Teaching Reviews

Teaching reviews for the Spring 2021 University of Maryland's Physics 373 Math Methods for Physics course follow.

202101-PHYS373-0101-MATH METHODS FOR PHYS II - Evan Berkowitz - Instructor Report - Spring 2021

Project Title: **University of Maryland Course Evaluation Spring 2021**

Number of Students Invited: **36**
Number of Evaluations Submitted: **25**
Response Rate: **69.4%**

Report Comments

This report presents feedback received from students for the course **MATH METHODS FOR PHYS II** and for the Instructor **Evan Berkowitz** in that course. Course means are calculated from all responses by all students in the unit (i.e., course section) on that item and exclude N/A (not applicable) responses. A grade table is included on the next page if available.

Indication is provided below for the Report Group if there is one affiliated with this course section, otherwise it is blank. The Report Group will be the lead section of a grouped course (i.e. multi-section lecture) and/or the primary of cross-listed courses. Subsections are found in the Instructor Subgroup Report.

Semester: Spring 2021
College: College of Computer, Math & Natural Sciences
Department: CMNS-Physics
Course #: PHYS373
Section #: 0101
Course Title: MATH METHODS FOR PHYS II
Report Group:

Instructor: Evan Berkowitz

Creation Date: **Friday, May 28, 2021**

Grade Distribution

Grade A	Grade B	Grade C	Grade D	Grade F	Grade PS	Grade W
16	14	1	2	0	3	6

Grade distribution is current as of May 26, 2021 and includes students receiving a W for the course. Some grades are not included (e.g., Cancel, Incomplete).

Administrator University-Wide Course Items Applied to All Section Instructors

Results for use by faculty/instructors and for administrative purposes.
N/A responses have been excluded from the following calculations.

By Score

Scale is Strongly Disagree (0) to Strongly Agree (4) with a Neutral mid-point

Question	Course Mean
The course was intellectually challenging.	3.8
I learned a lot from this course.	3.6

By Frequency

1. The course was intellectually challenging.			
Options	Score	Count	Percentage
Strongly Disagree	0	0	0.0%
Disagree	1	0	0.0%
Neutral	2	0	0.0%
Agree	3	6	24.0%
Strongly Agree	4	19	76.0%
Statistics			Value
Response Count			25
Mean			3.8
Standard Deviation			0.4

2. I learned a lot from this course.			
Options	Score	Count	Percentage
Strongly Disagree	0	0	0.0%
Disagree	1	0	0.0%
Neutral	2	1	4.0%
Agree	3	7	28.0%
Strongly Agree	4	17	68.0%
Statistics			Value
Response Count			25
Mean			3.6
Standard Deviation			0.6

How does this course fit into your academic plan or course of study?

How does this course fit into your academic plan or course of study?			
Options	Score	Count	Percentage
General Education or CORE Requirement	0	0	0.0%
Major/Certificate/Minor/Program Requirement	1	24	96.0%
Elective	2	1	4.0%

Additional comments (e.g. about course content/materials, teaching style, etc.):

Comments
Really loved this course! Professor Berkowitz was a great teacher, and was very accommodating when it came to homework extensions due to exams in other classes. Really invested in making sure we learned the material, and was very forthcoming with exam topics, and extra study material for topics and exams. Early homeworks were quite heavy when it came to workload, but the later ones got better about that.
I just think this class was too much of a time commitment that I wasn't prepared for when I set my schedule at the beginning of the semester. I spent about 20 hrs a week on this class to keep up with the fast pace and challenging subject matter. If I were designing PHYS373 I would skip almost all of the first unit of differential equations and spend more time on tying the concepts to physics phenomena, rather than on deriving the theory. I also think more lecture time was needed. Though I wouldn't want longer Zoom lectures because I find video classes much more fatiguing that regular classes, I do think I would have benefitted from spending 2 hours less trying to teach myself the concepts in the homework (I was not very effective in that attempt) and instead have a third lecture day. Engagement was challenging b/c of virtual learning, not necessarily the course itself, though I also don't have a lot of interest in proving the derivation of a theory in such rigorous detail, I prefer to practice applying the theory.
Prof. Berkowitz is one of my favorite professors by far, his classes are always very lively and fun to be in. Some discussions were a bit difficult to follow / easy to get lost at times, but this was one of the most challenging courses I've taken – in a good way. I would love to take more courses from Prof. Berkowitz, I would recommend considering making 5–10 minute videos to preface some

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lectures, and / or a different textbook.
phys373 was just an all around amazing course. I learned a ton, and professor Berkowitz is probably the most understanding professor I've learned from so far. He also really knew the content and the questions he wrote made sure you understood it too (while teaching you some more)
I loved this class
The HW were a bit hard to start out, with too much numerical math (IMO), that involved a lot of programming not really related to the math. This made them take a lot longer than they needed to, but I felt that the newer homeworks were appropriately scaled to account for this and the instructor was very responsive to student feedback on the matter, even posting surveys actively asking for input about various components of the course (HW, exam performance). It's clear the instructor cares about the success of the students, and even though there was a bit of a learning curve in terms of scaling the difficuluty/workload of the course, he was ultimately incredibly receptive and showed that he genuinely cared for the students' success.
The teaching style for this course was a bit rough. While all of the necessary material was communicated in the lectures or in the textbook, the lectures focused heavily on detailed proofs and derivations of key concepts – which, while definitely important, were communicated in a way that almost took away from the "point" of the lecture. The objective of a long derivation was often unclear, and it often seemed like an explanation would get 90% of the way to the point, but then move ahead to the next topic – almost as if the "punch line" was missing. Context is often provided for each set of lectures, in emails and in the homework, but the level of detail provided in the context (and in each lecture) is often overwhelming, and makes it difficult to understand what the "key points" of each unit/lecture set was – which was often seen when we would go to start the homework and realize that we had to put in a lot of extra leg work to understand how the lectures connected to the problems we were asked to do. The homework sets were also used to teach new concepts, rather than only reinforce concepts introduced in lecture, so it was difficult to practice confusing concepts, especially as the homework sets were so time–consuming. There also were not a lot of physical examples or practice problems introduced – some practice problems were demonstrated in lectures, but they were often outside of a "physics" context (for example, a real–world example of a Fourier transform was introduced in the context of image processing, which is not frequently encountered in physics research, rather than something like extracting component frequencies from a signal/other signal processing, which is central to many fields of physics research). This disconnect of context made it difficult to then apply the math to actual physics problems for the first time on exams. In addition, and perhaps most importantly, despite the use of the homework to advance the course material and the extra notes/emails/course content distributed in an effort to further our understanding, the course ended roughly a month behind schedule which severely limited our ability to spend time on concepts that will be crucial to our understanding of our next–semester major courses. In sum, while the attention to detail, willingness to respond to student questions/concerns, and extensive context/background for each concept was appreciated, it might be more helpful in the future to make the derivations in lectures far less involved and instead either distribute that in emails or offer it in office hours for those who want to further their understanding.
Consider maybe making homework have more importance in the overall grade of the class. I was above average in all of the homework assignments and spent a large portion of my time on all of them, and felt they should have been worth more of my grade.
Overall very nice presentation of the course material. Posting slide templates before hand and then working through them in class is not something my other professors did, but I wish they had. In addition, the homeworks were very nicely written so that I felt I was learning stuff as I was moving through them. It would have been nice to do a brief review of the homeworks in class after they were due. Just a quick, this problem was about blank, and the main learning takeaway is blank. I think my suggestion here stems from the fact that I did not generally look at the solutions, because I felt as though I could solve the hw questions easily, but sometimes I did feel as though I had solved them and moved on without internalizing the meaning of my result.
Prof. Berkowitz was very receptive to student feedback and was able to explain complex topics in a way that was easy to understand, which I really appreciate. The only real critique about this class is that the one–hour grace period for submitting homework extends into the next day and makes it difficult to recognize when an assignment is due at a glance, since the ELMS calendar will register the assignment as due one day after its actual due date.
Great class. Personally, as a transfer student, I had studied most of the content of the class. However, because of the emphasis on physics and the quality of the content, I found it very worthwhile. Evan Berkowitz was an amazing lecturer, definitely one of the best three in my (long) academic career. I really appreciated it. Also, he was always available to students, replied emails quick and comprehensively. LaTeX was encouraged in this class and I really appreciated it!
Great course. Very clear instruction. Homework was slightly more than necessary. Could be slightly less computer–based.
Holy shit this course was hard. This is definitely the most challenging course I have ever taken. The beginning was kind of a mess, but I think it turned out alright. Professor Berkowitz is really nice and understanding, I enjoy his lectures a lot and when I talked to him in office hours and by email he was always really receptive and helpful. The workload from this class was insane, though. The homeworks would take 10+ hours a week, usually, but I know Professor Berkowitz recognizes this now so I won't say too much about it. I was really grateful that Professor Berkowitz was so responsive to student's concerns, as he molded the course to be a compromise between what the students wanted and what he did, which I think is the best he could do. The best example of this was when I was concerned that the homeworks weren't teaching us anything because if you got lost there was no way to know if you were doing it right, and Professor Berkowitz instead changed the homeworks to problems that said "show this" (instead of just

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asking "find ___"), which I thought was so helpful because it gave me a path to understand the material and not have my homework grade destroyed. In fact, I thought it was such a good idea to make the homeworks like this that if I ever become a professor I will do the same. The lectures are pretty confusing sometimes, I can tell how passionate Professor Berkowitz about the material but sometimes he gets lost in his thoughts and goes off on tangents that are hard to follow. I would like to see more visual examples in class that are relevant to physics and engineering, like how Fourier transforms work with sound analysis or something for example. The material in the course is clearly very challenging, and I think given more time Professor Berkowitz will only get better at communicating it with his students.
Regardless of how difficult I found the material of the course, I was confident that Dr. Berkowitz was working with me. He worked diligently to ensure that all questions were answered and all uncertainties were resolved, and these efforts were greatly appreciated. Many of my greatest concerns with the delivery of the course were not with Dr. Berkowitz but effectively unavoidable pains with the digitization of material. This is especially impressive given this is his first time teaching this course. I wholeheartedly expect that most of my concerns with workload will be resolved with his next teaching of this class.
I'll start by saying that I love Professor Berkowitz. However, this class is likely the most challenging course I have ever taken and I hope I never have a class this hard again. I know that this course is historically difficult and I think professor Berkowitz is so caring and responsive that it has benefitted my knowledge. Amongst my peers, I do not know of one student who has a negative opinion of him. This course focuses on some very complex math and I think it makes it very challenging to learn in a condensed format, because topics do not build on each other as well as they do in regular math courses. In the future I would recommend cleaning up the notes just a bit as they can be confusing to look at and I think the difficulty of the exam questions is a bit too much to be expected of students. On the other hand professor Berkowitz has been more responsive to these concerns than any professor I have ever had by far. Periodically he will poll us on how we feel about topics and how our exams go and adapts accordingly. That outreach blew my mind, I was incredibly impressed by how much he genuinely cared. (give him a raise!) With all of this being said I believe I have a decent grasp on these concepts but the exams seem to be a bit more complex. While I love professor Berkowitz I look forward to not taking any more math methods (hopefully) – Thank you!
I really enjoyed the way this class was taught, I always felt like time was taken for us to really understand the content. The course was definitely challenging and I think it might be better to structure it more so we can have a better idea of our grades by the end of the semester, but I understand this could have been due to the online environment and many other factors. Also homeworks would feel more beneficial if they were shortened.
Dr. Berkowitz communicated the course material very well, and repeatedly demonstrated how devoted he was to teaching us the content and teaching it well. He would write entire statistical analyses of our test scores to show us how we were doing in the class, and would curate homework problems that he called "artisanal" and it was absolutely apt. The questions were detailed and designed to teach us the material, and they were very effective. However, at the start of the semester this resulted in the homework being too long, and I was spending a disproportional amount of time on this one class, and still only getting mediocre grades. Near the middle of the semester, I raised these concerns to Dr. Berkowitz in an extended conversation, and he responded very well to them. He significantly changed the workload of the class and opened a dialogue with the other students for their thoughts on the class, and I think it went very well. The homework still took longer than a weekly assignment for a single class should, but it was significantly more manageable and genuinely helped us learn the material.
Fantastic professor, but we have too much to go over and that makes the homeworks harder since the class time isn't enough. Professor did his best to help accommodate the class when the homeworks were too hard. Although it was his first time teaching the course and took some adjusting, this professor did his best to help his students and I feel like I learned a lot.
I really liked your teaching style, and found it informative and engaging, which is not common for a lot of math courses. I took a class on DiffEQ last semester, and found the teaching style and resources convoluted, vague, and generally unhelpful, and so this class was definitely a welcome change!
Course was very difficult, although Professor Berkowitz did a great job giving students the tools to succeed in this class. I do think the homework assumed some skill in programming, and I would hope that future classes either would have less programming to do or the instructor would be able to take some class time to show students some examples of how to do problems with computers.

Administrator University-Wide Instructor Evan Berkowitz Items

Results for use by faculty/instructors and for administrative purposes.
N/A responses have been excluded from the following calculations.

By Score

Scale is Strongly Disagree (0) to Strongly Agree (4) with a Neutral mid-point

Question	Course Mean
The instructor treated students with respect.	4.0
The instructor was well-prepared for class.	3.8
Overall, this instructor was an effective teacher.	3.8

By Frequency

1. The instructor treated students with respect.

Options	Score	Count	Percentage
Strongly Disagree	0	0	0.0%
Disagree	1	0	0.0%
Neutral	2	0	0.0%
Agree	3	0	0.0%
Strongly Agree	4	25	100.0%
Statistics			**Value**
Response Count			25
Mean			4.0
Standard Deviation			0.0

2. The instructor was well-prepared for class.

Options	Score	Count	Percentage
Strongly Disagree	0	0	0.0%
Disagree	1	0	0.0%
Neutral	2	0	0.0%
Agree	3	6	24.0%
Strongly Agree	4	19	76.0%
Statistics			**Value**
Response Count			25
Mean			3.8
Standard Deviation			0.4

3. Overall, this instructor was an effective teacher.

Options	Score	Count	Percentage
Strongly Disagree	0	0	0.0%
Disagree	1	1	4.0%
Neutral	2	0	0.0%
Agree	3	3	12.0%
Strongly Agree	4	21	84.0%
Statistics			**Value**
Response Count			25
Mean			3.8
Standard Deviation			0.7

Overall Score

Averaging the following five scaled Administrator items (from above, repeated below) results in the Overall Score.

Scale is Strongly Disagree (0) to Strongly Agree (4) with a Neutral mid-point

Competency	Course
The course was intellectually challenging	3.8
I learned a lot from this course	3.6
The instructor treated students with respect	4.0
The instructor was well-prepared for class	3.8
Overall, this instructor was an effective teacher	3.8
Total Score	3.8

The standards the instructor Evan Berkowitz set for students were...

By Score

Scale is Too Low (0) to Too High (2) with an Appropriate mid-point

Question	Course Mean
The standards the instructor set for students were...	1.3

By Frequency

The standards the instructor set for students were...			
Options	Score	Count	Percentage
Too Low	0	0	0.0%
Appropriate	1	18	72.0%
Too High	2	7	28.0%

Student University-Wide Course Items Applied to All Section Instructors

Results for use by faculty/instructors and students.
N/A responses have been excluded from the following calculations.

By Score

Scale is Strongly Disagree (0) to Strongly Agree (4) with a Neutral mid-point

Question	Course Mean
Course guidelines were clearly described in the syllabus.	3.6
The required texts (e.g. books, course packs, online resources) helped me learn course material.	3.0

By Frequency

1. Course guidelines were clearly described in the syllabus.			
Options	Score	Count	Percentage
Strongly Disagree	0	0	0.0%
Disagree	1	0	0.0%
Neutral	2	0	0.0%
Agree	3	10	40.0%
Strongly Agree	4	15	60.0%
Statistics			Value
Response Count			25
Mean			3.6
Standard Deviation			0.5

2. The required texts (e.g. books, course packs, online resources) helped me learn course material.			
Options	Score	Count	Percentage
Strongly Disagree	0	0	0.0%
Disagree	1	2	8.0%
Neutral	2	6	24.0%
Agree	3	8	32.0%
Strongly Agree	4	9	36.0%
Statistics			Value
Response Count			25
Mean			3.0
Standard Deviation			1.0

Based on the quality of my work in this course, the grades I earned were

By Score

Scale is Too Low (0) to Too High (2) with an Appropriate mid-point

Question	Course Mean
Based on the quality of my work in this course, the grades I earned were	0.8

By Frequency

Based on the quality of my work in this course, the grades I earned were			
Options	Score	Count	Percentage
Too Low	0	5	20.0%
Appropriate	1	20	80.0%
Too High	2	0	0.0%

Given the course level and number of credits the workload was

By Score

Scale is Too Low (0) to Too High (2) with an Appropriate mid-point

Question	Course Mean
Given the course level and number of credits, the workload was	1.5

By Frequency

Given the course level and number of credits, the workload was			
Options	Score	Count	Percentage
Too Low	0	0	0.0%
Appropriate	1	12	48.0%
Too High	2	13	52.0%

How much effort did you put into the course?

By Score

Scale is Little (0) to Considerable (2) with a Moderate mid-point

Question	Course Mean
How much effort did you put into the course?	1.8

By Frequency

How much effort did you put into the course?			
Options	Score	Count	Percentage
Little	0	0	0.0%
Moderate	1	4	16.0%
Considerable	2	21	84.0%

Student University-Wide Instructor Evan Berkowitz Items

Results for use by faculty/instructors and students.
N/A responses have been excluded from the following calculations.

By Score

Scale is Strongly Disagree (0) to Strongly Agree (4) with a Neutral mid-point

Question	Course Mean
The instructor was effective in communicating the content of the course.	3.6
The instructor was responsive to student concerns.	4.0
The instructor helped create an atmosphere that kept me engaged in course content.	3.6

By Frequency

1. The instructor was effective in communicating the content of the course.			
Options	Score	Count	Percentage
Strongly Disagree	0	0	0.0%
Disagree	1	1	4.0%
Neutral	2	1	4.0%
Agree	3	6	24.0%
Strongly Agree	4	17	68.0%
Statistics			Value
Response Count			25
Mean			3.6
Standard Deviation			0.8

2. The instructor was responsive to student concerns.			
Options	Score	Count	Percentage
Strongly Disagree	0	0	0.0%
Disagree	1	0	0.0%
Neutral	2	0	0.0%
Agree	3	1	4.0%
Strongly Agree	4	24	96.0%
Statistics			Value
Response Count			25
Mean			4.0
Standard Deviation			0.2

3. The instructor helped create an atmosphere that kept me engaged in course content.			
Options	Score	Count	Percentage
Strongly Disagree	0	0	0.0%
Disagree	1	1	4.0%
Neutral	2	1	4.0%
Agree	3	5	20.0%
Strongly Agree	4	18	72.0%
Statistics			Value
Response Count			25
Mean			3.6
Standard Deviation			0.8

End of Report