

Columbia University: Arts & Sciences
A&S Fall 2021 Standard Evaluation

Course: MATHUN3027_001_2021_3 - ORDINARY DIFFERENTIAL EQUATIONS: MATHV3027_001_2021_3_125168
Instructor: Elena Giorgi *
TA: Zoe Margaret Himwich, Shalin Parekh, Young Wang
Response Rate: 33/38 (86.84 %)

1 - What did you learn - in terms of knowledge, skills, or perspectives - in this course? The answer to this question will generally be available in Vergil.	
Response Rate	18/38 (47.37%)
<ul style="list-style-type: none"> • Ordinary Differential Equations - chapter 1-7 • I learned exactly what is expected. I learned about ordinary differential equations and how to effectively recognize which one I am looking at in order to see which method needs to be implemented. Even learned a little bit of linear algebra by the end of it. • We covered a lot of techniques to solving ODEs. • Solutions to linear, separable, and exact first order differential equations; existence and uniqueness theorems for several classes of differential equations; the Wronskian and fundamental sets of solutions; solutions to linear second order homogeneous and non-homogeneous differential equations with constant coefficients; treatment of linear differential equations of degree n; series solutions to second order linear differential equations near ordinary and regular singular points; the Laplace transform and its applications to solving differential equations; step and delta functions; systems of differential equations; solutions of 2x2 systems of differential equations using eigenvalues and eigenvectors and phase plane analysis. • Anything higher order differential equations. How to solve homogenous and non-homogenous differential equations, up to 2 degrees but can be applied to higher orders. Laplace transformations, systems of equations, series solutions. • Solving various types of ODEs, including first and second order, homogeneous and non-homogeneous, and systems of differential equations. • How to solve various kinds of ODEs, a bit of the theory behind them but mostly application • Equations of order one; systems of linear equations. Second-order equations. Series solutions at regular and singular points. Boundary value problems. Selected applications. • how to solve ODEs • How to solve ordinary differential equations: first orders, second orders, series solutions, Laplace transforms, and systems • You learn how to solve and graph ordinary differential equations using various techniques like constants of integration. • Techniques to solve different kinds of ordinary differential equations. • ODEs, ways to solve, intuition/motivation behind learning techniques • differential equations, linear algebra, and calculus. • I learned new ways of solving for ODE's, such as using knowledge from linear algebra. As well as, learning to do more proof-oriented questions. • Basic method to solve different ODE questions • Learned how to solve first and second order differential equations through a variety of methods • Knowing that most natural phenomena have underlying mathematical foundations, this course in ordinary differential equations helped me understand them by presenting various equations that model the natural phenomena. It also threw more light on the existence of solutions to systems and such solutions help to best explain how the system behaves over time or at an instance in space. 	

2 - What percentage of the work (including reading) assigned for this course did you complete on schedule?					
Response Option	Weight	Frequency	Percent	Percent Responses	Means
All or almost all	(1)	27	81.82%		
Most	(2)	6	18.18%		
Some	(3)	0	0.00%		
This question is not applicable	(4)	0	0.00%		
				0 25 50 100	
Response Rate					
33/38 (86.84%)					

Columbia University: Arts & Sciences
A&S Fall 2021 Standard Evaluation

Course: MATHUN3027_001_2021_3 - ORDINARY DIFFERENTL EQUATIONS: MATHV3027_001_2021_3_125168
Instructor: Elena Giorgi *
TA: Zoe Margaret Himwich,Shalin Parekh,Young Wang
Response Rate: 33/38 (86.84 %)

3 - What is your overall assessment of the course? What are its strengths? In what ways might it be improved? In answering this question, you might address the value of readings and assignments, the structure of the course (including the relationship of sections to lectures), the contribution of the course to your knowledge of the subject matter and to the development of your analytical and reasoning skills, etc. We encourage you to use specific examples where possible.

Response Rate	13/38 (34.21%)
----------------------	----------------

- Good course - professor goes strictly by the textbook. She explains incredibly well, and office hours are inviting. I enjoyed learning and practicing the content. What could be improved - the grading scheme. One midterm worth 30%, final worth 50% and homework 20% doesn't give much room for improvement. Maybe having two midterms, and decreasing the final worth would help a lot.
- The course was great. Gives a good introduction about ODEs and expands on it very well. I left the course understanding exactly what was going on more or less. The exams are essentially what you see in class and so it is easy to quantify your learning accurately. The best part of this course was the professor, her teaching was amazing.
- This course has everything I expect from an excellent math course. The content is interesting and new, but not in a too challenging way for a student who completed the prerequisites (namely calculus I-III--in my opinion, only calculus I and II are actually necessary). Prof Giorgi often provides additional notes to clarify and summarize the material covered in class, and these are extremely useful. The assignments are coherent and, being weekly, force you to be up to date with the topics being taught in class. Instructor office hours twice per week are also an invaluable resource. The tools provided in this course represent a huge step in mathematical maturity. At least they did for me. As a second-year physics major, I saw myself learning a general framework that can be applied to solve relatively intricate problems in mechanics and oscillatory phenomena. I am simultaneously taking PHYS 2601 Classical and Quantum Waves, and my knowledge of ODE gave me a much better understanding of the material when we studied harmonic oscillators. The physics applications of the course were also furthered because Prof Giorgi sometimes told us how the concepts and methods we were learning were applied to her research in black hole stability. This is not to say that only physics majors benefit from this course. There is a wide variety of students in the class and we have learned methods useful to model, for instance, population dynamics.
- The course was structured with a very clear and relevant linear progression. There was a nice mix of computation and proofs to get a deeper understanding on the methods we use to solve equations, why we do what we do. The assignments came straight from the accompanied textbook, but the lectures covered all the relevant material, such that external reading from the textbook was generally not needed. The lecture examples were similar to homework questions and easily prepared one for the exam. If you like math and really want to understand it, this is the course, there was really no weaknesses.
- I really enjoyed this course. The lectures were easy to follow and comprehensive, Prof. Giorgi is a great professor and the homework was mostly manageable. There were a couple of assignments that were quite long and I would have appreciated a little advance notice for those.
- Good course if you want to learn how to solve ODEs
- This is an excellent class for someone who wants to learn both how to solve ODE's but also some of the theory behind them.
- Very good ODE course. The proofs for any theorem are enlightening, and not overly pedantic or difficult to follow. The homework questions are a good mix of simple examples that allow for concreteness of understanding along with more difficult and general questions that allow for deeper understanding.
- The structure of the course is very clear. I have learned many useful tools in solving ODEs.
- Good course, Prof. Giorgi is a clear lecturer, and clearly knows the material like the back of her hand.
- I think the homework should be weighed a bit more so that the final doesn't take up such a big percentage.
- Great! I did enjoy it the whole semester cause the course is not a hard one if u have learned calculus well.
- I think this course is excellent for curious people with interest in mathematics. Specifically a keen interest in mathematical models that govern natural phenomena. I think the course was also well structured because theories were closely followed by computations and that helped understand the theories more.

4 - What is your overall assessment of the course?The answer to this question will generally be available in Vergil.

Response Option	Weight	Frequency	Percent	Percent Responses	Means	
Excellent	(5)	19	57.58%		4.39	
Very Good	(4)	8	24.24%			
Good	(3)	6	18.18%			
Fair	(2)	0	0.00%			
Poor	(1)	0	0.00%			
				0 25 50 100	Question	
Response Rate				Mean	STD	Median
33/38 (86.84%)				4.39	0.79	5.00

5 - Would you recommend this course to another student?The answer to this question will generally be available in Vergil.

Response Option	Weight	Frequency	Percent	Percent Responses	Means
Definitely recommend	(1)	20	60.61%		
Probably recommend	(2)	10	30.30%		
I'm not sure I'd recommend	(3)	3	9.09%		
Probably not recommend	(4)	0	0.00%		
Definitely not recommend	(5)	0	0.00%		
				0 25 50 100	
Response Rate					
33/38 (86.84%)					

Columbia University: Arts & Sciences
A&S Fall 2021 Standard Evaluation

Course: MATHUN3027_001_2021_3 - ORDINARY DIFFERENTL EQUATIONS: MATHV3027_001_2021_3_125168
Instructor: Elena Giorgi *
TA: Zoe Margaret Himwich,Shalin Parekh,Young Wang
Response Rate: 33/38 (86.84 %)

6 - Please qualify your recommendations if you wish:The answer to this question will generally be available in Vergil.

Response Rate 7/38 (18.42%)

- If you study any quantitative subject, ODE is where you'll learn to put in practice your calculus to solve a series of relevant problems or, at least, to develop the tools for these.
- Clear and relevant linear progression, all relevant material covered in the lectures, necessary mathematics for other subjects.
- Prof. Giorgi is very nice and a good professor, and the coursework was challenging but not overly so.
- One of my favorite classes this semester, would highly recommend, especially with Dr. Giorgi
- Recommend, interesting material, good professor.
- Take it or lose it!
- This is great course that helps give a simple understanding to the mathematics behind certain natural phenomena. It also helps give insight to how such system behave in time and also space.

7 - How does the workload in this course compare to Columbia courses with a similar structure (e.g. a lecture, seminar, laboratory, or language course)?The answer to this question will generally be available in Vergil.

Response Option	Weight	Frequency	Percent	Percent Responses	Means
Much heavier workload	(1)	2	6.06%		
Heavier workload	(2)	5	15.15%		
Similar workload	(3)	25	75.76%		
Lighter workload	(4)	1	3.03%		
Much lighter workload	(5)	0	0.00%		
No basis for comparison	(6)	0	0.00%		
				0 25 50 100	
Response Rate					
33/38 (86.84%)					

8 - How many hours a week did you devote to this course? (Note: Please include all time spent on this class including class time, discussion sections, readings, assignments, studying, etc.)The answer to this question will generally be available in Vergil.

Response Rate 16/38 (42.11%)

- 5-6
- 8
- 5-7
- 4-5 hours with homework; 150 minutes of lectures; ~20 minutes going to office hours
- 2.5 hours in class, anywhere from 1.5 to 3 hours on homework, and sometimes outside study of about 1 hour, so total of 5-6.5 hours a week.
- 8-10
- 4-6
- 8
- 3-4 on HW, more for studying
- 10
- 7-9 hours
- 8
- 9-10 hours
- 7
- 2H
- 15 hours a week

Columbia University: Arts & Sciences
A&S Fall 2021 Standard Evaluation

Course: MATHUN3027_001_2021_3 - ORDINARY DIFFERENTIAL EQUATIONS: MATHV3027_001_2021_3_125168
Instructor: Elena Giorgi *
TA: Zoe Margaret Himwich, Shalin Parekh, Young Wang
Response Rate: 33/38 (86.84%)

9 - Please evaluate Elena Giorgi. What are Elena Giorgi's strengths? In what ways might their teaching be improved? In answering this question, you might address the clarity of the lectures or presentations and their relationship to the other elements of the course, the ability of Elena Giorgi to generate enthusiasm and facilitate discussion, the quality of feedback, availability, the timeliness of the return assignment, etc. -

Response Rate	19/38 (50%)
<ul style="list-style-type: none"> • She explains very well, and is approachable. Doing more examples could help, maybe ones that aren't already in the textbook. Overall, one of the best professor I've had. • Elena Giorgi is great and super clear about everything. • Professor's teaching is amazing. This is the one class where I felt very confident in the material just leaving lecture. I did not have to do any outside textbook reading or research because Professor Giorgi explained everything so well. The classes have a flow to them and it is a relatively good class to follow. Even when there were some confusing bits, Professor made sure to explain everything thoroughly and answer all our questions. It made class a great experience and I actually learned a lot. • Professor Giorgi is really knowledgeable and I always looked forward to her office hours because of how approachable she was at answering all of my questions. I struggled mostly in the class after the midterm and her office hours proved really helpful. With in-person modes of instructions, she did an excellent job delivering the lectures. She speaks clearly and her research on black hole is quite interesting. I would definitely take another higher level class with her if offered (hoping she teaches PDEs Fall 2022 after coming back from her maternity leave). Highly recommend Professor Giorgi to everyone! • Professor Giorgi presented the topics in an organized and clear manner. I can perfectly follow her pace in class: neither too fast nor too slow. She frequently pauses and asks for questions to make sure that everyone is following. The homework was useful and, likewise, neither too long and difficult nor too short and easy. The midterm exam was also coherent—she includes mostly problem-solving questions (4 or 5) and 1 or 2 questions about the theory (e.g. existence and uniqueness of solutions; fundamental sets of solutions). The latter were somewhat challenging, but in a way that some students could get them right. She replies to emails very quickly and is lenient when students have problems (e.g. reasons to request for a homework extension). She holds office hours religiously and is willing to help with whatever questions students bring. She is also very nice and friendly in general. I asked Professor Giorgi for help with a term paper I had to write for PHYS 2601 Classical and Quantum Waves on some topic of my interest. I wanted to explore wavelike features of black holes that I could understand with my background in Calculus IV and ODEs. When I asked for her guidance, she promptly offered to find me a topic, chose a few great readings for me, and helped me go over them and organize the ideas for my paper in 2 or 3 occasions in office hours. I especially value her willingness to do this as it is not part of her duties as my ODE instructor. To sum up, she met all her duties as my instructor excellently and even went beyond them when I asked. I hope she is assigned to teach Partial Differential Equations or Differential Geometry next year so I can be her student again. • Professor Giorgi was great. She clearly understood all the topics and material covered such that she could include outside intuition and information and apply it to questions. All questions were answered with ease and clarity. All the assignments and tests were graded quickly. The lectures from Professor Giorgi provided all the relevant examples and information, sometimes even beyond what we needed, to answer homework questions. Overall, great, chill, and incredibly knowledgeable professor. • Prof. Giorgi is a very good professor and lecturer. She was very open to questions and accessible to her students, and is receptive to feedback. She explained the topics very well. • Probably the best math professor I've had at Columbia—she is really clear in lecture, makes sure everyone understands what she's doing, really kind when you ask questions in lecture. She wrote practice exams and solutions which was helpful. Also, I really liked that she would sometimes bring up her research during lecture, if something we were learning in class was something that came up in her research etc...and she was always willing to explain how some of the higher math behind whatever we were learning worked if you asked. • Prof. Giorgi explains concepts and materials in a crystal-clear manner. I could understand the lecture without having to read the textbook before hand. I appreciate how responsive she is to emails and her patience in explaining things to us. As a physics major myself, I find her work to be interesting as it relates to this course. I could see the connection between this course and my study in physics, which opens up a potential field that I could see myself working in. • Professor Giorgi is one of the most brilliant and competent professors I have had so far at Columbia. She is so sweet and caring, but she also just explains and teaches well. You feel well prepared from class for the homework, and then you feel well prepared from the homework and practice for the exams. Hoping to take as many math classes with her in the future as possible! • When answering questions, maybe try to make it more relatable in a way? Sometimes lectures can be a little boring or feel not that personal. If students don't ask questions that doesn't mean they get it, that means they don't know what questions to ask • If only more professors could be like her! She's the ideal math professor – she's challenging, fair, kind, and simply interested in the student's learning process. Most of the time, when students say they like a professor, they mean that they are a) easy or b) very nice. Professor Giorgi's class is surely no walk in the park, but she is nice and asks that you only understand essential aspects of ODEs. She is smart, her answers to questions are direct and useful, and her office hours are incredibly useful. • Professor Giorgi is really helpful and approachable. The lectures are organized in a clear and systematic way. • Super clear lecturer, willing to explain/go over things multiple times. To nitpick, if she could write a little bigger, that would be awesome! • Professor Giorgi was very good at explaining the small computational gaps which were not covered in the textbook to ensure that we understood why certain computations were being done. I would say that including more examples that aren't from the textbook would be a lot more helpful in order to have several points of reference later in the course. I would also say that a change in the grading scheme would be better since the weights feel very unbalanced. • She teaches well, but does not care and is not flexible for her students. • A really nice teacher who even taught us during pregnancy. Good teaching style and really helpful in email response. • Professor Giorgi is an excellent teacher of this classes material, and seems like she genuinely cares about the success of her students. She seems to answer any question sufficiently and her lectures are succinct and useful. • I think Elena Giorgi is a great professor. First because it would have been real easy for her to overwhelm us with what she know, given that she knows a lot about ordinary differential equations, partial differential equations and their applications. However, she did a great job at keeping the material not overly complex. She is very enthusiastic about the topic at heart and always makes time to clarify anything that was tough to grok. 	

10 - What is the overall teaching effectiveness of Elena Giorgi? -

Response Option	Weight	Frequency	Percent	Percent Responses	Means
Excellent	(5)	22	66.67%		
Very Good	(4)	10	30.30%		
Good	(3)	0	0.00%		
Fair	(2)	1	3.03%		
Poor	(1)	0	0.00%		
				0 25 50 100	Instructor
Response Rate				Mean	STD
33/38 (86.84%)				4.61	0.66
					Median
					5.00

Columbia University: Arts & Sciences
A&S Fall 2021 Standard Evaluation

Course: MATHUN3027_001_2021_3 - ORDINARY DIFFERENTL EQUATIONS: MATHV3027_001_2021_3_125168
Instructor: Elena Giorgi *
TA: Zoe Margaret Himwich,Shalin Parekh,Young Wang
Response Rate: 33/38 (86.84 %)

11 - What are the strengths and weaknesses of Shalin Parekh (discussion section leader, lab section leader, grader) as an instructor, and how might Shalin Parekh's teaching be improved?	
Response Rate	1/38 (2.63%)
<ul style="list-style-type: none"> The TA was alright. I tried some of his office hours but they were slightly unhelpful because I would come back not resolving my confusions. 	

11 - What are the strengths and weaknesses of Young Wang (discussion section leader, lab section leader, grader) as an instructor, and how might Young Wang's teaching be improved?	
Response Rate	1/38 (2.63%)
<ul style="list-style-type: none"> Be more initiative 	

11 - What are the strengths and weaknesses of Zoe Margaret Himwich (discussion section leader, lab section leader, grader) as an instructor, and how might Zoe Margaret Himwich's teaching be improved?	
Response Rate	2/38 (5.26%)
<ul style="list-style-type: none"> Never met her. I think she is a great teaching assistant and made time for us as students. She also demonstrated deep understanding of the topics. 	

11 - What are the strengths and weaknesses of Shalin Parekh, Young Wang, Zoe Margaret Himwich (discussion section leader, lab section leader, grader) as an instructor, and how might Shalin Parekh, Young Wang, Zoe Margaret Himwich's teaching be improved?	
Response Rate	
<ul style="list-style-type: none"> The TA was alright. I tried some of his office hours but they were slightly unhelpful because I would come back not resolving my confusions. Never met her. Be more initiative I think she is a great teaching assistant and made time for us as students. She also demonstrated deep understanding of the topics. 	

12 - What is the overall teaching effectiveness of Shalin Parekh?						
Response Option	Weight	Frequency	Percent	Percent Responses	Means	
Excellent	(5)	4	57.14%			
Very Good	(4)	1	14.29%			
Good	(3)	0	0.00%			
Fair	(2)	2	28.57%			
Poor	(1)	0	0.00%			
				0 25 50 100	TA	
Response Rate				Mean	STD	Median
7/38 (18.42%)				4.00	1.41	5.00

12 - What is the overall teaching effectiveness of Young Wang?						
Response Option	Weight	Frequency	Percent	Percent Responses	Means	
Excellent	(5)	2	33.33%			
Very Good	(4)	2	33.33%			
Good	(3)	1	16.67%			
Fair	(2)	1	16.67%			
Poor	(1)	0	0.00%			
				0 25 50 100	TA	
Response Rate				Mean	STD	Median
6/38 (15.79%)				3.83	1.17	4.00

Columbia University: Arts & Sciences
A&S Fall 2021 Standard Evaluation

Course: MATHUN3027_001_2021_3 - ORDINARY DIFFERENTL EQUATIONS: MATHV3027_001_2021_3_125168
Instructor: Elena Giorgi *
TA: Zoe Margaret Himwich, Shalin Parekh, Young Wang
Response Rate: 33/38 (86.84 %)

12 - What is the overall teaching effectiveness of Zoe Margaret Himwich?					
Response Option	Weight	Frequency	Percent	Percent Responses	Means
Excellent	(5)	5	62.50%		4.38
Very Good	(4)	2	25.00%		
Good	(3)	0	0.00%		
Fair	(2)	1	12.50%		
Poor	(1)	0	0.00%		
				0 25 50 100	TA
Response Rate			Mean	STD	Median
8/38 (21.05%)			4.38	1.06	5.00

12 - What is the overall teaching effectiveness of Shalin Parekh, Young Wang, Zoe Margaret Himwich?					
Response Option	Weight	Frequency	Percent	Percent Responses	Means
Excellent	(5)	11	52.38%		4.10
Very Good	(4)	5	23.81%		
Good	(3)	1	4.76%		
Fair	(2)	4	19.05%		
Poor	(1)	0	0.00%		
				0 25 50 100	TA
Response Rate			Mean	STD	Median
			4.10	1.18	5.00