

Online Course Evaluations

2018-Spring

Instructor Primary
MATH 231 01
VectorCalculus&LinearAlgebraII

Q:

Summarize the strengths and weaknesses of the instructor. In what ways was their teaching effective and in what ways could their teaching be improved?

(Your anonymous response to this question may be viewed only by your instructor(s) and administrators responsible for evaluating teaching.)

Responses:

Instructor: Patrick Devlin

Pat is great!

Instructor: Patrick Devlin

Pat's the best. Nice, approachable, always there to just chat about anything, really cares about the course, about improving, and about you. I think with a bit more experience, more run-throughs of the course to perfect the syllabus, Pat can/will make this an *amazing* intro to MATH.

Instructor: Patrick Devlin

I am, at this point, convinced that Prof. Devlin, or Pat, as he strongly prefers to be called, may one day be remembered as one of the greatest instructors in the history of Yale College. He is approachable, kind, empathizing, and clear. This has become overwhelmingly evident in the past couple of months. His lectures assemble an astounding collection of mathematical knowledge into a neat and straightforward structure. I've seldom seen a professor more determined to make a difference in the lives of his students. This is his first year as a professor, and his enthusiasm is remarkable. He has rapidly learned from his mistakes and adjusted the course to provide an optimal and welcoming learning environment. His record, ultimately, I think, speaks for itself.

Instructor: Patrick Devlin

Pat was enthusiastic and in love with the material, which was awesome, and he brought a lot of energy to the class. He catered too much to the feedback he received from other students, however, and consequently lost a lot of momentum teaching. The material in 231 felt scattered and unclear, and I wish he had given more thought to how to present it, and perhaps not followed the textbook, as our textbook kind of sucked. I didn't really enjoy 231, which was a bummer, so I hope he can improve in the future.

Instructor: Patrick Devlin

Pat is a phenomenal teacher. He's helpful, patient and boosts the confidence of those who feel they're not good enough at math to be in a class at this level. He tries to make it clear that math truly is accessible to anyone. His lectures are sometimes a little disorganized but he truly cares and is super helpful.

Instructor: Patrick Devlin

Pat is phenomenally stimulating in lecture - to a great extent because he has the knowledge and willingness to be flexible with lesson plans - and available outside of lecture.

Instructor: Patrick Devlin

Pat is fantastic. He is a great teacher, encouraging, and so dedicated to his students. He's been one of the best parts of my semester.

Instructor: Patrick Devlin

Professor Devlin is all-around wonderful: knowledgeable, approachable, and great at motivating students to learn more.

Instructor: Patrick Devlin

Pat cares so much about his students. I felt welcome in the math department, and he understands the presence of marginalized populations in the mathematics community and always is so inclusive and welcoming to all students. Besides character, Pat is great at answering pointed questions about problems we are working on, and never gives too much away which I appreciate because self-discovery is very important in comprehension of the material in this course.

Instructor: Patrick Devlin

Pat is probably the most involved and caring professors I have come across at Yale. He did his best to make sure everyone would continue with the class and feel as comfortable as possible. His goal was to challenge us but not to overwhelm us. He is a great person who made this class worth it!

Instructor: Patrick Devlin

-very nice and approachable -directly invested in every student's success -fair grader -truly excited about the subject matters and it shows -inspiring yet down-to-earth -sometimes a little too lenient

Instructor: Patrick Devlin

Pat was a great instructor. He is fun and energetic. You can really get to know Pat since he is frequently helping students in the Math Lounge. His Midterms have no time limit, which is dope for math.

Instructor: Patrick Devlin

Pat is super friendly and he cares about his students. His psets always have a method to their madness. His exams were very manageable. Lectures were however often confusing and the examples, definitions, and structure often felt too improvised.

Instructor: Patrick Devlin

Strength: passionate, dedicated, chill, friendly, sensible professor

Instructor: Patrick Devlin

Pat is the best professor I've had at Yale so far! He cares so so much not only about the material but about all of his students as mathematicians and as humans. He wants all of us to succeed and will spend lots of time helping you to make sure you understand the material or finish off that late night pset. He is really energetic in class, although sometimes a little scatterbrained, and is very available outside class. Pat is so easy to build a great relationship with and I love how invested he is in increasing diversity and inclusivity in the math department.

Instructor: Patrick Devlin

It could be done that he stayed more on track with the curriculum and wasn't as buddy-buddy with the students. It seemed like side conversations, tangents and etc. took up too much time and effort in the class when it could have been used learning what the course is designed to teach.

Instructor: Patrick Devlin

Pat is a teacher that is devoted to making sure that his students learn, and all of the TA's helped him achieve that as well. As for weaknesses, I guess sometimes he dives into complex topics (especially combinatorics, his specialty) and goes a bit too fast for the general student population to follow.

Instructor: Patrick Devlin

Strengths- is so fun in class, really engages with the students instead of talking to us. Takes active steps (more than any other professor I've had, even in a seminar) to make sure that all the students are up to speed and don't feel left behind. Weaknesses- honestly, nothing I can think of. Love Pat to the moon and back.

Instructor: Patrick Devlin

Pat was an awesome professor! He genuinely cares so much about his students and is always really fun and encouraging to talk to. I thought for most of part, his teaching was really clear and I got a lot out of his lectures. Sometimes he would have to rush at the end of the class to finish a proof, so I think everyone would be a little confused, but only happened for a couple of days. I also really liked the new things he implemented second semester, such as the optional problems on psets and the class notes/past solutions posts on Piazza.

Instructor: Patrick Devlin

Pat really cares about student learning and is a very great teacher, but not a great course planner.

Instructor: Patrick Devlin

Strengths: Everything really? Pat's the best teacher I've ever had. He's the kind of teacher that made me say "Damn, I'm really glad I chose to come to Yale because I got to take a class from him!" He is dedicated beyond belief to his students (I can't imagine how many hours he's put in over just this semester to creating lessons, writing psets and tests, and grading exams), and he really wants to help us as mathematicians and as people. He live grades tests for us. That's crazy, in a very good way. He is always open to talking about anything, and he makes himself available to us at almost all hours of

the day. If you can think of a metric by which to evaluate teachers, Pat excels in that metric. Weaknesses: I would have liked it very much if Pat had provided LaTeX'd notes for the course so that we could follow along with him more. It makes sense that this didn't happen, since this was his first time teaching, but in the future I think having a good set of notes goes a long way to helping students understand topics, since if we get confused in lecture, the only thing we have to go on later is our notes, and if I didn't understand it when I was writing it down, whatever I wrote won't help me understand it later on.

Instructor: Patrick Devlin

Pat Devlin is a great professor. He makes a huge effort to create a classroom community that is welcoming to everyone. I was sad to see him give so little time to differential forms (a topic he skimmed because it is not as interesting to him, which I think is a horrible reason to half ass a topic - I was excited for this topic and sad to see so little of it). It was also unfortunate when, during bulldog days, he wasted our second to last class to present topics he thought would be interesting to the high school seniors. Frankly, this was disrespectful to his own students, and was quite frustrating.

Instructor: Patrick Devlin

very engaged and cares immensely about his students

Instructor: Patrick Devlin

I thought Pat was very high-energy and engaging as a lecturer and teacher. He made math fun for me, and definitely made going to class very enjoyable. I thought that the teaching was effective, and enjoyed how casual the lecture setting was.

Instructor: Patrick Devlin

He's the best. No doubt.

Instructor: Patrick Devlin

Pat was great, always kept class interesting and was super helpful when we struggled with concepts. I think at times he couldve been a little better organized, because some lectures we didnt cover all the material we needed to. But still very good overall.

Instructor: Patrick Devlin

Very understanding and nice person, approachable, knowledgeable, and passionate about what he does.

Instructor: Patrick Devlin

Extremely accessible to students, which makes it very easy for students who have questions to clarify any issues.

Instructor: Patrick Devlin

Pat was an amazing professor. He was always trying his best to encourage and nurture his students and give them the best possible exposure to math that he could. He clearly put a ton of time and effort into teaching and cares very much about showing students the beauty of math. Towards the end of second semester he became a little bit disorganized and his explanations became a little less clear, but overall he was a phenomenal professor.

Instructor: Patrick Devlin

Strengths: Brilliant, Amazing Professor, Devoted, Great PSets, Emphasis on actual learning, great use of online resources such as Piazza, nice guy, funny, helpful in and out of the classroom, math lounge guru Weaknesses: I preferred the first semester notes scheme, where he would post his own notes. They were much easier to review.

Instructor: Patrick Devlin

Really loved math. Incredibly enthusiastic. All around great guy. Always in the math lounge ready to help students. Pat was the best part of the course.

Instructor: Patrick Devlin

Pat is very enthusiastic and always willing to stick around and talk about math with a student or have a conversation to help their understanding. I would've found it helpful to have more structured guidance throughout the semester, especially when it came to preparing for exams. In other courses, review sessions were a summary of content and emphasis on exam-relevant material that was covered in the course, and we were given practice tests/tests from previous years. Both of these would have been helpful in giving me an idea of what to expect and being able to perform better.

Instructor: Patrick Devlin

Strengths: Very friendly, approachable. Cares about his students and explains things well.

Weaknesses: Lectures sometimes seemed a bit disorganized.

Instructor: Patrick Devlin

YES Pat is great!

Decline to Answer

Instructor: Patrick Devlin: 13

Online Course Evaluation

EVAL SUMMARY

[view by respondent](#)

[view by question](#)

[respond to evaluation](#)

EVALUATION SUMMARY

Total Courses: 4
 ENROLLED: 55
 RESPONSES: 47
 DECLINED: 3
 NO RESPONSE: 6

**Patrick Devlin,
 2017-18 Courses.**

	Term	Course	Title	Enrolled	Role
1	2018-Spring	MATH 077 01	Math as a Creative Art	15	INP
2	2018-Spring	MATH 231 01	VectorCalculus&LinearAlgebraII	55	INP
3	2017-Fall	MATH 230 01	VectorCalculus&LinearAlgebra I	63	INP
4	2017-Fall	MATH 199 01	Mathematical Problem Solving	46	INP

Course Overall: 4.2

Primary Dept: MATH

Primary Div: Sciences

Export to PDF

Graph view:

Area

Q:

Your level of engagement with the course was:

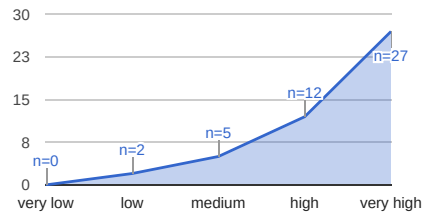
(Your anonymous response to this question may be viewed by Yale College students, faculty, and advisers to aid in course selection and evaluating teaching.)

Declined to Answer:1
 Average Rating:4.4*

Instructor: Patrick Devlin

Average and Standard Deviation

Course	Dept	Div	School
4.4 ±0.9	3.7 ±1.1	3.7 ±1.0	3.8 ±1.0



Q:

What is your overall assessment of this course?

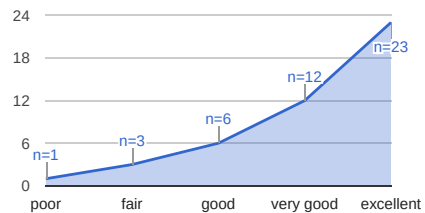
(Your anonymous response to this question may be viewed by Yale College students, faculty, and advisers to aid in course selection and evaluating teaching.)

Declined to Answer:2
 Average Rating:4.2

Instructor: Patrick Devlin

Average and Standard Deviation

Course	Dept	Div	School
4.2 ±1.1	3.4 ±1.3	3.3 ±1.2	3.8 ±1.1



Q:

The course was well organized to facilitate student learning.

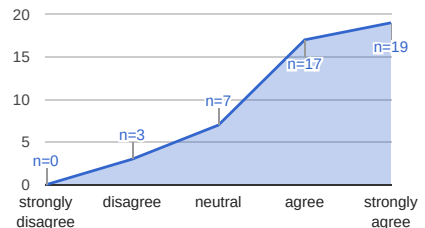
(Your anonymous response to this question may be viewed by Yale College students, faculty, and advisers to aid in course selection and evaluating teaching.)

Declined to Answer:1
 Average Rating:4.1*

Instructor: Patrick Devlin

Average and Standard Deviation

Course	Dept	Div	School
4.1 ±0.9	3.7 ±1.2	3.5 ±1.2	3.9 ±1.0



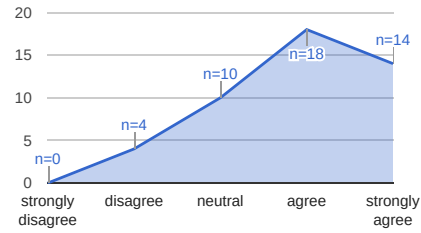
Q:
I received clear feedback that improved my learning.

Instructor: Patrick Devlin

(Your anonymous response to this question may be viewed by Yale College students, faculty, and advisers to aid in course selection and evaluating teaching.)

Average and Standard Deviation

Course	Dept	Div	School
3.9 ±0.9	3.4 ±1.2	3.4 ±1.2	3.7 ±1.1



Declined to Answer:1
Average Rating:3.9*

Q:
Relative to other courses you have taken at Yale, the level of intellectual challenge of this course was:

Instructor: Patrick Devlin

(Your anonymous response to this question may be viewed by Yale College students, faculty, and advisers to aid in course selection and evaluating teaching.)

Average and Standard Deviation

Course	Dept	Div	School
4.5 ±0.7	3.7 ±1.0	3.5 ±1.0	3.3 ±0.9



Declined to Answer:1
Average Rating:4.5*

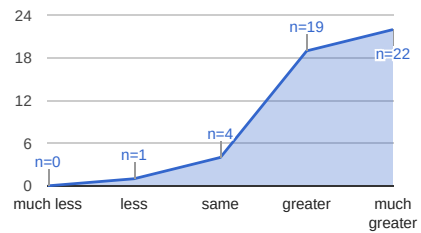
Q:
Relative to other courses you have taken at Yale, the workload of this course was:

Instructor: Patrick Devlin

(Your anonymous response to this question may be viewed by Yale College students, faculty, and advisers to aid in course selection and evaluating teaching.)

Average and Standard Deviation

Course	Dept	Div	School
4.3 ±0.7	3.5 ±1.0	3.3 ±1.0	3.1 ±1.0



Declined to Answer:1
Average Rating:4.3*

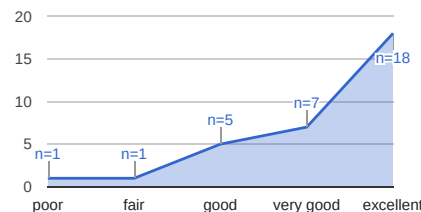
Q:
What is your overall assessment of the Teaching Fellow?

Instructor: Louis Max Brown

(Your anonymous response to this question may be viewed only by your instructor(s), your teaching assistant, and administrators responsible for evaluating teaching.)

Average and Standard Deviation

Course	Dept	Div	School
4.3 ±1.0	3.7 ±1.1	4.0 ±1.1	4.1 ±1.0



Declined to Answer:0
Average Rating:4.3*

* Question is excluded from Course Overall Rating.



Online Course Evaluations

2018-Spring

Instructor Primary
MATH 231 01
VectorCalculus&LinearAlgebraII

Q:

What knowledge, skills, and insights did you develop by taking this course?

(Your anonymous response to this question may be viewed by Yale College students, faculty, and advisers to aid in course selection and evaluating teaching.)

Responses:

Linear algebra, multi-variable calculus, whatever Pat likes. Proof based math, arguing from definitions that may seem weird.

Knowledge: the foundations of linear algebra, multivariable calculus, and other fields of math such as number theory, discrete math, topology Skills: how to write proofs! Insights: I like theoretical math; the way it works my brain makes my brain happy

Continuing the linear algebra from 230 and getting into calculus, though not the same calc as in 120: more focus on integration techniques/manifolds

This course builds on the linear algebra and real analysis introduced in MATH 230, in order to

construct and develop vector calculus. In the beginning of the term, the study of linear algebra, almost complete from MATH 230, is properly finished. Then, the course turns to the derivative operator and discusses multivariable calculus. You will learn integration and differentiation in Euclidean space, the inverse and implicit function theorems, and then, in the final few weeks, an introduction to differential geometry, namely calculus on manifolds and differential forms. The course, above all other things, teaches you to love math, for its beauty, for its simplicity, and for its necessity. It also teaches you that, regardless of your preparation prior to the course, you really can do well in college mathematics. It builds confidence. It assumes you know nothing and shows you that you can learn everything. Even if you missed MATH 230, if you have studied something similar (like MATH 225), I would strongly recommend you consider taking MATH 231, on the basis of my experience in this course. You'll continue to learn how to prove things. You'll learn how to recognize truth and the various roads to it. This is a cool course. You should give it a try. Or at least, you should talk to the instructor.

It would be a huge understatement to say we learned "Vector Calculus and Linear Algebra". This class is an intro to the world of pure mathematics, and you pretty much learn a bit about everything (ex. Topology, graph theory, real analysis, etc.). Super fun class.

I developed not only skills in linear algebra and vector calculus, but also discrete, topology, analysis and graph theory. This class gave me the opportunity to experience a wide range of mathematical topics.

I built on a solid foundation in vector calculus and linear algebra, but I was exposed to so much more than that. This class showed me how much further math goes than I knew previously.

I learned a ton about how to think about higher math, how to write proofs, and how to persevere through hard problems.

Most importantly, I continued to develop my proof-writing skills in this course. Besides this, I learned a great deal of important mathematics that will be important to future courses & work here in

math. This course also forced me to learn good time-management skills in terms of long-term assignments due to its demanding courseload.

Math 230 and 231 was definitely an all encompassing class and the problem sets are a lot of work but also mean that you end up learning so much. My proof writing skills, my ability to just do math were definitely improved in this class.

-how to think like a mathematician -an appreciation for math & proofs -integrated into the Yale math community -linear algebra and vector calc

I learned how to write rigorous proofs. Really brought my level of math up. Despite the course name, we actually do a lot of higher mathematics like analysis.

I learned how to do legit Math. More importantly, I learned how to like Math.

So much more in depth knowledge about the underlying principles of multivariable calculus! Also some additional cool linear algebra concepts that connected everything we'd learned first semester.

More of the same from the previous semester; learning calculus from first principles and expanding on linear algebra.

231 finishes up what's left of linear algebra from 230 and then goes deep into vector calculus. Of course, this wouldn't be a class taught by Pat if it didn't have any higher level topics sprinkled throughout the course such as topology and combinatorics.

I learned how to write rigorous proofs and how to understand topics like differentiability, integrability, continuity, etc. in a very abstract way. This class is a natural continuation of 230, so if you really liked this semester then you'll also really like this semester. I thought the 231 topics were less new, especially for people who have taken multivariable calculus before, but you get a really solid understanding of it when you come out of the class.

Linear algebra skills, multivariable calculus, proof-writing skills

This knowledge gained in this course can, broadly speaking, be broken down into a few categories: **Mathematical Topics:** In 230/231, you'll cover a wide array of different parts of mathematics. Although the course is billed as Vector Calc and Linear Algebra, that's a far too restrictive name for it. In addition to covering linear algebra (up through Caley-Hamilton, spectral theorem, spectral mapping theorem, diagonalizability, Schur decomposition, Gram-Schmidt and projections, inner product spaces, Hessian matrices, rank-nullity, so much else, and vector calculus (div, grad, curl and all that, total and partial differentiability, Lagrange multipliers, Darboux integration, the FTC and Stoke's/Green's/Div theorems [everything covered in MATH 120]), you'll also cover topics in Analysis (Banach/Brouwer fixed point theorems, compactness, measure theory, Taylor series & analytic functions, uniform and pointwise convergence applications, contractions, integration on manifolds, differential forms, parameterizations and more), Topology (topological spaces, homeomorphisms, manifolds, orientability), Graph Theory (Moore graphs, adjacency matrices, random walks, coloring), Discrete Math & Computer Science (probabilistic combinatorics, proof of the central limit theorem, random matrices), Number Theory, and a lot I'm probably forgetting. You'll walk away with a good introductory background in so many different areas of math, and a really solid foundation in Calc, Linear Algebra, and Real Analysis. **Mathematical Maturity:** For most people, 231 is the second time they've ever constructed proofs (230 being the first). Whereas in 230, the goal was usually "prove in sufficient detail why this topic is true", in 231 it becomes "Look at all these tools we've already built! What can we build with them? What do they imply?" You'll learn to cover new topics faster and to make connections across different areas of knowledge to see why theorems are

true. 231 gives students the chance to see how mathematicians work. This will involve hitting walls with your understanding and pushing through, which is very valuable. Work Ethic: This isn't an easy course. You will spend many, many hours over the course of the semester working on psets and studying for exams. At the beginning of 230, I spent far longer on psets than I did at the end of 231 (several hours every day vs several hours on one or two days), which is largely a result of 1) getting better at math, and 2) getting better about working smarter rather than just harder (hard work is still very much required). This class teaches you how to balance a hard workload, and it also teaches you how to work collaboratively. If you finish this course without having spent a lot of time in the math lounge working with other people, you've sorely missed out. This is not a "go it along, every man for himself" kind of deal. You will form great friendships with the people you work on psets with, and you learn how to bounce ideas off of one another. Finally, this course gives you a real appreciation for math in general. It is a good exposure to what the rest of the math major will entail, and you'll meet upperclassmen, graduates, and professors who will all help you through the course of it. For many, this is the first time we encounter real math, instead of just computation.

I learned more about linear algebra and multivariable calculus, as well as a multitude of other fields in mathematics.

I gained a deeper understanding of vector calculus with a bit more theory than I knew before. I also reviewed and strengthened my linear algebra skills.

I developed a lot of proof-writing skills as well as persistence when solving problems. I also learned how to do math with others, and do collaborate effectively. I learned the basics of analysis, which I found very rewarding, and a lot of linear algebra.

Math skills. Proof skills. Problem solving.

Lots of proof based math, linear algebra and analysis and some topology. Also collaboration skills,

working with friends on difficult problem sets.

Linear algebra, proof-writing, integration

Ideas in vector calculus and proofs

I gained a tremendous amount of skill in coming up with and writing mathematical proofs, and knowledge of the basic tenants of analysis, topology, linear algebra, and other important branches of math.

Vector Calculus, Real Analysis, Complex Analysis, Linear Algebra, Topology, Number Theory, Graph Theory, etc. Amazing Introductory Proof Class

I improved my proof-writing skills and I learned more about linear algebra and analysis.

I don't know how to begin explaining how much I have learned in this course (230/231). Like many

of my classmates, this sequence was my first experience with real proof-based math. In many ways, it throws you into the water and challenges you to learn how to swim but in light of this, Pat is very devoted to his students, and was really good about offering various forms of support and guidance. As a result, I see math in an entirely different light than before 230/231. We certainly learned a lot of content, from linear algebra to analysis to many many other random tidbits; however, more importantly, I feel like I have grown significantly as a problem-solver and mathematician. I think this sequence offers a really powerful foundation of knowledge and skills to tackle all sorts of math problems.

YES Pat is great!

Decline to Answer

16

Online Course Evaluations

2018-Spring

Instructor Primary
MATH 231 01
VectorCalculus&LinearAlgebraII

Q:

What are the strengths and weaknesses of this course and how could it be improved?

(Your anonymous response to this question may be viewed by Yale College students, faculty, and advisers to aid in course selection and evaluating teaching.)

Responses:

Great course. Fun problems. But difficult. Expect to spend time.

Instructor was GREEEEAAAT!!! Love Pat. Fantastic job building community too; even as a bit of an outsider to math (not majoring in it), it was accessible and everybody was welcoming. The planning of the course (i.e. sequence in which topics unfold) could've been planned out a little better, stronger connections between topics made.

This course is among the best I have taken at Yale College. It is a community. The problem set structure keeps you engaged and develops the ideas presented in lecture far beyond their immediate scope. Assessments, meanwhile, tended to carefully follow the textbook, the lectures, and the syllabus. This balance is important for illustrating both the generality and expansive nature of mathematics, while also keeping the course focused. The instructor's goal, I feel, was to use problem sets to show us how interconnected mathematics is. Problem sets drew questions from across the various disciplines within mathematics, but were always tied together by the topic presented in lecture. Homework assignments were self-contained in this regard: you learned on the problem sets and what you learned was for its own sake. These assignments helped explain how incredibly general and powerful the ideas presented in lecture actually are. This system was a great strength of the class.

The linear algebra felt scattered, especially in 230, but Pat recovered in 231 with the linear algebra. Everything after that, however, felt disorganized and scatter brained, and poorly presented. I didn't get nearly as much out of 231 as I did 230, and I wish he hadn't changed his teaching style so dramatically from 230. Pat needs to sit down and reconceptualize how to teach 231 (as well as start linear algebra in 230) so that next year is better and clearer.

The course was rigorous but also enjoyable. The workload is a lot which can be overwhelming and stressful but it is most definitely worth it.

I loved the flexibility in the curriculum, though that might work for everyone or with other professors. But I enjoyed that Pat felt comfortable enough to explore mathematical tangents with us if they arose.

The pace of this course, the rigor, and the assignment structure and content are all strengths. I felt prepared for everything that came up, and I feel like the assignments helped me digest the material. I feel like the course might've been paced a little better. It felt like the information at the end was kind of crammed in.

One strength of this course is the well-developed support system available to students in terms of peer tutor groups, a teaching fellow, and a very available professor. One weakness of this course, however, is the lack of student idea development in class. I feel as if in an effort to cover a huge amount of material, we weren't given a lot of time in class to fully comprehend & follow the material being presented in class sometimes.

I think the one thing this class could benefit from is a little more organisation. Sometimes I felt a little lost with where we were material wise and I felt like we were jumping from topic to topic.

-very well structured, especially for first-years -great professor who cares about his students -very fair grading system -sometimes kind of went all over the place -office hours were always during one of my other commitments

It was a very well done course. I liked the collaboration.

The course was a bit disorganized, but overall it introduced me to a lot of cool topics related to calculus, analysis, and linear algebra mainly but also graph theory, probability, discrete math, and number theory. My understanding of mathematics as a proof-based field expanded greatly

Strength: the absolute best class I've taken so far at Yale. The absolute best Math class I've taken in life. Weakness: sometimes it seems that the class is a little unstructured. But just be patient.

The course is so much fun to be in thanks to Pat's passion and the cool material! Challenging but fun psets, collaborative environment, fair grading. 231 was a bit more disorganized than 230, but in some ways not as hugely taxing, which was nice.

The course could be improved by having a set curriculum and making sure everything is gotten to and taught. Too many times, I believe, there were tangents and diversions that took away from the necessary learning aspects.

This class was overall very enjoyable and challenging, and I definitely grew much more as a mathematician in this class than I have ever before. This class teaches you how to write rigorous proofs and how to think about interesting problems in an abstract way. Pat does a fantastic job of making sure all of his students are on the right track.

231 lost a lot of focus it seemed. Sometimes showing up to class was not worth it. We seemed to take a 4-week long tangent from the material in the course, and occasionally what we were doing in class had nothing to do with the problem sets.

The strengths of the course are numerous. It is a really fun course, even though it is hard work, so I felt very encouraged to continue working hard and learning more as the semester went on. I love how much ground we cover in just two semesters (really it's impossible to describe this course without bringing in 230), and I'm so glad this course goes beyond just "Vector Calculus and Linear Algebra". The collaborative nature of the course is fantastic; the math lounge is a great environment and the fact that we are encouraged to work together rather than alone is one of the best features of this class. Weaknesses: The course would benefit greatly from some continuity from year to year. Because this was Devlin's first time teaching it, we had to start from ground zero in figuring out what was going to be taught when. Although the progression of the course was great, it would have been nice to know what topics we would cover from week to week. If at all possible, it would be fantastic to have a single tenured faculty member always teach this course, since it would provide so much clarity and stability from year to year. Additionally, the lack of instructor provided notes made it difficult to really follow along, and the fact that the textbook was accessory to the course rather than an integral part didn't help (to be clear, I'm not advocating for a stricter following of the textbook at all, just that having notes would mitigate the need for one; the creative freedom given to the instructor is absolutely necessary to making this course great). I do wish the course was just a bit more rigorous, something comparable to Math 55 @ Harvard or the Intro Honors Analysis sequence at Princeton. While 230/231 teaches us a lot, I can't help but wish I knew more at the end of the year. One step in this direction would be to have more well thought out section, rather than peer-tutor sessions that weren't all that helpful. I think a required section, with fewer students per section, would improve the speed with which we processed the material along with our understanding of it.

Strengths- Pat is such a fun and engaging professor. He makes the class what it is, and I wouldn't have taken it without him Weaknesses- the level at which students enter the class is very different, so in order to keep the class and the psets interesting for everyone, sometimes I feel like he'd toss out information that only some people in the class would understand, or put problems on the pset that would be much easier if you had some other knowledge.

This is a solid introductory math course for well prepared first years. The rigor of the course (and

resulting long problem sets) mean that it is a big time commitment, but the material is never overly challenging.

fun but a little slow

I thought it was an extremely productive class in lectures because Pat was very engaging, and made the class both enjoyable and intellectually stimulating. I can't think of any way the class could be improved.

Pat's the best.

The teacher was great and the material was interesting. I think the lectures were too long this semester though, they take a lot of stamina to keep up with and by the end I was often too frazzled to really learn.

Difficult problem sets are both a strength and a weakness; there should be slightly more focus put into teaching during class. Also, problem set grading and feedback was both slow and unclear.

Good inclusion of material not strictly related to the main focuses of the course. Made everything more interesting.

This course was very engaging and gave me a very accurate picture of what it's like to be a mathematician. It was very challenging but fulfilling. I felt like it became a bit disorganized towards the end but besides that it was superb.

Strengths: Amazing Material, Rigorous, Amazing Professor, Great Problem Sets, Great Student Work Culture (collaboration) Weaknesses: Not the most clear outline of topics or course materials, though we were lucky to have amazing study guides posted before exams.

Pat was fantastic. Course felt a bit disorganized at times.

the course does not have enough structure. the syllabus does not follow a clear path or trajectory, which is important in understanding and learning mathematics, especially as a foundation.

Strengths: Material was generally well taught, lectures engaging, problem sets were effective at reinforcing concepts and were very interesting. Weaknesses: Lectures sometimes could have been better organized, would have been nice if we covered differential forms, Stokes theorem, etc more fully.

Pat is a very dynamic teacher, and along with the TA and peer tutors, all teachers involved were caring and devoted to the students. One great strength of the course is how collaboration is strongly

encouraged the coursework at times is nearly impossible for the average bear if you go at it alone, and working with classmates allows you to learn new ways of thinking creatively and form some lasting friendships in the process. I feel very lucky to have gotten to take 230/231 with Pat; however, I think the progression of material could have been a little bit more smoothly-connected and better-timed. (Lucky for those shopping in 2018-19, as Pat will be back to teach it a second time!) The only other improvement I might consider for the class is a different perspective on linear algebra. A lot of the focus was on matrices (partly due to the way the textbook is laid out, I think), and I wish we had spent more time thinking about things from more intuitive perspectives.

Strengths: Learned really interesting topic in related fields, like probability, number theory, etc; Pat kept the the psets fairly challenging/interesting, which really makes the class much more manageable. Weaknesses: Pat's lectures occasionally end up just being 60 minute proofs which are pretty hard to follow in its entirety

Decline to Answer

14

Online Course Evaluations

2018-Spring

Instructor Primary
MATH 231 01
VectorCalculus&LinearAlgebraII

Q:

Would you recommend this course to another student? Please explain.

(Your anonymous response to this question may be viewed by Yale College students, faculty, and advisers to aid in course selection and evaluating teaching.)

Responses:

YES Pat is great!

Yes! It is a fantastic course (taken with 230) for anyone at all interested in math or the math major. It really helps you discover what you like about math, kicks your ass while you're at it, but you get a lot out of it. :)

Great course to figure out if you really love math or not. Its flavor is very different from high school and more computationally oriented courses. If you're even considering being a math major, its a good course to get into proofs and know if you really want to go through with it.

Yes, without any hesitation. You should take this course, if you're interested in mathematics at all.

This course is the place to be, if you are interested in mathematics, because it really introduces you to so much of the subject. After taking MATH 231, you'll know which parts of mathematics you like. You'll get a great view of the future. The course has amazing support systems. It's a decent amount of work, certainly, but if you're willing to put in the hours, it is not selfish in returning lasting rewards.

Yes, but only after Pat reconsiders how to teach the course. There were flaws, and they need to be addressed (see above).

Yes. Take this class if you want to learn proofs and expose yourself to what the world of higher level math is like. A bit work heavy, but manageable because you can work in groups.

I would highly recommend this course to anyone interested in learning more about math- even if they are unsure about their major or are worried about the difficulty. The class takes a lot of work but it is possible even without background in linear algebra and it's truly an incredible experience.

100% yes. Though it is important to already have a solid mathematical base before taking this course.

Absolutely, but not if the student was not willing to put in the time. The course is very rewarding, but you need to put in the work.

Absolutely. If you are super interested in math, take this course. If you think you're interested in

math, this course will definitely help you make that decision, and if it turns out you are, you'll love it.

Yes, if they are interested in pursuing math and want to test out an intensive course

Yes, especially if the student is interested in math in any way. It's work, but rewarding.

If you want to understand what it means to be a mathematician and you have a strong foundation in multivariable calculus and linear algebra, take it!

A must take. If you are remotely interested in Math, take this class.

YES! Pat is amazing and the material will really push you but he will always be there to help you get through it. Working on psets really forces you to be creative and think everything through but you always have a strong network of support from the TAs and other students. However, don't take it if you don't legit like math - it'll push you to the edge of your desire to study math, so make sure you have that to begin with.

Yes, it's a good introduction to mathematics at a University level.

To a student who wants to be challenged in mathematics, please take this phenomenal course. It will push you to your limits and you will definitely need to reach out to other students or TA's to fulfill each assignment, but that's what makes each assignment enjoyable.

I would certainly recommend this course if a student wanted to pursue an interest in mathematics, or wanted to see if this was a field they wanted to pursue. Especially with Pat, who makes the environment so supportive, this is a really good introduction to the math department.

Yes, I would absolutely recommend this class to another student. This class was very challenging, but you'll get so much out of it if you really try to put in the work and are excited about improving your proof-writing skills. This class convinced me that I wanted to be a math major because I realized I love thinking about and writing proofs (and this was my first proof-based class!). Pat's problem sets are also really flexible; there are only a few required problems each week, and then you can pick and choose the rest of the problems from a list of optional problems. Take this class!!!

I would not recommend this course to another student unless they were already familiar with the material (but then why would they take the course?) or if they had a burning passion for mathematics and truly know what "mathematics" in college is.

Absolutely I would. The three main criteria for this course are 1) Do you (think you) like math? 2) Are you willing to work hard? and 3) Have you at least seen calculus before? If yes, you really, really should take the course. Don't worry too much about "is it too hard" (no) or "am I smart enough" (you are), this course presumes basically zero knowledge of advanced mathematics. As in, you spend the first few weeks proving things like $1 > 0$, and that addition works the way you think it does, and stuff like that. One thing that really differentiates this class from 120 is the sense of community it fosters. I'm really good friends with so many people from this class, by virtue of how well we got to know one another working on psets and the like. It's not uncommon for us all to go out to lunch (Pat comes with us often!) and I had such a good time being in the course. You'll also be really proud of how much you've accomplished over the course of 2 semesters. Looking at the first pset and comparing it

to the last pset is really amazing, and you just learn so so much and develop a good sense of mathematical maturity. Since you've likely already taken 230, you probably know what you're getting in to, so if you enjoyed 230 you should 100% take 231. If you didn't maybe don't, that's okay. Also note that your performance is not necessarily the same between the two; I did far better on the 231 final than on 230 final, so don't think that If you were just doing okay in 230 then you won't pass 231. Additionally, I found the workload in 231 to be a little less than 230, although the topics themselves became more complex and interesting. As an aside, if you have a chance to take this course (or really any course) with Pat Devlin, do it. He's a phenomenal teacher, the best I have ever seen, and it is absolutely worth your time to take a class from him.

Yes, this is a good math course. The material is interesting and the professor is engaging and committed to the students. His lectures did get appreciably worse compared to 230 (lack of direction, etc.) but he is still much better than others in the math department.

yeah pretty solid course

Yes - it was one of the best math classes I have ever taken, and since it is a pre-requisite to many STEM related majors, I thought it was one of the best way to get into math at Yale.

If you are committed to math, take it.

Yes! As long as youre willing to put in the work, this course (230 and 231) is a great way to jump into proof-based math, without too much background needed. The professor works hard to help you, and the community that I found in the class was great.

Yes! Greatly enhances mathematical maturity; also, Pat covers a lot of material that is slightly relevant but very interesting.

Yes. Great introduction to math proofs.

I would strongly recommend this course to a student who is willing to work hard and has a genuine interest in math.

Yes. As a double major in Physics and either Computer Science or Mathematics, I found this course to be an essential proof based mathematics course.

Only take if pursuing a pure math major.

Yes. You learn a lot of math and Pat is really cool.

Yes, I would definitely recommend this course to another student if they are interested in learning more about math and willing to accept the heavy courseload. For me, the average problem set for 230 took ~20 hours, and 231 was a bit less. (Others were faster; your mileage may vary.) However, if you're willing to dive in, the work is rewarding and well worth the time. Pat is a supportive, fun, engaging professor, and that's the main reason I chose to stick with 230 after trying the first pset. If you're still reading this, shop this course.

YES Pat is great!

Decline to Answer

13

Online Course Evaluation

EVAL SUMMARY

[view by respondent](#)

[view by question](#)

[respond to evaluation](#)

EVALUATION SUMMARY

Total Courses: 4
 ENROLLED: 55
 RESPONSES: 47
 DECLINED: 3
 NO RESPONSE: 6

**Patrick Devlin,
 2017-18 Courses.**

	Term	Course	Title	Enrolled	Role
1	2018-Spring	MATH 077 01	Math as a Creative Art	15	INP
2	2018-Spring	MATH 231 01	VectorCalculus&LinearAlgebraII	55	INP
3	2017-Fall	MATH 230 01	VectorCalculus&LinearAlgebra I	63	INP
4	2017-Fall	MATH 199 01	Mathematical Problem Solving	46	INP

Course Overall: 4.2

Primary Dept: MATH

Primary Div: Sciences

Export to PDF

Graph view:

Area

Q:

Your level of engagement with the course was:

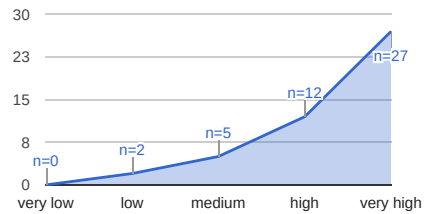
(Your anonymous response to this question may be viewed by Yale College students, faculty, and advisers to aid in course selection and evaluating teaching.)

Declined to Answer:1
 Average Rating:4.4*

Instructor: Patrick Devlin

Average and Standard Deviation

Course	Dept	Div	School
4.4 ±0.9	3.7 ±1.1	3.7 ±1.0	3.8 ±1.0



Q:

What is your overall assessment of this course?

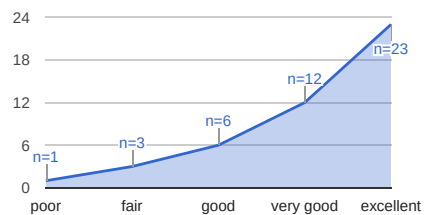
(Your anonymous response to this question may be viewed by Yale College students, faculty, and advisers to aid in course selection and evaluating teaching.)

Declined to Answer:2
 Average Rating:4.2

Instructor: Patrick Devlin

Average and Standard Deviation

Course	Dept	Div	School
4.2 ±1.1	3.4 ±1.3	3.3 ±1.2	3.8 ±1.1



Q:

The course was well organized to facilitate student learning.

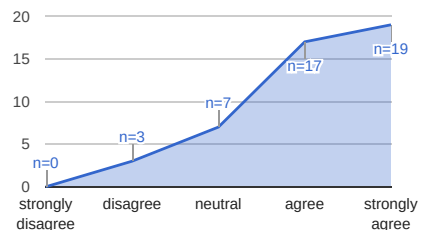
(Your anonymous response to this question may be viewed by Yale College students, faculty, and advisers to aid in course selection and evaluating teaching.)

Declined to Answer:1
 Average Rating:4.1*

Instructor: Patrick Devlin

Average and Standard Deviation

Course	Dept	Div	School
4.1 ±0.9	3.7 ±1.2	3.5 ±1.2	3.9 ±1.0



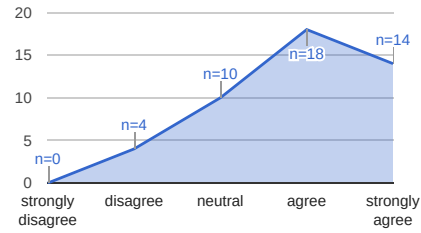
Q:
I received clear feedback that improved my learning.

Instructor: Patrick Devlin

(Your anonymous response to this question may be viewed by Yale College students, faculty, and advisers to aid in course selection and evaluating teaching.)

Average and Standard Deviation

Course	Dept	Div	School
3.9 ±0.9	3.4 ±1.2	3.4 ±1.2	3.7 ±1.1



Declined to Answer:1
Average Rating:3.9*

Q:
Relative to other courses you have taken at Yale, the level of intellectual challenge of this course was:

Instructor: Patrick Devlin

(Your anonymous response to this question may be viewed by Yale College students, faculty, and advisers to aid in course selection and evaluating teaching.)

Average and Standard Deviation

Course	Dept	Div	School
4.5 ±0.7	3.7 ±1.0	3.5 ±1.0	3.3 ±0.9



Declined to Answer:1
Average Rating:4.5*

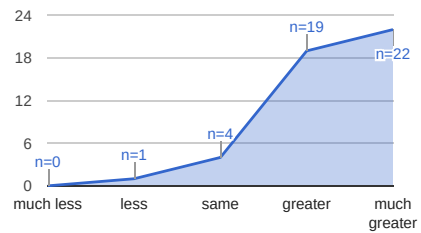
Q:
Relative to other courses you have taken at Yale, the workload of this course was:

Instructor: Patrick Devlin

(Your anonymous response to this question may be viewed by Yale College students, faculty, and advisers to aid in course selection and evaluating teaching.)

Average and Standard Deviation

Course	Dept	Div	School
4.3 ±0.7	3.5 ±1.0	3.3 ±1.0	3.1 ±1.0



Declined to Answer:1
Average Rating:4.3*

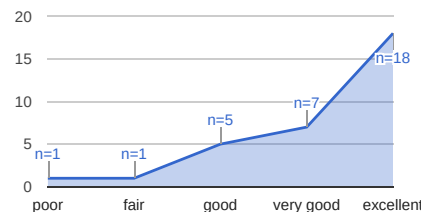
Q:
What is your overall assessment of the Teaching Fellow?

Instructor: Louis Max Brown

(Your anonymous response to this question may be viewed only by your instructor(s), your teaching assistant, and administrators responsible for evaluating teaching.)

Average and Standard Deviation

Course	Dept	Div	School
4.3 ±1.0	3.7 ±1.1	4.0 ±1.1	4.1 ±1.0



Declined to Answer:0
Average Rating:4.3*

* Question is excluded from Course Overall Rating.

