



# CHEM 12900 1, PHSC 12900 1 - The Chemistry of Artist's Materials - Instructor(s): Hannah Lant

Project Title: **College Course Feedback - Autumn 2023**

Number Enrolled: **58**

Number of Responses: **31**

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## Report Comments

Opinions expressed in these evaluations are those of students enrolled in the specific course and do not represent the University.

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Creation Date: **Friday, February 2, 2024**

**What are the most important things that you learned in this course? Please reflect on the knowledge and skills you gained.**

Comments
The difference between dyes and pigments, how vision works, the chemistry of dyes on different materials.
How different artist's materials work chemically and some basic chemical concepts to be able to fully understand these materials.
Everything about pigments: their histories, identities, spectroscopy, applications, etc.
Pigments and spectroscopy.
How we perceive color, the molecular structures that make up the materials of art things. I feel like I've become more aware of how much is going on at a smaller level just in the things I see every day like fabric and whatnot.
I learned some of the underlying principles of chemistry, especially analytical techniques like spectroscopy. I also gained greater confidence in my lab skills. This was good, especially for a first-year who had a limited chemistry background due to the pandemic.
Basic chemistry concepts
I think this course offers a good overview of the application of chemistry to understanding dyes, pigments, and colored nanoparticles. There is a good amount of engagement with primary scientific literature, performing a literature review in the context of chemistry, and some technical skills I also learned relating to collecting different kinds of spectra.
Basic chemistry, knowledge about pigments, dyes, etc, stained glass, art restoration.
I have learned so much about art history, and how connected art history is with chemistry. I think that this class teaches a lot about not only chemistry, but also about art restoration and conservation.
I learned about color theory, inorganic pigments, dye chemistry, nanoparticles in ceramics and stained glass, as well as art conservation. We learned about the different methods of analyzing pieces of art to determine their chemical composition, and how redox reactions affect a certain pigments appearance after oxidization.
Spectroscopy and microscopy for art analysis
I learned about a wide variety of art materials on a chemical level, and how I can apply this knowledge when observing art pieces in my daily life.
Learned about how to synthesize pigments, the relationship between color and light on a chemical level, and lab procedure.
It was really interesting to learn how chemistry topics appear in everywhere, especially in art. It made chemistry more accessible and engaging.
I learned about color and how to interpret it in a scientific way. I also gained lab work skills which included graph making and data collection.
I learned a lot about the chemistry of color, how color is an emergent property that arises from a combination of physics, chemistry, and biology. I learned how color has been used across cultures and time, as well as the chemistry behind traditional methods of using dyes and pigments. I also learned about a variety of methods used to examine works of art, such as UV-Vis Spectroscopy, that operate using our understanding of the chemistry of things like paints.
Learned about artist materials and their chemistry. Gained lab skills and paper writing skills.
I learned so much about optics and chemistry that have allowed to look at art and artifacts in new and thought-provoking ways.
The chemistry behind pigments, nanoparticles, organic molecules, basically anything that is used as a colorant for paints, ceramics, stained glass, etc. and why they create color.
i learned about the chemical composition of paint
I learned about the difference between organic and inorganic pigments and dyes and what role they play in artist's chemistry as well as their difference from nanoparticles. I additionally learned a lot about the spectroscopy methods of measuring different materials and how to use a knowledge of color theory and the visible wavelength to understand them.
Chem of art

## Describe how aspects of this course (lectures, discussions, labs, assignments, etc.) contributed to your learning.

Comments
Lectures had the most technical chemistry to them. Homeworks had you apply the technical chemistry from class. Labs were helpful and interesting, but I think I learned the most from lecture.
Professor Lant is AMAZING! She is clearly so passionate about the material and ensures that the class is accessible to everyone, even those with less background in chemistry. She ensured that we went through key concepts slowly and clearly and also always tried to ground concepts in different art pieces to help us understand their relevance.
The lectures cover a wide range of knowledge. Labs are fun, TA office hours are especially helpful for homeworks
Labs were fun! Lectures were helpful, but only to a point.
Lectures were very informative and told us basically everything we needed to know in a very clear way, assignments reinforced that, labs showed us how the concepts we learned in lecture played out in real time
I enjoyed how Professor Lant's lectures fed into the lab content, especially through the framework of artists' materials, which kept the content engaging and memorable. Things like the pre-lab quizzes and reading questions helped to provide a focus for the upcoming unit.
Lectures during the conservation unit were super interesting; rest of lectures were ok, labs were ok
The lectures and labs were the most helpful aspect of this course. I think that the labs really honed in on the chemical investigations of artists' materials, and tied in very neatly with the material covered in lectures.
Lectures and labs were always very interesting and fun. Office hours were very helpful.
Lectures were super interesting and on a different artistic medium pretty much every week. Labs were very easy with clear guidelines.
The lectures were engaging and mostly easy to understand, and labs were pretty interesting with easy access to the TA since the lab sections were small. Some of the readings assigned didn't feel super integral to learning the topics in class, but they were not too time-consuming.
I liked the labs a lot
The lectures and presentations were thorough and easy to understand. I also enjoyed seeing materials and art pieces in class and at the Smart Museum to keep the class engaging and applicable to everyday life.
Spectroscopy of pigments, creating graphs in lab reports and overall comfortability with lab procedure.
The lectures were great. Professor Lant did a nice job putting them together. Labs truly reflected the material covered in lecture and where helpful to solidify learning.
The lab work contributed the most to my learning, as it was very hands on. I also liked how engaging the lectures were.
All of the course content (labs, lectures, homework) were directly related to each other. You learn about a topic in lecture then observe it in practice in lab.
The lectures were well organized and interesting and the labs were helpful too.
Lectures were incredibly informative and labs were great applications for work we did in class. Assignments were often a bit long but were good support for class discussions and lecture information.
Lectures are very helpful, clear, and engaging. Labs were fun and not too complicated. Assignments were never too long and related well to the lecture material.
lectures were informative, and the homework assignments were as well, but i felt that the content was more difficult than the lectures
The weekly lectures accompanied with readings gave me a really helpful base knowledge that I was able to apply in labs and further writing assignments. Overall, I felt this course gave me a really helpful foundation in my understanding of art chemistry and my beginnings into an education in art conservation.
The lectures were informative, a bit dull at times .
Lectures and office hours were most helpful to my learning; labs were just fun applications in addition.
Lectures were extremely informative

## Please respond to the following:

	Mean	Median	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
This course challenged me intellectually.	3.97	4.00	0.00%	6.90%	17.24%	48.28%	27.59%
I understood the purpose of this course and what I was expected to gain from it.	4.59	5.00	0.00%	0.00%	3.45%	34.48%	62.07%
I understood the standards for success on assignments.	4.55	5.00	0.00%	0.00%	6.90%	31.03%	62.07%
Class time enhanced my ability to succeed in graded assignments.	4.41	5.00	0.00%	3.45%	10.34%	27.59%	58.62%
I received feedback on my performance that helped me improve my subsequent work.	4.31	4.00	0.00%	0.00%	17.24%	34.48%	48.28%
My work was evaluated fairly.	4.76	5.00	0.00%	0.00%	0.00%	24.14%	75.86%
I felt respected in this class.	4.83	5.00	0.00%	0.00%	0.00%	17.24%	82.76%
Overall, this was an excellent course.	4.76	5.00	0.00%	0.00%	0.00%	24.14%	75.86%

## Additional comments about the course:

Comments
So so fun and interesting. Prof. Lant is super smart and helpful. She goes deep into the technical chemistry which is a bit intimidating but she explains things well. Everyone in class was super engaged and interested despite it being "just a core class." I was surprised this was the first year it was offered because it's so well put together. The trip to the Smart Museum for the conservation unit was fabulous.
Definitely take this class for your PHSC core! I'm not a huge science person and I felt that the intersection of art and science was super interesting, and the things we learned weren't too difficult for someone with not so much background in chemistry.
No exams or quizzes at all. The wonderful course to take for fulfilling core requirements.
This class is really well-designed, and the instructor really seems to care about people actually learning things, as well as the subject material. I highly recommend it to people who ordinarily find science intimidating.
I would highly recommend this course as an entertaining and engaging offering for the physical science core, especially for anyone interested in the arts. Due to the topics covered, the course felt very interdisciplinary, and I only wish that the course was even longer, in order to cover more content.
The class material is actually very interesting – I loved learning about art conservation practices.
I highly highly recommend!
Professor Lant was very responsive and helpful in office hours as well as in class, and made an effort to know students names and build relationships with them individually even though it was a somewhat large lecture. I could tell she was passionate about the subjects of the class, and overall it is a great class if you are looking to fill your physical science requirement but aren't super well versed in chemistry.
Its an amazing class. I defiantly would recommend it (and have) to everyone!
This was by far my favorite class that I have taken at this university so far. Professor Lant is a fantastic lecturer and teacher and I cannot recommend this course enough.
everything was great. the only thing that i did not like was the peer-review part of the final project (specifically that part of our grade of that assignment depended on peers' subjective opinions)
This course is a great course to take for the physical science requirement. I actually learned some cool things in this class while learning chemistry and it wasn't overly hard. Conclusion Reports following labs were tough to do , but you are walked through how to complete them for a good grade.

## I would recommend this course to:

	No	Yes
Highly-motivated and well-prepared students	7.14%	92.86%
Anyone interested in the topic	0.00%	100.00%

## Thinking about your time in the class, what aspect of the instructor's teaching contributed most to your learning?

Comments
She had slides projected on the screen and then during her lecture her writing from the ipad would appear on the slides to show us areas to focus on/illustrate an example. No midterm/final exam, but a final project instead which lets you get much deeper into the topic than a test would allow.
I cannot say enough about how great Professor Lant was! She is a great and passionate lecturer and makes herself very accessible for questions on anything. I also appreciated that she included pieces of art she made in the lecture slides – it just felt like a nice personal touch and it really showed how interested she is in the material!
the lectures and slides
Lab and her willingness to communicate with students.
Lectures were especially informative, and the labs really helped show that the concepts we learned in lecture were actually real.
The class lectures helped with all of the course content, and I enjoyed that they were made easily available to reference.
Dr Lant is so cool and a great lecturer!
Professor Lant is a PHENOMENAL instructor/lecturer. She is obviously very passionate about what she is teaching and presents everything in a very accessible way, given that this course is designed for non–science majors.
The slideshows were very informative and helpful when I was completing homework.
The instructor is really passionate about the topic.
The lectures as well as individual help in office hours.
Her passion abt the topics
lectures
Visual slides!! Loved the creativity in Prof. Lant's presentations, they were easy to follow and understand, also thanks to her detailed description and teaching.
Professor Lant was clearly very knowledgeable and put great effort in to preparing materials and resources to aid students.
She was not only engaging, she was also understanding of the lack of chemistry background many of the students, including me, had. This made it a comfortable class for me to take that I felt went at a manageable pace.
Professor Lant is very passionate about both chemistry and art, and that shows in the way the course is structured. I never felt like anything was irrelevant to the course or that a topic wasn't covered sufficiently.
The slides from each class were helpful.
The instructor was incredibly professional and knowledgeable and treated the students and material with a gravity that made the class feel like a genuine lecture every week as opposed to a core class. Bits of humor and personal anecdotes were well–balanced by hard science and application and ultimately, every day was an opportunity to learn.
Lectures were by far the most helpful, but office hours were great for asking more specific questions that may have gone beyond the scope of the course.
i liked Professor Lant's lectures
The instructor's organized and engaging lectures that built on each other really contributed to my learning and my understanding of the material when I worked hands–on with it in labs.
Dr. Lant was great. She was very easy going and the class topic was very interesting.
Lectures and office hours
Hannah thoroughly explains even the toughest topics clearly and to the extent to which you should know to perform well.

## What could the instructor modify to help you learn more?

Comments
Unpopular opinion but I would not be opposed to a weekly quiz on some of the topics. Sometimes in class I felt like I was understanding but by the time the homework came around I realized I didn't actually have a good grasp on the chemistry of everything. Having a low-stakes quiz, or even just being able to look over a post on Canvas like "here's some questions that you should be able to answer after class today/this week" might have helped me keep up with the material and take a more active role in my own learning.
Maybe a little bit more availability/office hours later in the week to review homework, or some time in class to ask questions I have.
nothing in particular
Nothing! She's great.
Not really much, I feel like she did a very good job.
I can't think of anything that could be done in a better way.
More interactive elements during lecture like the daily Poll Everywhere
Nothing really. Professor Lant is amazing.
Maybe more collaborative activities?
Nothing.
Spend some time refreshing us on basic chemistry concepts that we might not have used since high school.
Honestly she did great
Sometimes in the labs there were not enough supplies which led to a long wait for other groups to use equipment/materials.
N/A
It would be helpful to get additional comments as well as rubric scoring for grades.
Nothing.
Discuss feedback on assignments more
N/a
i would like more small-group activities
I would have loved to make the paint in the lab that studied the different materials contributing to different hues and how they mix together, though I know not being able to do so was a product of it not being particularly efficient in the lab process and that we were the first group to experience this course. Otherwise, I genuinely cannot think of anything to be modified!
N/A
Nothing! Professor Lant was the best; super available after class, during office hours, and through email. She was great at explaining the content, especially given that it was the first time the course was held, and you can tell she cares deeply about the material.
Nothing :)

## The Instructor . . .

	Mean	Median	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	N/A
Organized the course clearly.	4.80	5.00	0.00%	0.00%	0.00%	20.00%	80.00%	0.00%
Presented lectures that enhanced your understanding.	4.66	5.00	0.00%	0.00%	0.00%	34.48%	65.52%	0.00%
Facilitated discussions that were engaging and useful.	4.50	5.00	0.00%	0.00%	10.34%	20.69%	51.72%	17.24%
Stimulated your interest in the core ideas of the course.	4.69	5.00	0.00%	0.00%	0.00%	31.03%	68.97%	0.00%
Challenged you to learn.	4.34	4.00	0.00%	3.45%	6.90%	41.38%	48.28%	0.00%
Helped you gain significant learning from the course content.	4.52	5.00	0.00%	0.00%	0.00%	48.28%	51.72%	0.00%
Was available and helpful outside of class.	4.62	5.00	0.00%	0.00%	3.45%	31.03%	65.52%	0.00%
Motivated you to think independently.	4.62	5.00	0.00%	0.00%	0.00%	37.93%	62.07%	0.00%
Worked to create an inclusive and welcoming learning environment.	4.79	5.00	0.00%	0.00%	0.00%	20.69%	79.31%	0.00%
Overall, this instructor made a significant contribution to your learning.	4.69	5.00	0.00%	0.00%	3.45%	24.14%	72.41%	0.00%

**Please include the name of the TA/CA/Intern you are evaluating. What aspects of the TA's teaching contributed most to your learning? What could the TA modify to help you learn more? Please include any additional feedback for the TA/CA/Intern.**

Comments
Abby
Abby and Alex. I mostly interacted with Abby, but she was super nice in lab and was always available to clear up questions about conclusions reports or homework in a way that was really helpful!
Alex Krupinski. She is very helpful and kind in labs and office hours for everything
No comments for the TAs. Alex is great!
Abby, she did a great job during labs and when providing feedback
Abby Bracken
Abby Bracken. She was very helpful in our lab section, and provided clarifying responses for homework.
Alexandra Krupinski
Alex was so amazing!!!
TAs – Alex Krupinski and Abigail Bracken. I only worked with Alex, and I have to say she is very approachable and willing to help. Her office hours were quite helpful, even for small/simple questions.
Alexandra Krupinski was helpful and available during Lab and office hours. She could have given more instructions at the beginning of lab so we didn't all have to come to her with the same questions, but overall she knew the labs well and was helpful with troubleshooting the software we used.
Abby and Alex
Abby Bracken and Alexandra Krupinski
Alex Krupinski(might have misspelled her last name), she was very helpful in Office Hours and always took to the time to get to everyone and answer our questions clearly.
The TAs were very helpful in answering questions and leading lab activities.
Alex
Abby and Alex Very good at guiding us through the labs and always willing to help answer a question or troubleshoot when a reflectance spectrum was off. Both were very open and in the rare case they didn't have an answer to something, they acknowledged it, then found the answer. Both seemed to have good communication with Dr. Lant so everyone stayed on the same page.
Alex. She was really nice and patient when explaining problems. She put in a lot of effort and time in helping me with my assignments and lab!
Alex Krupinski and Abby Bracken were very knowledgeable and very patient, especially for first years navigating a lab space. They did not do very much teaching but were good additions to the classroom space.
Abby Brecken
Abby and Alex
Alex Krupinski and Abby Bracken Both TAs led helpful Office Hours as well as organized labs which all helped me learn more.
The TA's were amazing. they held really long office hours and were willing to help everyone out.
Alex Krupinski – Absolutely love her. Was always present during office hours and almost always stayed well past its time to help us with our questions. She was really approachable, fun, and also helpful in lab.



## The TA/CA or Intern. . .

	Mean	Median	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	N/A
Facilitated discussions that supported your learning.	4.53	5.00	0.00%	0.00%	7.69%	19.23%	46.15%	26.92%
Gave you useful feedback on your work.	4.68	5.00	0.00%	0.00%	4.00%	24.00%	72.00%	0.00%
Stimulated your interest in the core ideas of the class.	4.50	5.00	0.00%	0.00%	8.00%	32.00%	56.00%	4.00%
Challenged you to learn.	4.38	5.00	0.00%	4.17%	8.33%	33.33%	54.17%	0.00%
Helped you succeed in the class.	4.84	5.00	0.00%	0.00%	0.00%	16.00%	84.00%	0.00%
Was available and helpful outside of class.	4.83	5.00	0.00%	0.00%	0.00%	16.00%	80.00%	4.00%
Overall, this individual made a significant contribution to your learning.	4.68	5.00	0.00%	0.00%	0.00%	32.00%	68.00%	0.00%

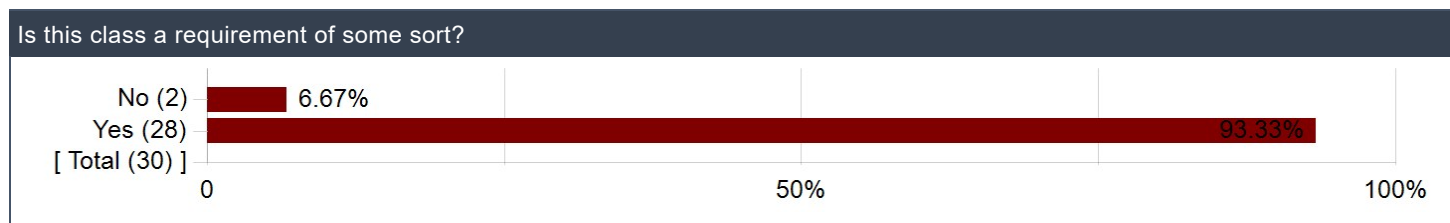
## How much did the following elements of the course contribute to your learning gains?

	Mean	Median	No Gain	A Little Gain	Moderate Gain	Good Gain	Great Gain	N/A
Laboratory Experience	4.53	5.00	0.00%	0.00%	10.00%	26.67%	63.33%	0.00%
Field Trips	4.40	4.00	0.00%	0.00%	7.14%	39.29%	42.86%	10.71%
Library Sessions	5.00	5.00	0.00%	0.00%	0.00%	0.00%	8.70%	91.30%
Review Sessions	5.00	5.00	0.00%	0.00%	0.00%	0.00%	4.17%	95.83%
Writing Seminars	4.50	4.50	0.00%	0.00%	0.00%	4.35%	4.35%	91.30%

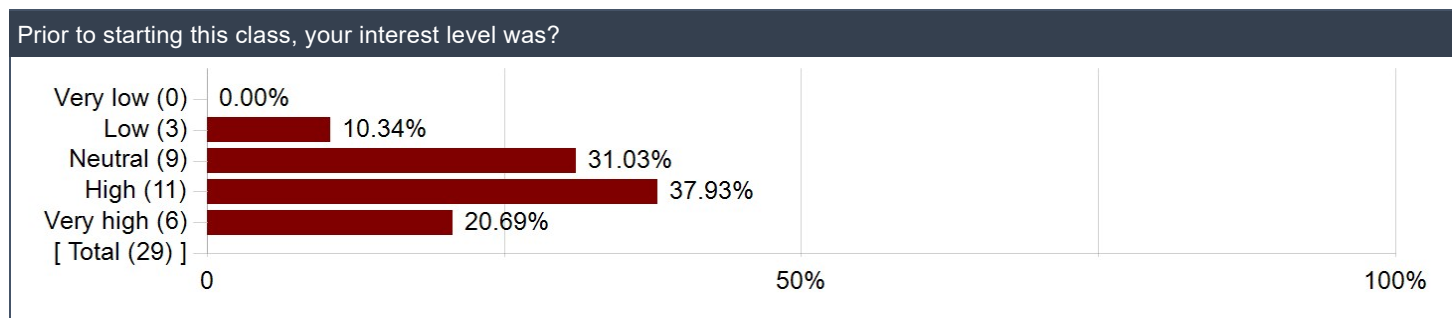
## Other course elements not mentioned above:

Comments
I greatly appreciated the scientific literature workshop that was incorporated into the course. Learning how to properly navigate journals and publications felt like a highly applicable skill, and it was nice to be able to do that research in a structured setting to start.
The literature search activity that occurred during one of the lab time slots was a great way to get a head start on the final paper and get guidance from the TAs and Professor Lant
Visit to the Smart Museum!

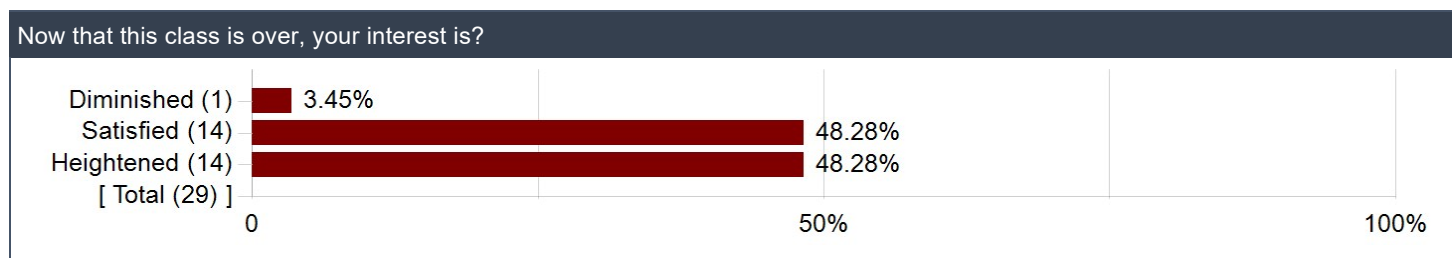
## Is this class a requirement of some sort?



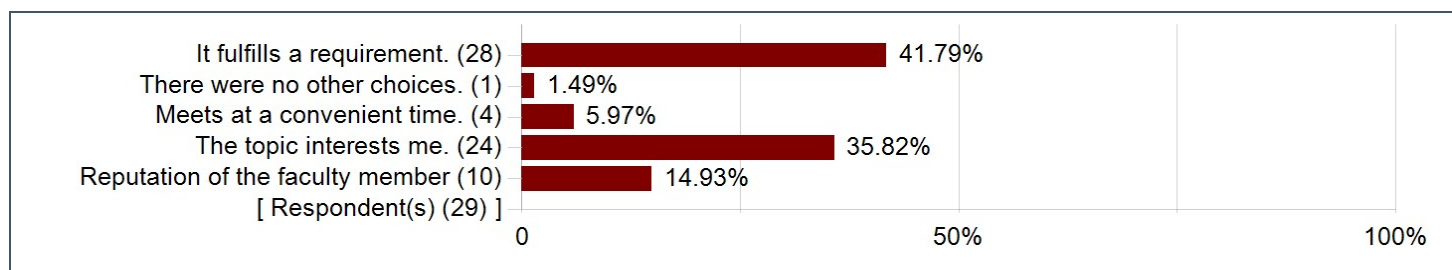
## Prior to starting this class, your interest level was?



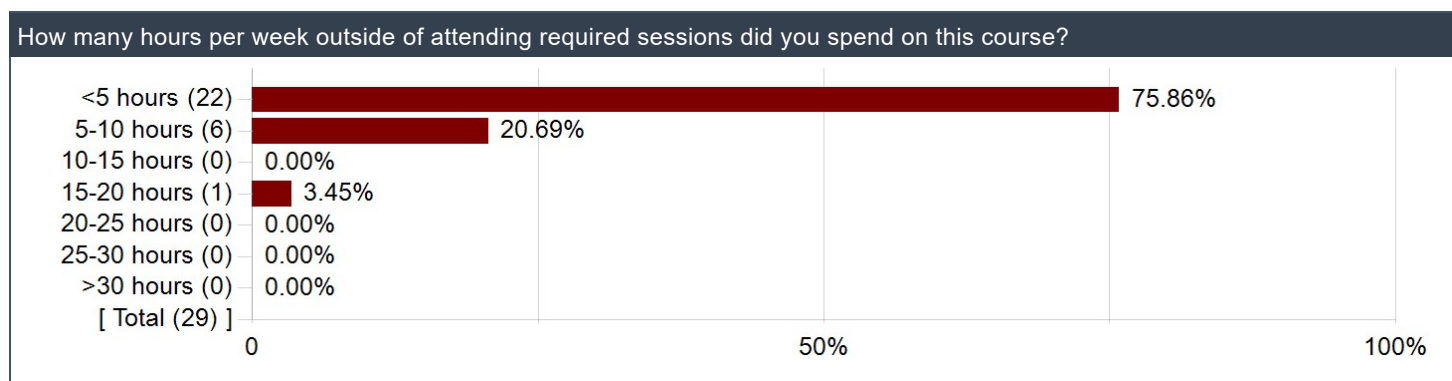
## Now that this class is over, your interest is?



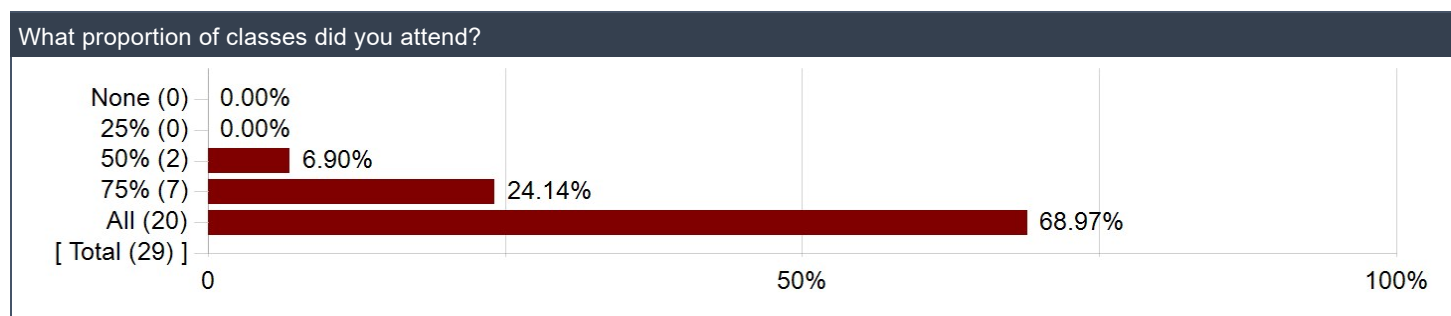
## Why did you choose to take this course? (Select all that apply)



## How many hours per week outside of attending required sessions did you spend on this course?



## What proportion of classes did you attend?



## Please comment on the level of difficulty of the course relative to your background and experience.

Comments
Chemistry has always been my weakest subject but Prof. Lant made it approachable and interesting. Class is engaging and challenging at times, but not difficult. Did not need much work outside of class except for final project.
It's definitely a super accessible class even if you have no background, and I found it to be easier than many other PHSC core I have heard of. Definitely highly recommend.
pretty easy for non-stem major students as long as you stay on top of everything and ask questions ahead of time
Not difficult at all. There are no exams, just a research paper so everything was low-stakes and relaxed.
I took high school honors-level chemistry four years ago, so a lot of the underlying chemistry concepts were to some degree familiar, though I definitely needed the review. Overall, I found it pretty easy.
Although I have a minimal chemistry background (high-school chemistry over zoom), this course was geared towards beginners, and so it felt very approachable. I would recommend it to anyone who is similarly nervous about their experience.
Easy if you pay attention in lecture
This course is very easy IF you go to the lectures and complete the assignments. I have a good amount of chemistry background but it was definitely not necessary. The class is not designed to be a burden—it's incredibly manageable.
Easy
It was very easy. I never took chem in high school and took this class as a freshman.
As a non-STEM major who hadn't done chemistry since high school, this class felt very manageable. The workload was not super high and we didn't get into super complex chemistry concepts. There were a few lectures that felt more difficult to comprehend than others because they were more chemistry heavy, but there weren't a ton of computational problems that required these concepts and were graded.
Not too hard
I only took chemistry in sophomore year of high school during COVID, not even AP, so my chemistry background was very limited but Professor Lant explained topics very clearly so it was easy to follow and understand chemistry topics I did not know before.
I had a very basic understanding of chemistry but Professor Lant took the time to explain everything and answer all questions. I was never left feeling unsure about a topic.
While somethings were above my pay-grade, the structure of the course (no tests) made it very manageable
Having any background in physics, chemistry, or art would definitely allow someone to get more out of the course, but it's approachable even without that.
As someone who has already taken chem courses at the university, this class was challenging enough to stimulate more learning, but not too difficult, and I think I'd be able to say the same thing even with no chemistry experience whatsoever.
I had some chemistry experience from high school and it was helpful and enough in understanding the chemistry that was taught in this class, though the class was not too difficult to feel doable.
Not hard at all. Just do the assignments and you will be fine
5 in AP Chem, but it's a super manageable course in terms of content; professor and TA email and office hours were always open for questions, and Professor Lant is great about explaining concepts. Excel was the only thing I struggled with, but Professor Lant provides a really helpful guide for those who have never had to use it.
It wasn't extemely difficult I would reccommend this course to ANYONE regardless if its a requirement because it was just the right amount of work.

