematical maturity and a willingness to learn new topics. Familiarity with the fundamentals of algebraic topology and algebraic geometry is essential.
1. Algebra (group theory, ring theory) 2. Topology (manifolds, cohomology, homotopy) 3. Analysis (complex derivatives)
General math background and experience with the field
Some exposure to homotopy theory and algebraic geometry. A background in physics is good, but not necessary.

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 got exposed to some very modern mathematics, which helped me in finding my future direction of research.
Homotopy theory isn't that scary I guess. The course broadened my appreciation of mathematics to a subfield I'd previously not thought much about
This course was an excellent survey of the interconnectedness of math, and it gave a glimpse into the many active areas of research. Dr. McKean did a great job motivating everything and pointing us to places we could read more about a particular topic.
I learned very useful material, but also the thing I got the most out of this course is the lecture notes and the style of exposition.

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

Comments
Take anything Stephen is teaching!! He cares so deeply about his students and their experience, and will love to talk to you about anything you're interested in!
A fantastic class taught by a great teacher. I'd recommend.
I highly recommend taking this class, even if you don't think you have all the prerequisites! Knowledge in one field is very transferrable, and you'll learn a lot along the way.
This is a topics course (so it probably will not be offered for a long time), but it is a very good one.

Instructor Comments

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

Comments
Stephen is a great lecturer. His lectures are fun and engaging, and he motivates the topics very well.
The subject is taught in an "active" way, not as a frozen textbook discipline but as something that invites exploration.
Very good! No complaints. A very personable teacher which I find helps me learn
Dr. McKean gives effective lectures by using examples to clarify abstract definitions and results as well as pointing out potential applications and connections. He is great at encouraging participation and a discussion during the class.
If a class is taught by McKean, just take it.
Prof. McKean did a wonderful job motivating the different parts of the subject and
Very very good teaching (one of the best in the math department).