

Final Course and Instructor Evaluations
CHEM-342 - Introduction to Biochemistry - Spring 2008
Instructor: Harold B. White, III

The following are the responses of 24 of 25 registered students to the University of Delaware's on-line course evaluations conducted during the last week of classes.

Question	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	Total (25)	Mean	Std. Dev
	1	2	3	4	5			
The course was well organized.	1	0	0	5	18	24	4.63	0.88
The course textbook was very useful.	2	1	10	6	2	21	3.24	1.04
The course examinations emphasized understanding of the material.	0	0	1	6	16	23	4.65	0.57
The course emphasized understanding of the material rather than memorization.	0	0	1	3	20	24	4.79	0.51
Overall, I learned a great deal in this course, including factual knowledge, principles of behavior, or skills.	0	0	1	10	13	24	4.5	0.59
It would be a good idea to form new groups after midterm.	5	8	4	2	5	24	2.75	1.45
Peer evaluation of student performance within groups was a worthwhile activity	1	1	5	9	8	24	3.92	1.06
My group would have done fine without a tutor-facilitator.	6	13	3	2	0	24	2.04	0.86
I think examinations in CHEM-342 should focus more on factual information and less on problem solving.	4	8	7	4	1	24	2.58	1.10
The assignments I turned in were graded and returned promptly.	0	0	0	1	23	24	4.96	0.20
A considerable amount of the material in CHEM-342 reviewed material I had studied in other courses.	3	6	3	9	3	24	3.13	1.30
It was a bad idea to change tutor-facilitators after Spring Break.	8	7	5	3	1	24	2.25	1.19
My jigsaw group's concept map reflected mostly the efforts of one or two group members.	4	8	3	7	2	24	2.79	1.28
I think grades in CHEM-342 should be based solely on individual performance.	2	13	8	0	1	24	2.38	0.82
I talked about subjects and issues arising in this course with people not enrolled in the course.	1	4	9	9	1	24	3.21	0.93

Question	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	Total (25)	Mean	Std. Dev
	1	2	3	4	5			
I feel that I can apply the general principles I learned in CHEM-342 to problems in other courses.	0	2	1	12	9	24	4.17	0.87
I found the hemoglobinopathy assignment worthwhile.	1	2	5	9	7	24	3.79	1.10
As a result of this class my ability to find, read, and analyze information has improved.	0	0	1	13	10	24	4.38	0.58
I feel confident that I can read and understand research articles.	0	1	2	11	10	24	4.25	0.79
I am comfortable working in groups.	0	0	1	13	9	23	4.35	0.57
I feel comfortable sharing information.	0	0	1	10	12	23	4.48	0.59
I feel comfortable asking help from others.	0	2	1	15	6	24	4.04	0.81
I feel comfortable in relying on information obtained from others.	0	2	5	13	4	24	3.79	0.83
Given the opportunity, I would like to take another class designed like this one.	1	3	6	3	10	23	3.78	1.28
Discussion of the mystery molecules helped me make connections to things I had learned in other chemistry courses.	0	4	2	13	5	24	3.79	0.98
I found the course web-site to be a useful resource.	0	2	2	12	8	24	4.08	0.88
I found the quotations on the board thought provoking.	0	1	6	14	3	24	3.79	0.72
I enjoyed working in the jigsaw group for one week.	0	2	3	10	9	24	4.08	0.93
My group made use of the classroom library	1	1	3	17	2	24	3.75	0.85
I found the scratch-off group-quiz format a useful learning activity.	1	1	3	14	5	24	3.88	0.95
Having a group outing at the beginning of the course helped my group to work well together.	1	4	8	10	1	24	3.25	0.94

Question	Unsatisfactory	Satisfactory	Good	Very Good	Excellent	Total (25)	Mean	Std. Dev
Overall, I would rate this class:	1	2	3	4	5			
Overall, I would rate this class:	0	1	7	6	9	23	4	0.95

Question	1 - 0	3 - 2	5 - 4	7 - 6	8 or more	Total (25)
On the average, the number of hours per week I spend working on this course outside of class is:	0	1	16	6	1	24

Essay Responses for CHEM-342

Comment on the course. Responses (17 of 25)

- I have taken from this class the ability to formulate questions from a particular article and go through the process of finding answers to my ignorances.
- Overall the course was helpful, it does help with understanding journal articles which will be helpful.
- The course was a great elementary biochemistry course. Although we focused on the protein, hemoglobin, reading articles based on the study of this protein greatly increased our understanding of various biochemical experimental methods and the chemical ideas underlying those methods.
- It was an interesting and well organized class.
- This class as an "Introduction to Biochemistry" is, I believe, superficial as only a little bit of biochemistry is directly probed and how much you learn about biochemistry is solely dependent on how much you can infer from an article. Instead of using the sole vehicle of papers about hemoglobin, assignments that deal with hypothetical problems could demonstrate a larger resolution of learning issues than a quiz does. The hemoglobinopathy assignment in the course was largely an exercise in expanding 2 pages worth of information into a 5 page report and a waste of time and resources. Perhaps the use of the library's resources should be taught as a way to resolve learning issues instead of a way to compile a report.
- Very excellent course overall. Glad I had the chance to learn about hemoglobin in the detail that we did.
- The group learning aspect was an interesting change of pace and work very well for the understanding of the course material.
- This course taught me a lot about Hemoglobin. It emphasized actually understanding the concepts behind the articles as opposed to memorization of what the articles said. This class has really helped me to understand and be able to read scientific articles better.
- Overall the course was demanding and quite difficult. The material was brought upon us in such a way that it made it pretty interesting. Though very hard to understand and grasp at times, the tutors were always there to lead you in the right direction. I have to admit, PBL

based courses are not my favorite. Lectures are more efficient in making sure that most of the students understand the material and also at letting the student know what is the most important material to understand for tests of all sorts.

- The PBL-aspect of this class was very interesting. I feel that I am better able to identify and subsequently correct lapses in my understanding now that I have taken this course.
- I learned a lot in a way that i thought id never learn before. Much better than a lecture course.
- Loved it!
- We really learned how to read papers.
- This course is an amazing course, but you have to be willing to make the effort and have the right attitude. Students will only receive in an amount that is directly proportionate to how much they put in.
- Unconventional but fun!
- Very interesting, never had a course like this before, very effective way to teach students learning information.
- The course was focused more on an approach to understanding articles and material related to biochemistry and was centered entirely on hemoglobin.

In an informative sentence or two, describe or characterize CHEM-342 to someone who might consider taking the course, e. g. What is the essence of this course? Responses (20 of 25)

- You get out of this course what you put in. Its difficult material and if you are willing to work hard, you will benefit tremendously from taking it.
- This course focuses on hemoglobin, but the actual essence of the course is to learn how to read and understand science journal articles. The course also helps learn the techniques of labs.
- CHEM-342 uses a problem based learning method, which involves reading various articles based on the study of hemoglobin and sickle cell anemia, generating and answering questions on those articles, and working in groups to enhance your understanding of the ideas and methods associated with those articles. In this course, you will not only become more knowledgeable about hemoglobin and biochemical experimental methods, but you will also be able to better understand scientific articles, to consult resources to answer questions, and to work well in groups.
- A class that is probably much more thought provoking than any you have had before.
- This class is about learning how to learn biochemistry.
- This course is an exercise in obtaining useful information from various sources including the papers that you read and your other group members, and applying that information to what you currently understand about a topic to broaden said understanding.
- The course is designed to help you learn different topics through understanding what you don't understand and it teaches you where and how to research these learning issues.
- It is a difficult class, but if you are willing to apply yourself and commit to the work, you WILL succeed. Not only with a good grade, but with the knowledge that you don't know everything and to ask others for help when you need it.
- This class emphasizes the conceptual understand of research articles and working in groups to better understand things.
- The course really focuses on developing skills within students that aid and facilitate the understanding of any subject material. These skills include researching, out of classroom work, ability to relay understood material to others, and ability to work well with others, all essential skills in order to be a good scientist.
- The purpose of this course is to provoke scientific chemical thought and develop problem solving skills necessary for research.

- This course emphasizes on problem solving to understand biochemistry topics focusing on hemoglobin.
- The point of this course is to get you to learn more effectively, and to become proficient at finding and analyzing pertinent scientific information.
- It is a course that you will really enjoy. There is a lot of participation involved and though it is hard to discuss long hard articles at 8 am in the morning you will get used to it. It will become your favorite class and the material is extremely interesting.
- This course prepares you for biochemistry, by teaching you not the biochemistry material. But instead, presenting you various articles on the subject matter and allowing you time to analyze and understand these artles with a group of peers. He helps you when necessary and your tutor is there to help. Highly recommended
- Learning how to read and find out what you don't understand about scientific papers.
- The essence of this course is learning how to work on your own, how to effectively research, and how to work with others and the ups/downs that come with the latter.
- It's the weirdest course you'll ever take. You'll end up surprised that you learned a lot.
- A class where it is not designed as a generic clourse, initiates your thinking process by learning about real life biochemical processes and understanding them completely.
- Chem 342 is a course which promotes the general understanding of biochemistry in order to help you to perform better in higher level courses. Although the lectures are focused on hemoglobin, the knowledge gained is more related to work ethic and study habits.

Open Mic. Reflect on the course and identify those aspects that you like or think could be improved. Please suggest ways for improvement. Responses (17 of 25)

- A few more classes could be devoted to lecturing about the material, and less of the group activity, because if the group got stuck on information it was stressful.
- I liked working in groups, even though I was apprehensive at first. The problem based learning method worked incredibly well, and I feel that I've learned a lot in this course. The course may have been improved if Dr. White held a review lecture for each article where he went over important concepts and asked the class questions.
- I liked the format of the class and the fact that it focused on learning by yourself rather than just regurgitating information.
- This class taught me about reading source papers and hemoglobin. This class also taught me about common biochemical lab practices such as electrophoresis, centrifugation and protein sequencing. However, I think there are other important aspects of biochemistry that were overlooked, such as mass spectroscopy, catalysis, and enzyme action that were overlooked in favor of less-related items such as epidemiology and genetics. Also, I feel that pigeon-holing the course into hemoglobin is not as effective in covering the broad topic of biochemistry as using hemoglobin as one of a few examples. Showing the actions of hemoglobin, insulin and pepsin, for example, may give a student a broader depth of understanding than just using hemoglobin alone.
- The course was excellent overall. Article selection could have been a bit better, but the chronological presentation of each article was a nice touch.
- I think it would be more useful to review the article before the quizzes then after.
- Overall the course has taught me skills essential for higher understanding of all subject material. It has been difficult to fully acquire these skills but they have definitely helped not in just this course but also in other courses. The course has been pretty difficult thus far, but has helped me learn material that will be of great help in the future. Like I have said, PBL courses are not my favorite and I would prefer lectures, but this PBL course in particular has taught me these essential skills.

- A way for improvement would be to provide other outlets and/or options for the various learning abilities of students.
- Fix a few of the erroneous links on the course website. Also, have the protein explorer program completely available and usable for students for the hemoglobinopathy report. I don't think it makes sense to ask students to use this program, if the professor does not even understand the program. Not all of us are computer whizzes. And I spent about 6 hours trying to figure out technical errors with the program when I followed the directions given to me. The idea of a 3D model is great. But if no one seems to understand how to get it working on your computer-this is nonsense.
- I liked most of the articles, but some of them were pretty difficult to read. Also, I feel that we spent too much time discussing the Allison article. Two class periods would have been more than enough time to discuss that article.
- I think that the groups should be monitored a little more and there should be peer evaluations every two weeks, or after each article that reflect the work that each student put in the group.
- Don't think anything needs to be changed. It's great!
- Have Dr. White spend more time with each group to answer any questions that come up.
- This course revolves solely around problem based learning. If you are not willing to put in the required time of outside reading and definitely research, you should consider not taking this class and possibly changing majors. This course taught me how to effectively research on my own. I have learned from discussion with grad. students that I know, that having a PBL course is an invaluable tool, because once you're out of undergraduate studies, there aren't professors with all the answers. You need to learn how to ask the right questions, how to effectively find the answers and concepts behind them, and how to extend that knowledge further. Chem342 definitely raises the bar in this sense, and I would recommend it to anyone serious about making it in the sciences.
- Dr. White: some suggestions of what I would try if I was teaching the class... sorry it seems so picky... Edit your syllabus so that it fits into 1-2 pages and only contains relevant info: Class time/place/instructor contact info/office hours/schedule of articles/dates of tests and assignments/grading rubric of percentages for each assinment and the % for A, B, etc./BRIEF (less than 3 sentence)description of class goals. Don't spent 2 lectures at the beginning of class going over the educational theory of PBL. We learn what it's like from doing it, not from you explaining how it's supposed to work. An extra two classes would give more time on articles. Do "blue and gold" the first day. Ideally: More time on Zinoffsky, more time the explain jigsaw articles to the group, more time on Ingram, less time on Allison and Pauling. A more modern article might be nice. More demonstrations would be awesome.
- More class discussions, not changing tutors, easier exams.
- I feel that I could have gained more knowledge in a normal teaching setting. The group setting often required explaining basic principles to those who did not understand, which is typically a personal project and not the responsibility of other people. I often felt that the group did not gain as much of a grip of the material as I would have liked and my grade consequently suffered.

Instructor Evaluation

Question	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	Total (25)	Mean	Std. Dev
	1	2	3	4	5			
The instructor demonstrated thorough knowledge of the subject matter.	0	0	1	1	22	24	4.88	0.45
The instructor presented the materials in an interesting way.	0	1	3	8	12	24	4.29	0.86
The instructor encouraged class participation.	0	0	1	3	20	24	4.79	0.51
I would recommend this instructor because of his/her teaching to others considering taking this course.	0	1	5	8	10	24	4.13	0.90
The instructor's lectures were well organized.	0	0	4	12	8	24	4.17	0.70
The instructor was helpful if you sought help outside of class. (Don't respond if you didn't.)	0	0	2	9	10	21	4.38	0.67
Overall, the instructor was effective in facilitating your learning of the material in this course.	0	0	6	7	11	24	4.21	0.83
Instead of group work, I think Dr. White should lecture more.	4	6	4	3	7	24	3.13	1.51

Essay Responses for CHEM 342 for Spring 2008 - Instructor Harold B. White, III,\ Comment on the instructor. Responses (20 of 25)

- Dr. White is a fantastic teacher and problem based learning is effectively integrated into this course.
- Dr. White is very helpful and approachable, he cares a lot about his students and will help if any questions arise.
- Dr. White is an amazing professor, and his PBL method was very effective.
- He's great at answering questions. My only regret is not making use of time after class to visit him in his office.
- Really made me think about the course material, more than all my other classes.
- He is a very knowledgeable professor and is extremely interested in his subject.
- Dr. White, as an instructor, was very helpful in tying up the loose ends for things we didn't have a firm grasp on by the time we were finished reading an article. When he visited each group individually, he was always helpful in guiding the discussion. His demonstration was interesting, and the regrettably unique experience was both informative and practical.
- Very good professor, he is genius for establishing learning based problems into his class. It was very effective overall, for I learned more in this class than any of my other classes over the past two years. He also helped me out with personal issues after class on several occasions. Overall he is great as a professor and as a person.
- Very good teacher. Challenged you to go above and beyond the class in order to ensure complete understanding.

- The Group learning aspect of the class made it very different than normal lectures, but the occasional interaction with Professor White made it a very valuable learning experience with how the class was instructed.
- The way Dr. White taught the class allowed students to find answers on their own. It allowed me to develop much better research skills. He is a very effective teacher using PBL.
- Very laid back and easy going which I liked a lot. He has a great attitude toward the class and never brought stress upon me just because of his persona. He is also very knowledgeable of all the subject material and explains things in a manner that is not extremely complicated.
- Professor White was more than willing to meet with students outside of class. He guided us to the correct answer(s) to our questions instead of simply answering the questions, which was helped us hone our critical thinking skills.
- Dr. White is a great instructor. I have never been pushed so hard in any other class before, and the great thing is that i have gotten great results from being pushed so hard, in his class. He has taught me so much in general outside of the class, i have learned how to become a better student. Dr. White is always available and open to help his students anytime. Every time i pass by his office he sits there with a smile on his face. He is the first professor i feel really comfortable around and it is great that he provides that kind of atmosphere towards his students. Aside from being my academic advisor, i feel like i can go to Doctor White with any problems that i come across during my academic career. He is a great "go to guy" and really wants to see his students succeed, you can see it in him. He presents material in class and wants us to really understand it and go behind the problem and tackle the material in a way which makes us experts at the material. No other instructor has kept me so interested and pushed me so hard at learning. He really builds a "one on one" relationship with his students which makes it easier to communicate with him. By far he is the greatest professor i have had at the university, and really a great man. I wish that i could have the pleasure of having him as my professor again. -Jaheda Nisar
- This class was different then any other I had experienced thus far at the University, but I loved this class. Working through things on my own has really helped me grasp an understanding on the artles and subject matter. I think this class will prepare me well for BioChem.
- He really knows and enjoys what he teaches. Dr. White knows what he is doing in pushing students to do their best in this course. He knows how to get students to ask the right questions and find the right answers on their own. He demonstrates a unique ability to inspire his students to learn on their own outside of the class.
- Dr. White is an amazing teaching, and a wonderful person. He cares a lot about his students.
- He is very knowledgeable and knows his material. He encouraged participation greatly and made students research ideas they didn't know. Very effective.
- Dr. White is very knowledgeable about the material being discussed in class, however he has little impact on how the material is learned.

Identify or describe some way(s) that Professor White could improve his teaching (and your learning). Responses (17 of 25)

- Have more led discussions by himself and a few less by groups.
- Dr. White could improve his teaching and our learning by holding a review lecture for each article to go over main concepts and ask the class questions.
- Generally explaining things more instead of leaving SO MUCH of the workload (as far as understanding).
- It is impossible for Dr. White to spend more time individually with each group, however, a more established way of monitoring progress would be helpful.
- none
- I think that Dr. White's teaching methods worked very well and were a refreshing change of pace
- The only thing I can think of is some articles could have used more time to discuss and understand.
- I think professor White could lecture a little more during class. I feel group work is not 100% efficient in getting the material, you need to know, across to us. It involves plenty research on our part, but there are things students always miss or do not grasp completely when researching on their own. If Dr. White lectured he would relay all information that is extremely important to understand for quizzes, papers, and exams. Overall lectures would minimize the gaps in our understanding of the material.
- Professor White could incorporate lectures pertaining to the material.
- Perhaps if Professor White had lectured for a few more minutes at the start of class, we would have been able to get on the right track more quickly.
- to go over the papers after the students have discussed them. so that every student will be on the same page
- He did not do much to teach us matter about the subject matter, but more importantly taught us how to learn and teach ourselves. He's great!
- Maybe spend a bit more time with each group.
- Nothing: This course would not have been the same if there was a major lecture component to it. The main point of the course is to inspire students to seek the answers on their own, and PBL has done that.
- I think that one of the problems with the class is that gradings is so subjective. I feel like some people worked really hard and still didn't get A's on their learning issues, while some people got A's right away and then didn't work as hard. It's hard not to blame some grades (good or bad) on instructor favoritism.
- I think sometimes the class is too peer learning based. sometimes you cannot rely on group members completely so I think there should be more class discussions regarding the articles before quizzes and exams.
- Although problem based learning teaches you how to rely on other people, I do not know that I trusted the accuracy of the things I learned as it was never verified as right or wrong, besides by other students. Overall, I would prefer more lectures, if nothing else than to ensure that everyone was at the same level of understanding.

Identify or describe some thing(s) that Professor White does particularly well.

Responses (20 of 25)

- He motivates students to reach their potential and go above and beyond what they would do on their own.
- Helps the students out, and helps with understanding by going through the groups.
- Dr. White answers questions and offers explanations very well. I also found it particularly useful that he handed out a sheet of important learning issues for each article.
- The mystery molecules, and when he comes around to the tables and probes us.
- He encourages participation and work outside class.
- Dr. White is very good at directing discussions, identifying what students don't understand and asking the right questions to guide them to the answer.
- Initiating research by students for better understanding. Creating an atmosphere for discussion and learning.
- Encourages you and motivates you to do well. Doesn't straight up give you the answer, but instead wants you to find things out on your own. This helps with understanding the material.
- He does a really good job at pointing students in the right direction without giving exact answers. He really helped gain confidence in my research techniques. He is very easy to talk to.
- Professor White is extremely knowledgeable about all the material we discuss in class, so whenever students ask questions, he answers them and explains them very well. He is also good at not telling you the answers to your questions till he feels you have done a sufficient amount of work toward finding that answer. He also provides a good class environment and gives you plenty available resources to fall back on, i.e textbooks.
- Professor White chronologically organizes the material well.
- Very organized and neat. Always gave back assignments on time. Asked us to meet him outside of class and that was very helpful.
- He lets us draw our own conclusions about the articles we read, and facilitates our learning especially well.
- I think I mentioned a lot of this earlier.
- He teaches us how to analyze articles, grasp concepts, and overcome obstacles through subject matter questions!
- He is really knowledgeable about the papers.
- Dr. White gives assignments that allow students to ask the right questions and research different topics that are relevant to the questions at hand.
- Gets students to THINK.
- He makes you think outside the box and understand concepts that may not be known from the top of your head.
- Professor White does an excellent job of keeping class on topic and always helps students seek the answers they are looking for.