

# Online Course Evaluations

**2017-Fall**

Instructor Primary  
MATH 230 01  
VectorCalculus&LinearAlgebra I

**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**

Very engaging instructor! Pat also puts in a lot of effort out of class to interact with students and is open to discussing a lot of fun math with them!

---

**Instructor: Patrick Devlin**

Pat has done a really good job in making the students feel welcome, and keeping everyone working together and effectively. He goes above and beyond to make sure that we succeed on the psets, and he does a good job getting to know his students. I wish he was a little more clear about the exam material, but he does a really good job overall.

---

**Instructor: Patrick Devlin**

Pat is such a cool professor. He genuinely cares about his students and can actually teach.

---

**Instructor: Patrick Devlin**

Pat is amazing!! His energy and enthusiasm make class extremely fun and engaging every day, and his support and availability make doing well in the class relatively easy given its level of challenge. He genuinely cares about all of us and wants us to succeed and learn to love math.

---

**Instructor: Patrick Devlin**

Very good instructor; admits own mistakes, engages with the class. Sometimes goes off on tangents and doesn't get to all his material. Makes the class fun

---

**Instructor: Patrick Devlin**

The instructor made the class very interesting and enjoyable, was always willing to help us, and all in all was extremely supportive throughout the semester. He also succeeded in challenging us with very difficult problems, and kept the class moving at a quick pace to teach us as much material as possible. The only significant change I would recommend would be (as stated earlier) to provide more examples of full, complete proofs and of applications of important theorems in class.

---

**Instructor: Patrick Devlin**

Prof. Devlin is incredible. He's just an amazingly great professor. I cannot imagine a more engaged person than him. He genuinely cares about his students' welfare and education. He's the sort of professor that will work with students, helping them out, every hour of the day, every day of the week. It is very easy to meet with him to get help and guidance in the course. His energy is infectious, though energetic is an understatement. He is simply passionate about math and teaching others to appreciate and love it as much as he does. His lectures were very well put together and his notes proved incredibly useful resources for summary at the end of the semester. He is, at the end of the day, a really friendly person who wants to be helpful and make a difference in his students' academic lives. He cares. And that, in and of itself, makes all the difference.

---

**Instructor: Patrick Devlin**

All strength no weakness, Prof. Devlin does a great job in teaching this class and inspiring his students.

---

**Instructor: Patrick Devlin**

Only strengths -- Pat really did a great job of making sure his students were getting out of the class what they put in. He was really encouraging during class and in the math lounge, even when all of us were kind of dying from the workload, and I could tell that he really, really cares about all of his students. Also, he taught at a really good pace so that people who didn't have much proof-writing

experience coming in, such as myself, could do well and improve a lot over the course of the semester.

---

**Instructor: Patrick Devlin**

Strengths: Pat is a really good /teacher/. His lectures were never boring, and his energy made going to 9 am lectures so much better. I really appreciated how he put class notes on for review and for people who missed lectures, too. He also structured his psets very intentionally to make them build on each other, which facilitated learning since you kept using theorems you proved on earlier problem sets. Weaknesses: I think the psets might have taken a little too long, but he said that he would work on that issue in 231, so I don't really have any other issues!

---

**Instructor: Patrick Devlin**

You will not find an instructor who cares more about teaching and about his students at this university. Pat goes above and beyond in so many ways, it's impossible to name them all. He is extraordinarily generous with his time outside of class, thoughtfully answering student questions at all hours of the day or night. His problem sets, lectures, and exams (all of which he writes from scratch) are intensely well-organized. Pat is also one of the most exceptional people I have met: humble, thoughtful, gracious, caring, brilliant. He has, it appears, reached a deep accord with his true purpose in life.

---

**Instructor: Patrick Devlin**

Extraordinary and personable professor.

---

**Instructor: Patrick Devlin**

Pat was a superb teacher. He loved the material, put a ton of effort into organizing and designing and the course and, as a result, created a great class. He was also incredibly receptive to student feedback, which was highly appreciated. There is one caveat, however; he was so receptive that, as a result, I think the course started to deteriorate toward the second half. Pat stopped teaching the core concepts of the course, and instead put them on PSETs, which meant that they are never really taught. Individual learning is great, but the most important parts of the course should still be taught, and toward the end, especially with linear algebra, I did not feel like that was the case. I hope that is rectified in 231. I also don't think linear was taught in an intuitive or organized way and, at the end of 230, don't really feel like I learned much linear. I hope that 231 has a significant emphasis on linear algebra to fill in the many gaps in our knowledge currently and prepare us for more advanced linear algebra.

---

**Instructor: Patrick Devlin**

Absolutely amazing professor. Easy to talk to, brilliant, inspiring, and motivating. Successful pushed everyone to become real mathematicians, or at least feel able to do so. Also, I very much enjoyed the fact that he put up his notes after class. It allowed me to focus on understanding the material rather than rushing to write it down.

---

**Instructor: Patrick Devlin**

Great instructor! Enthusiastic but goes off-tangent often

---

**Instructor: Patrick Devlin**

Pat's teaching is pretty quick, but he is always available for after class questions. He is mostly thorough, but sometimes in a time crunch, I think he presents important concepts all too quickly, while at other times, he presents not-as-important concepts for several days in a row.

---

**Instructor: Patrick Devlin**

Strengths- Incredibly supportive. Pat really cares that his students are getting the help they need and are getting as much out of the course as they can. He explains the material very clearly, and will always take the time to fully clarify things outside of class if someone still doesn't understand. It speaks to his dedication and his commitment to his students that on multiple occasions, he has stayed in the math lounge to help 230 students past midnight and 1 am. Weaknesses- really not much, I guess he just sometimes entertains tangents in class more than I think is useful (often initiated and propelled by students, though)

---

**Instructor: Patrick Devlin**

Pat is a very enthusiastic teacher. I know he genuinely wants all of us to succeed. His classes were interesting for the most part, he made himself accessible for help on the p-sets, etc. However, preparation for our tests was very frustrating. Considering how hard of a course it is to study for, it would have been helpful to get clear direction from pat on, in the form of original practice problems, etc.

---

**Instructor: Patrick Devlin**

Pat is a very enthusiastic explainer, but sometimes it feels as though the course notes are not strung together by any overarching motivation. It can feel a bit disorienting at times.

---

**Instructor: Patrick Devlin**

He was incredible at not only teaching but at keeping the self-confidence level of the students high in such a difficult class. He was very helpful and made the class enjoyable.

---

**Instructor: Patrick Devlin**

I really loved the professor. He was very passionate and involved and clearly wanted the class to be a positive experience.

---

**Instructor: Patrick Devlin**

Extremely friendly and outgoing professor. Engages class by providing humor and communicates well.

---

**Instructor: Patrick Devlin**

Pat is an absolutely incredible instructor I have never met someone as passionate about math and about teaching. He truly cares about each of his students and each of his/her/their confidence in the fact that they are mathematicians and included in the math community. He is extremely upbeat and energetic in the classroom, and his passion for math definitely rubs off on his students. Overall, Pat is an incredible professor, and I would recommend to any student to take advantage of any opportunity to take a class with him.

---

**Instructor: Patrick Devlin**

He works really hard and he is very accessible, but he is easily distracted.

---

**Instructor: Patrick Devlin**

Pat is fantastic in every way possible. He knows the material really well and is also good at teaching it.

---

**Instructor: Patrick Devlin**

Pat is ultimately helpful, friendly and knowledgeable. His commitment to teaching is excellent. Best Math teacher ever.

---

**Instructor: Patrick Devlin**

Pat's number one strength is definitely his enthusiasm and clear love of what he's doing. And how much he cares about us. He was also always very receptive to feedback and actually acted upon it immediately. He's very keel versed in what he's instructing, and adjusted content and level of difficulty/type of difficulty to what the class found interesting. He could sometimes be a little all over the place though, but I really have nothing to complain about. Something that goes beyond the course that Pat managed to do was make the class and the math department really feel like a COMMUNITY I could imagine myself part of.

---

**Instructor: Patrick Devlin**

Just amazing. Pat was so inspiring and supportive throughout this whole semester. He is the reason I decided to take this course, and he was one of the reasons this semester was so fulfilling for me. Pat was one of the most important and inspiring aspects of this course. He was and is so thoughtful in his planning of material, and so good at bringing mathematics to all his students. I'm so appreciative of his hard work. He really made this semester incredible for me. Really a phenomenal instructor. I can't thank him enough, and I can't think of anything I would ask him to improve upon.

---

**Instructor: Patrick Devlin**

Pat is a near-perfect instructor. He truly cares about the students and making sure that the students understand the material. He is always available for office hours in the math lounge, which is very helpful when working on p-sets or trying to understand material. This is especially good because most of the material is learned through p-sets, so having an instructor who is around to help understand the material on the p-sets is crucial to understanding the key concepts in the class.

---

**Instructor: Patrick Devlin**

Very engaging professor! My mind usually tends to wander, but not in this class.

---

**Instructor: Patrick Devlin**

He professor is incredibly engaging during lecture, and always has time to explain something or talk about anything after class.

---

**Instructor: Patrick Devlin**

Pat is a great teacher. His best strengths are that he is able to keep the class interesting and engaging while he talks, which is especially impressive given the size of the class and the content that he teaches. He also makes himself very available to answer any questions that the students may have,

and he is very adaptable in changing the style of the class to align with the students' feedback. If I had to pick a weakness, I would say that he teaches concepts in a way that is fairly abstract, which I guess is the point of the course, but it would be helpful to gain a better understanding of how certain concepts function in seeing applications of those concepts.

---

**Instructor: Patrick Devlin**

He is very energetic, kind, fair, warm, and welcoming. I loved having him as an instructor. I only wish we could have gotten back psets in a more timely manner (which may or may not have been in his control anyway).

---

**Instructor: Patrick Devlin**

Very approachable, very supportive. Always willing to answer questions, very clearly loves math and loves teaching. No weaknesses come to mind.

---

**Instructor: Patrick Devlin**

Pat was a great teacher. He was very engaged and enthusiastic about the class. He made sure everyone understood and made everyone feel welcome. He also definitely cared about reducing gender inequality in math and the Yale math department, and made sure that non-male students felt equally valued.

---

**Instructor: Patrick Devlin**

Pat was a great teacher who always showed his excitement in the subject matter and was a quirky, interesting guy. He emphasized the game-like aspects of math and showed how it is a really fun and amazing subject.

---

**Instructor: Patrick Devlin**

He was super cool. He would sometimes go on tangents, but it would often relate to what we were doing. Personally, I liked him a lot, and I think his teaching style really meshed with me.

---

**Instructor: Patrick Devlin**

The professor really cares about the students and the class and puts in a lot of effort. The lectures are

fun and engaging, and he puts up class notes and frequently answers questions on the piazza page. He also presents the material clearly and confidently. It's obvious that he knows a lot and that he can explain it well. However, I feel that he could have moved faster and treated the topics more rigorously, and also that he does not need to spend so much time on warm-ups.

---

**Instructor: Patrick Devlin**

Absolutely phenomenal. Pat Devin is hands down the best teacher I've ever had. He told us at the very beginning of the class that he was committed to teaching, and to teaching well, and he definitely means it. His lectures are interesting, the psets are challenging but doable, and he is very encouraging to everyone who wants to learn. I sincerely hope that I get the opportunity to take more classes with Pat in the future, since I am confident they will be as interesting as math 230 has been. The only weakness I can think of is that the lecture notes are sometimes hard to read since they are scanned in copies of the handwritten ones he uses in class, but this is really not an issue since we can review our own notes/other people's study guides.

---

**Instructor: Patrick Devlin**

The professor did a very good job of listening to feedback by the students and being cognizant of the fact that he was teaching in a field that is historically underrepresented by women and minorities. He also was extremely enthusiastic and passionate every day and had great availability for office hours.

---

**Instructor: Patrick Devlin**

Strength: passionate, workaholic, super-approachable, super-intelligent, hilarious, fair, lenient, caring; overall, the best math instructor I've ever seen. Weakness: some pset questions can be devilish; also, jotting notes on white paper can be a little tedious in class.

---

**Instructor: Patrick Devlin**

I thought Pat was an amazing mathematics professor - he is extremely energetic and enthusiastic about math, which spreads to the students. I love his style, although I do wish lectures were more interactive.

---

**Instructor: Patrick Devlin**

Professor Devlin is a wonderful instructor. Engaging, funny, and extremely knowledgeable, he definitely made this class worthwhile for me. Although he didn't always stay on-topic during lecture, his tangents were always mathematical in nature and extremely interesting.

---

**Instructor: Patrick Devlin**



Pat is very outgoing and interesting. His teaching style is a bit disorganized, but he is always in the math lounge late into the night helping us with the pset. You can tell he is dedicated to making sure his students succeed.

---

**Instructor: Patrick Devlin**

Pat is an incredibly supportive instructor; he's clearly dedicated to teaching and building healthy community. He brings a fun energy to the classroom, and the general organization of each class was nicely structured. Some students pointed out that Pat occasionally liked to include material that wasn't necessarily directly linked to the class' stated subject matter (ex. stuff from discrete math)but I enjoyed it. The fact that it made Pat excited made me interested. There's not much more I could have asked for in this course, except for better time-management habits on my part :). Thanks, Pat.

---

**Instructor: Patrick Devlin**

The best part of this course is probably Pat; he spends a lot of time in the math lounge for helping students, and at several points has stayed until 3 am to provide help. While he makes the class hard he really isn't out to get you and is fairly reasonable in what he expects of his students. Plus, he's a pretty chill guy too.

---

*Decline to Answer*

**Instructor: Patrick Devlin: 14**

# Online Course Evaluations

**2017-Fall**

Instructor Primary  
MATH 230 01  
VectorCalculus&LinearAlgebra I

**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:**

Lots of math! Analysis! Linear algebra! Cool proofs! Fun things that Pat likes!

---

Even though I have only completed one half of a full year course, I feel like I have learned a lot about the field of mathematics. We learned how to write proofs, and think about proving things mathematically.

---

You really learn how to write proofs more than anything.

---

Much higher confidence and love for math; ability to tackle a variety of harder math problems; solid

general knowledge of the theoretical foundations of linear algebra and analysis

---

how to write formal proofs how to think like a mathematician some cool math linear algebra time management

---

This course helped me enormously in improving my skill in formulating mathematical proofs. It also taught me some important concepts of linear algebra and analysis.

---

The foundational tools of linear algebra and vector calculus as well as the manner of thinking like a mathematician,

---

This course teaches you how to reason mathematically. It improves your proof-writing skills and develops mathematical maturity. (Proofs are a large component of the course). As you learn more about linear algebra and calculus, you also become familiar with ideas in number theory, logic, set theory, and abstract algebra. The course teaches mathematics in a very unified and cohesive way: the bigger picture in all its depth and variety, is certainly Prof. Devlin's goal. It's not just about any one specific topic that we learned, but rather the way that they all related. You uncover, in this course, the true beauty of mathematics in all of its complexity. More concretely, in the course, calculus is developed from the axioms of analysis, and much of the initial phase of the course involved developing fundamental theorems in real analysis and topology. We then pivoted to systems of equations, Gaussian elimination, determinants, and eigenvalues and eigenvectors. The course was excellently planned and quite expansive, as mentioned above. While you will certainly learn linear algebra and vector calculus, you will also understand the relevant ideas in a deeper sense. Through our studies in linear algebra, for example, we also learned about isomorphisms, group homomorphisms, and equivalence classes. In calculus, we proved fundamental results from topology. 230 focuses more on the linear algebra side of things, in the end.

---

The instructor did a marvelous job in explaining the nature of proofs and inspiring inquisitiveness

within his students. I believe there is no better, and more challenging math class which is tailored for first-years to take.

---

I learned SO much in this course. I came in with almost no experience with writing proofs, but after this class I feel much more confident in my proof writing abilities and my problem solving skills as a whole. The course also really opened my eyes to what math \*really\* is -- Pat really does a good job of linking all the topics in analysis and linear algebra together even though they may seem like separate things. The psets take a while but I found myself really trying to think through all the problems for the sake of the math, not the deadline.

---

I learned about fields, linear transformations, point-set topology, derivatives in higher dimensions, analysis, continuity, and limits of functions, and linear algebra. I also gained a lot of proof-writing skills and practice, as well as skills in mathematical logic.

---

In class, we basically covered the first half of real analysis and the first half of linear algebra. On the problem sets, we went a bit beyond that into other interesting and challenging topics in mathematics. On the whole, it was a complete immersion into the world of writing mathematical proofs: I grew enormously in my ability to get to the heart of a math problem and write a clear, rigorous proof of my answer.

---

I learned a lot about math and proof-writing techniques, abstract reasoning skills, and fundamental understanding of sophisticated mathematical topics.

---

I learned so much proof based mathematics. I learned to think and work hard at a problem for a long period of time. We learned everything from set theory to discrete math to vector calculus to linear algebra to analysis to topology and more. This is the class to take for any aspiring mathematicians. This will show you if you actually like mathematics.

---

Definitely developed a lot of mathematical maturity and knowledge in many different fields.

---

beginning proof-based mathematics

---

Proof-writing skills, the basics of lin alg, analysis, algebra, and a variety of other math fields.

---

Besides learning more math in a semester than I have probably learned collectively throughout my pre-college schooling, I learned how solve problems effectively. I learned that assumptions are dangerous, that rigor in proofs greatly improves understanding, and that connecting concepts allows one to solve massive questions.

---

I really improved my proof-writing abilities and gained a much better understanding of the fundamentals that underpin real analysis and linear algebra. By building from the very basics up and connecting the material all together cogently, Pat made it much easier for me to see how everything we learned could be derived from each other, and the importance and interdependence of each idea.

---

I have gained an immense understanding of the core of mathematics. Working with theorems and proofs of fundamental mathematical concepts has been really helped to gain a new perspective and understanding of this type of math.

---

I developed a strong ability to concisely articulate rigorous mathematical proofs in the areas of topology, analysis, linear algebra, algebra, and discrete mathematics.

---

I learned a lot about proof writing and got a relatively wide survey of many mathematical topics in addition to the main focus on linear algebra and vector calculus.

---

I learned to approach mathematical problems in creative ways. However, I don't think I learned as much as I should have given the amount of time I put into the class.

---

Learned how to construct mathematical arguments and applications of fields w/ respect to linear algebra and analysis.

---

You definitely go through a boot camp for learning mathematical proofs, and you have plenty of practice to do so in this course. Although the course tends to skim over several topics in order to cover many different topics, you learn and discover a lot of really interesting concepts through the p-sets.

---

Proof writing skills and linear algebra

---

A solid foundation in proof-based mathematics, especially linear algebra.

---

I learned a great deal about linear algebra. Became familiar with a wide range of topics such as topology, analysis, algebra, calculus, a little bit of discrete math and number theory, and intuitive links bridging these sub disciplines of math.

---

The course helped me develop a systematic approach to making mathematical proofs.

---

My perspective of what mathematics is was completely reformed by this course. I learned an incredible amount of mathematics this semester, and am just blown away by the transformation not only in my knowledge but also in the way I think about math. So expansive was my learning in this course that I don't think I can make a comprehensive list of the things I learned.

---

I learned far more about math in general than I expected. This course is billed as vector calc and linear algebra, but the topics it hits on are much broader and engaging.

---

This class primarily teaches the students how to write proofs. The name of the course is somewhat deceiving in that you do not only learn linear algebra and vector calculus, but you also learn math from a variety of fields such as topology, analysis, geometry, and discrete math in addition to linear algebra and calculus. This class is really good at connecting many ideas from different fields of math together and teaching it in a fairly abstract manner.

---

I learned proof-writing skills and developed them tremendously.

---

Proof writing, how to think about math, how to collaborate with other students. Learned about many fascinating areas in mathematics.

---

The class taught basic linear algebra and vector calculus, as well as proof creating and writing skills.

---

The course is a great introduction to proof based mathematics and rigorous thinking.

---

Well, I became a lot better at the whole "proof" thing. It really boosted my confidence in myself as a mathematician.

---

I developed proof writing abilities and also intuition for thinking about problems. I also learned a fair amount of linear algebra.

---

This course greatly expanded my knowledge of linear algebra, basic analysis, and proof based mathematics in general.

---



I developed my knowledge of Linear Algebra and Analysis and my proof-writing and critical thinking skills.

---

I learned a lot about proof, analysis, and algebra, as well as a ton of random math fun facts. For me, the most important insight gained from this course is that learning hardcore math, albeit extremely time-consuming at times, does not require things like "genius" or "innate talent."

---

I learned to manage time more effectively when completing problem sets and to optimize my time when studying for major assignments, like final exams.

---

This course greatly improved my mathematical reasoning abilities. Moreover, even though I came into it with some exposure to multivariable calculus and linear algebra, I still learned a lot about both subjects.

---

I learned how to think like a mathematician and understand logic in a way that allows me to justify concepts through rigorous proofs.

---

This course opened my eyes to an entirely new way of thinking about math and problem-solving in general. Sure, I learned about linear algebra, analysis, etc... but more importantly, I became

comfortable with mathematical proofs and learned to collaborate with peers on problem sets. 230 pushed me to think creatively and collaboratively, and it's given me confidence in handling tough workloads.

---

The course focuses pretty much exclusively on proofs, which is pretty much necessary if you are planning on going deeper into mathematics, or really theory in any field. The class also goes through most of the foundations of math in a more abstract way, much deeper than anything you likely did previously, and gives a stronger understanding of what linear algebra and calculus actually are.

---

*Decline to Answer*      **14**

# Online Course Evaluations

## 2017-Fall

Instructor Primary  
MATH 230 01  
VectorCalculus&LinearAlgebra I

### 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:

This course is awesome! The only slight weakness is the the content can be little unstructured and haphazard at times, you might need to draw the links and connections yourself.

---

The course is very interesting, but extremely intense. I don't know that it could be improved that much, because the professor and the TAs work very hard to keep people afloat. The only thing that I though could really be improved was the pace at the beginning, because I know a lot of people were struggling to stay afloat at the start of the class.

---

This course has been amazingly engaging and fun! It is extremely challenging, but that's part of the experience. It's not always the most well-organized, but Pat makes the class a lot of fun and a very supportive environment.

---

very high workload learn a lot great professor welcoming environment no sleep on Thursdays

---

I think the problem sets were a strength in that they helped me learn to write proofs and apply knowledge I learned in class. I also think the strong community developed in this course was very important. I think it could be improved by including more examples of full, detailed proofs in class, and by adding more emphasis to the important theorems learned by briefly providing examples of their applications.

---

Strengths: Incredible instructor engagement, a genuine feeling that the instructor cared about the intellectual development of his students, very charitable grading and re-evaluation policies, clarity of content and explanation and sincere attentiveness to the students. Weaknesses: Extensive lengths of PSETs. The enthusiasm of the instructor had him add an inordinate amount of problems to the PSETs because he found them interesting. The students in this class certainly love maths, but they do have other commitments and interests as well, and the PSET length could at times be a hinderance. It was also somewhat concerning that crucial and important concepts were introduced on the PSETs, having never been mentioned in class

---

The course approaches mathematics, philosophically speaking, from a constructive, rigorous approach. We "build the logical pyramid," so to speak, as we go through the course. The results we prove on earlier problem sets become crucial tools for the proofs we are asked to show, on subsequent ones. This method is a strength of the course: it leads to transparency and accessibility. You can see precisely how the ideas we've been studying relate to one another. Almost all of the results we've needed are proven either in class, in the course textbook, or assigned on problem sets. Another strength is that, oftentimes, the proofs we complete are corroborated by using different methods. Seeing different ways of proving the same result makes you a stronger mathematician.

---

It's strength was Patrick Devlin. The only weakness was that it might not be taught by Prof. Devlin.

---

This class is really well organized for everyone to do well if they put in the effort. There are really helpful peer tutors who hold office hours and recitations every week, so if you're stuck on problems you can always ask them for guidance. And of course, Pat is also VERY helpful and encouraging and really wants his students to do well in his class. He teaches at the perfect pace so it doesn't feel too fast even for people coming in with very little proof experience (like I did).

---

Strengths: you learn an absurd amount in this class. But the thing is that Pat makes it all so easy--he's a fantastic teacher and the psets, lectures, and content are structured in a way that makes sense and builds on everything. Another strength is the people in the class, who are legitimately so intelligent and who you get to know through the psets. Finally, the math you learn is just so cool--it's a completely different way of looking at what you've been doing for years. Weaknesses: it's a huge time commitment, and there's a learning curve at first as you get used to writing proofs. But you definitely get used to it over time, and the beginning psets are definitely easier to compensate!

---

Strengths: The curriculum was very well organized and delivered. The availability of the instructor and the TAs to answer questions outside of class was phenomenal. Weaknesses: The problem sets were sometimes exceedingly long. There seems little point in requiring 20+ hours of homework for a college class.

---

I have really enjoyed the class--especially the exposure that it provides to several mathematical concepts. One weakness that sticks out is the problem set structure. I'm not sure quite what I mean, because the psets feel necessary and beneficial, but somehow they are off. Sorry this is not useful.

---

It was an excellent course. I think, given the rigor of the homework, that it should be weighted more heavily, but the course was both good and fair, and the instructor was great.

---

Amazing course. Amazing professor.

---

The problem sets will kill you, and to fully understand the material on the problem sets without having taken a course structured similarly to 230 before, a good 10-15+ hours will be spent per week. But, these are only worth 20% of your grade; it would be better if the problem sets were weighted more.

---

Strengths include very engaging problem sets and a willingness to adapt by the professor. While not necessarily a weakness, a concern is that topics frequently deviate from linear algebra and vector calculus, and a more thorough knowledge past the problem sets and class lectures are required on some questions on the exams.

---

The community this course creates is a huge strength to this course. A weakness lies within this community, there seems to be a small group of students who have definitely seen much more math than the rest of the students; engaging these students with additional content of something of the like could help them become more a part of the rest of the community.

---

Strengths- a really good support system to help with the admittedly challenging p-sets. Also, the rigor of the course means that now I can be confident moving forward that I know how to apply what I've learned in this class. Weaknesses- not so much a weakness as an acknowledged problem, but this class is quite academically rigorous and mentally demanding, and certainly a big jump from high school

---

The long problem sets are integral to the course - they facilitated much of the learning. One very good thing about this course in the fall is that it meets MWF! I know the T TH schedule for 231 will hurt the course! It is very helpful to meet 3 times a week and have shorter classes with time to work on the problem sets in between!

---

Sometimes the problem sets can be a bit excessive - seven parts to a problem are rarely necessary to elucidate some mathematical concept.

---

This course is incredibly challenging but most definitely worth it. The psets are a little much but you will leave the class feeling as though you learned a lot about math.

---

The strength of this course is that you really are fully immersed in the world of mathematical proofs from the very beginning. Though a bit intimidating, there is a steep learning curve, and by the end of the course, you gain a thorough mastery of proofs. On the other hand, the course does require quite a lot of time and work. The p-sets are often quite time consuming, and may require some late nights spent at the math lounge. And although they do not account for much of the final grade, success in the course depends on the assumption that you have given thorough effort on the p-sets and understand them.

---

The course is strong.

---

Pat is fantastic. He creates a really encouraging and supportive learning environment.

---

The instructor was very responsive to feedback and engaging. He made available the requisite resources we needed to achieve success in the course. This included things like lecture notes on canvas, sample solutions, the peer tutors were great and very available and helpful. A relative weakness of the course was, for someone with not a super strong background in math coming into the course, it was often hard to place where new pieces of knowledge fall under. A day spent early on in the semester to situate/give a general overview of the course and what FUNCTIONS different topics of instruction serve would've been helpful.

---

The problem sets in this course were incredibly well designed. I felt that they really helped me explore and reform my understanding of mathematics. I also felt that the way material was presented felt well designed. The order of subject matter felt appropriately consecutive, and built on itself nicely. Honestly, I can't think of anything that I would really improve.

---

This course teaches a variety of math concepts and its pace keeps the course interesting without being overwhelming. The problem sets teach a lot of concepts and they reach whatever the in-class lectures do not. The class teaches a lot about what math really is and helps the student discover whether they do or do not want to go further into math in the future. There aren't really the many bad things about the class other than the heavy workload, but for me at least, this work was a break from the other work that I had to do, and I made some good friends trying to finish problem sets the nights/mornings before they were due.

---

I enjoyed the level of discovery in the weekly problem sets, but I felt like it could have been connected a little more to in-class curriculum.

---

Strong sense of community, very welcoming, TAs were very helpful, Professor very approachable, material was challenging but doable.

---

The material covered in the course was interesting and engaging, for the most part. The p-set were enjoyable and an appropriate amount of work. The class was a good length and very well taught. If I were to look for a problem, I would say the topics were sometimes repetitive. However, the teacher helped resolve that by interlacing random interesting topics. The peer tutoring, while I didn't always use it, was a welcome resource, and the tutors were very nice and helpful.

---

The course presented lots of resources and opportunities for collaboration, which was very helpful. The class was engaging and placed emphasis on the awesomeness of math and why we are learning linear algebra, and the problem sets were challenging and instructive. However, I feel that the course ultimately moved too slowly and could have moved faster.

---

By far the biggest strength of this class is Pat Devlin. He has worked very hard to create an educational environment which is both intellectually stimulating and inclusive to all. He put in a ton of extra time to ensure that we as students had the resources that we needed to learn what he wanted us to understand, and the level of support from the instructor, graduate teaching fellow, and peer tutors in unmatched in any course I've ever taken. I've walked into the math lounge quite literally at 2:30 AM and one, if not all, of the above people have been there to help me on homework or understand the course material. The only weaknesses I can think of for the course are: 1) the lectures can appear somewhat disorganized, but there is a lot of method in the madness; because the course covers such a wide field of mathematics, it isn't always clear why the things you are learning now are relevant until (sometimes months) later, but there is always a reason for learning what is taught; the downside to this is that you may need to code-switch a bit between topology and analysis and linear algebra, and so it's hard to go into this course with the same mindset as you would a more specific course, where you know exactly what the material is and how it all fits together. 2) Sometimes the reviews for the classes can seem lacking. There has only been one review per exam, which feels like not enough, especially considering how much content there is in this class. I would appreciate if there were multiple review sessions, each devoted to more specific topics, like I've seen in some of the



chemistry review sessions, rather than a single monolithic review session which doesn't really do the course justice. Additionally, more review materials would have been nice, especially going into the final. Finally, the fact that the class is not graded on a curve is a double edged sword; while it does wonders in promoting a collaborative environment, it makes the tests very stressful.

---

Pat was really enthusiastic about math, which I highly appreciated. However, some things were a little irritating. Pat sometimes said that he would do something (e.g. post midterm practice problems) and changed his mind without telling us (these problems would really be helpful). It would be helpful if the sample solutions to problem set problems were posted (Pat started doing so yet stopped in late October). I wasn't sure how to do some of the problems, and I really wish I could have looked at the solutions.

---

The strengths of this class are that it challenges students to approach math differently than they ever have before, rely on intuition while also being provided with a lot of information, and learn more about what it means to be a mathematician. A weakness is that the high workload can sometimes detract from the learning process, and it tends to favor certain types of math students over others.

---

Strength: Pat, a lot of fun math problems, deep understanding of fundamentals of algebra and analysis, and late-night cookies Weakness: extremely long p-sets; class time can be a little disorganized

---

I think problem sets could be targeted more towards the material we are learning in class. I also think that problem sets could be weighted more considering I spent much much more time working on problem sets than studying for tests.

---

This course is engaging and covers a lot of material. Conversely, it has an intense workload and moves at a fast-pace.

---

Class time was kind of disorganized, and sometimes it was hard to tell where the problem sets were

leading. However, I felt like I learned to think in a different way. This class will not however teach you how to solve applied problems in multi variable calculus and linear algebra.

---

The course ends up getting very abstract and you rarely do any actual computation, which can be fairly jarring compared to most high school level math courses. Beyond that, the problem sets are supposed to take about 20 hours a week, and while I didn't spend that much, some of the problem sets could run up to 15 hours or so, and if you don't plan around that, you can end up with some grueling nights before they're due. Plus some of the problems are so difficult to that point that they're almost to do yourself, and you occasionally end up seeking out help for a decent part of the pset. While the psets are very difficult, the exams are relatively easy compared to it, and Pat makes sure that the hours you spent doing the homework actually translate into the test. The average exams grades were pretty high in the A/A- range, making the effort you put in seem more rewarding. The best part of this course is probably Pat; he spends a lot of time in the math lounge for helping students, and at several points has stayed until 3 am to provide help. While he makes the class hard he really isn't out to get you and is a pretty chill guy.

---

*Decline to Answer*

**21**

# Online Course Evaluations

**2017-Fall**

Instructor Primary  
MATH 230 01  
VectorCalculus&LinearAlgebra I

**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!

---

Yes, definitely. The community in the course is amazing, and it serves as a fantastic foundation of real theoretical mathematics.

---

If you are interested in math, take this course! It will challenge you, but you will learn. Just be warned: the time commitment is pretty large.

---

I would highly recommend the course to students who love math. It definitely makes you a more

confident and enthusiastic mathematician. However, I would advise other students not to take it unless they're pretty sure they want to commit a huge portion of their academic energy to the subject.

---

yes, if they're a math major

---

I would recommend this course to any student who has an interest in math and is not taking other very hard courses. This class was extremely interesting and helpful to me because of my interest in math, but I would not have been able to manage the workload if I were taking another class with a similar workload.

---

Yes, absolutely, but only if you're willing and interested to work hard in it. The problem sets are time-consuming (many hours) and you have to be prepared to put that amount of time into the course. You will be rewarded for it. You will become a better mathematician and you will learn to appreciate math more than you did prior to taking the course. You build fundamental insights about the nature of mathematical reasoning, and by doing more math and doing it intensively you just become better at it. (This is true about almost anything in life, of course.) If you are at all open to the possibility of working hard in a challenging course and becoming a better person as a result of your hard work, then definitely take this course. It's a really fun time, if you enjoy (or are prepared to learn to enjoy) mathematics. The class is a community and a (one of many) gateway to studying higher level mathematics at Yale.

---

Yes, the enthusiasm which the professor has with the course along with the enormous amount of learning that the professor had in store for us is an amazing opportunity for first years which should not be passed up.

---

**YES. PLEASE TAKE THIS COURSE.** I learned so much in this class about topics that I was always curious about but never had the chance to learn formally (things like open/closed sets, sequences, and linear algebra). Even if you have little to no proof writing experience but are curious about math, this class is perfect for you because your proof writing abilities will improve so much no matter where you start. The pssets take 15-20 hours per week, which is definitely a lot, but you get a really good support system through your classmates, peer tutors, and Pat. Please don't feel intimidated by the workload -- it's so worth it and you'll learn so much.

---

Yes! But only if they're willing to commit the energy to it and have adequate preparation. 230 is a huge commitment to take on first semester of your first year, but it was entirely worth it for me. The integrated nature of the course material and the depth that you go in make the work so, so worth it. Looking back, I feel like I've learned and grown so much just by being in the class. Also, having to do the pssets every week definitely helped my time management skills, so that's a plus, too!

---

Math 230 with Pat is a truly wonderful experience, rewarding in countless ways. Just know that you will likely spend 20+ hours per week working on the problem sets if you do every question thoroughly. Putting in this extraordinary amount of time is very rewarding when you see how much you grow, but your life outside of Math 230 may suffer. That being said, there is tentative discussion brewing that the workload for future iterations of Math 230 could be somewhat reduced as soon as next year.

---

Absolutely. It is a challenging course, but well worth it. It is both rewarding and interesting.

---

Yes. If you are an aspiring mathematician, or just like math, please take this course.

---

Yes! Take it if the rest of your workload isn't bad, if you want to meet new brilliant people, and/or if you're majoring in math.

---

Yes, even though the class requires a lot of time, it is still an excellent introductory to proofs. I thought the pssets were very difficult at the time, but looking back, they weren't too bad. After this class, other classes will seem like a walk in the park.

---

Yes, for math majors or students very interested in math only.

---

Yes! It is challenging but incredibly worth it. I feel equipped to solve a larger variety of math problems now.

---

Yes, if you're going to be a math major, or you know you're going to take many more math classes in the department and want to have the best preparation for it. Go in recognizing that it's not going to be easy, by any means, but you'll be better for it if you get through.

---

Yes, given that they are a mathematics major. This course demands a lot of time, and I don't see it being useful in the long term unless the student plans on pursuing something math related.

---

Yes. It is rigorous; this means that it is a lot of work, but it also means that one grows quite a bit by taking it.

---

Yes. It's difficult but the work pays off.

---

I would not unless they are pretty sure they want to be a pure math major. It was so much work for not very much pay off in my opinion.

---

Yes. Provides a a solid understanding of the foundations of linear algebra.

---

I would recommend this course to any student who is very passionate about math and is interested in learning more about the world of mathematical proofs. However, I would not recommend this to a student who is simply looking to learn more about vector calculus or linear algebra; I would instead recommend something like 120 for vector calculus or 222/225 for linear algebra.

---

Yea, if you don't mind getting toasted.

---

The course is a great choice for someone considering a math major. It will help you decide whether math is for you.

---

I would definitely recommend the course. Best Math course ever.

---

Yes! It's a great intro to college level math. A great way to judge whether theoretical mathematics is something you're interested in. Plus it definitely gets you to think at a higher level, likely differently from anything you've experienced before.

---

Yes, but only if they're willing to put in the work. This course had a very high workload and I absolutely loved it and felt it was important. However, if I wasn't willing to put in the work, this course would feel super overwhelming and I would've been lost much of the time. In other words, I wouldn't have learned all that much.

---

Only to students who are incredibly passionate about math. Anyone else would be miserable.

---

I would definitely recommend this course. It's a challenge to be sure, but worth it if you have the time.

---

For any student who is willing to put in the time, I would definitely recommend this course to them. This course has a large time commitment and the problem sets take a long time to complete, but it is a very rewarding experience to work through a problem for a couple hours and to finally have a sudden insight that allows you to solve it completely. Also, you gain a lot of knowledge about what math really is and if you really do want to pursue it. The class has a variety of topics, so if you do not like one part of it, there may be other parts of the class that you do like, and you will never be stuck on a single topic for long enough to get bored of it.

---

I would recommend this course for anyone with more time in their schedule. It is a wonderful course and the concepts we covered were deep and very interesting. However, for those without as much time to commit to the lengthy psets, it can be more challenging to fit the work into a weekly schedule.

---



Yes, if you are willing to put in the time. The course is a lot of fun and the professor is great, but it is also a lot of work.

---

I would recommend this to students interested in math and improving their skills in proofs. I think this class does a fairly good job at this. However, because of the time and effort you need to commit, it isn't a class for people who aren't fairly sure they like math.

---

I would strongly recommend this course to other students if they are interested in pursuing a math major and if they have a flair for problem solving.

---

Yes. If you like math at all, then yes. It's tough, but it's tough with friends, so it's not that tough after all.

---

I recommend taking this class! It pushes you to think harder and is set up really well, and linear algebra is also super important.

---

If you are interested in mathematics: ABSOLUTELY. This has been one of the most fantastically challenging courses I've ever taken, and it is exceptionally well taught; I know that in subsequent years, students may not have the same teacher, but if you have a chance to take this class (or any other) taught by Pat Devlin, you really should; he puts in an insane amount of time and effort into his teaching and it makes the class really enjoyable to take. Be forewarned though, this class is a lot of work. The weekly psets are no joke, and they will take up your whole week if you do not get a jump start. Frequently there are people in the math lounge working until the very early hours of the

morning on Thursday night and Friday, so please if you do take this class understand the time commitment required and definitely start the psets as soon as you can.

---

I would recommend this class if the student had a good sense of what it was going to be like going in and was willing to devote the time.

---

I would strongly recommend this course to other students, if they want to devote a chunk of their time to learning real math. I guarantee that any freshman (even sophomore) will benefit a lot from this class.

---

Yes - it was a lot of work, but definitely taught a lot of meaningful mathematics and organizational skills. It also taught the importance of working together and writing rigorous proofs.

---

If you want to learn linear algebra and multivariable calculus (including the real analysis groundwork of calculus), then I would strongly recommend taking this course. It is a fair amount of work but is still a rewarding experience. Professor Devlin is also a very engaging instructor who is happy to explore math topics outside of the syllabus.

---

If you are interested in understanding what the math major and what being a mathematician is like, this is the class for you!

---

Yes! At the very least, shop it, think about the first pset, and consider whether you'd enjoy diving deep into proof-based math. It was a very large time draw probably the most difficult course of my first semester but I'm very glad I took it.

---

I would only recommend this course to prospective math majors. It is a very large amount of work that a person not fascinated with math would prefer not to do on a weekly basis.

---

Take this class if you are considering majoring in math; it will let you know what university level math actually is (and its really nothing like high school math), and whether or not you actually like it. Don't get discouraged by how difficult it is at times or how long the psets see, but also consider that this course is probably going to take you 10-20 hours a week. The psets are essentially what your week is built around and you will definitely have to plan for it (unless you're ready to throw away your sleep on a regular basis). By the end, if you enjoy math, the psets won't feel like a complete pain, and you might even realize you want to major in math, if you weren't already.

---

*Decline to Answer*

13

# Online Course Evaluation

**EVAL SUMMARY**

[view by respondent](#)

[view by question](#)

[respond to evaluation](#)

**EVALUATION SUMMARY**

Total Courses: 4  
 ENROLLED: 63  
 RESPONSES: 60  
 DECLINED: 2  
 NO RESPONSE: 1

**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&LinearAlgebraI	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: 4.6

Primary Dept: MATH

Primary Div: Sciences

Export to PDF

Export to PDF

Graph view: Area

**Q:**

Your level of engagement with the course was:

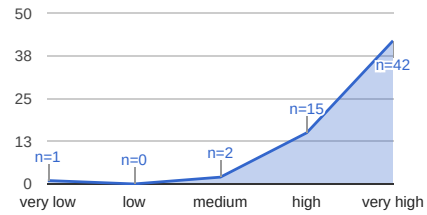
*(Your anonymous response to this question may be viewed by Yale College students, faculty, and advisers to aid in course selection and evaluating teaching.)*

Declined to Answer:0  
 Average Rating:4.6\*

Instructor: Patrick Devlin

**Average and Standard Deviation**

Course	Dept	Div	School
4.6 ±0.7	3.6 ±1.0	3.7 ±1.0	3.8 ±1.0



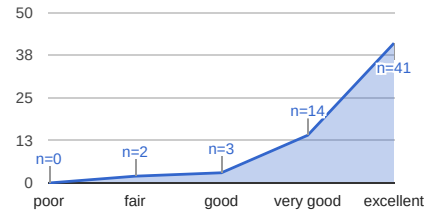
**Q:**  
What is your overall assessment of this course?

**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
4.6 ±0.7	3.2 ±1.1	3.4 ±1.2	3.8 ±1.1



Declined to Answer:0  
Average Rating:4.6

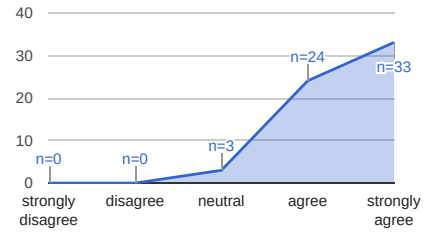
**Q:**  
The course was well organized to facilitate student learning.

**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
4.5 ±0.6	3.5 ±1.1	3.7 ±1.1	3.9 ±1.0



Declined to Answer:0  
Average Rating:4.5\*

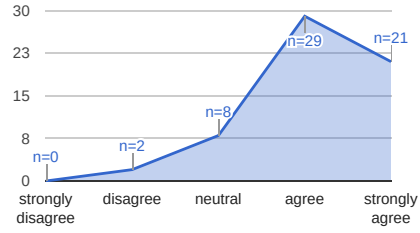
**Q:**  
I received clear feedback that improved my learning.

**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
4.2 ±0.8	3.4 ±1.1	3.4 ±1.1	3.8 ±1.1



Declined to Answer:0  
Average Rating:4.2\*

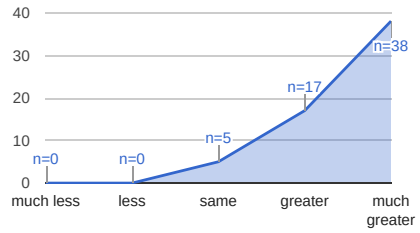
**Q:**  
Relative to other courses you have taken at Yale, the level of intellectual challenge of this course was:

**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
4.6 ±0.6	3.6 ±0.9	3.5 ±1.0	3.4 ±0.9



Declined to Answer:0  
Average Rating:4.6\*

**Q:**

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

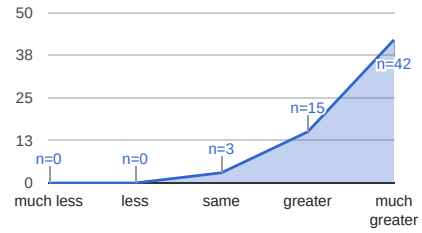
*(Your anonymous response to this question may be viewed by Yale College students, faculty, and advisers to aid in course selection and evaluating teaching.)*

Declined to Answer:0  
Average Rating:4.7\*

**Instructor: Patrick Devlin**

**Average and Standard Deviation**

Course	Dept	Div	School
4.7 ±0.6	3.3 ±0.9	3.3 ±1.0	3.2 ±1.0



**Q:**

What is your overall assessment of the Teaching Fellow?

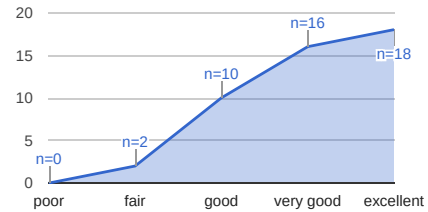
*(Your anonymous response to this question may be viewed only by your instructor(s), your teaching assistant, and administrators responsible for evaluating teaching.)*

Declined to Answer:0  
Average Rating:4.1\*

**Instructor: Louis Max Brown**

**Average and Standard Deviation**

Course	Dept	Div	School
4.1 ±0.9	3.6 ±1.1	4.0 ±1.1	4.0 ±1.1



\* Question is excluded from Course Overall Rating.



Copyright © 2013 Yale University. All rights reserved. [Privacy policy](#) | [Login](#)  
Content may not have been approved by or reflect the views of Yale University.