### Final Course and Instructor Evaluations

**CHEM-342 - Introduction to Biochemistry - Spring 2012**

**Instructor: Harold B. White, III**

The following are the detailed responses of 26 of the 27 registered students to the University of Delaware’s on-line instructor and course evaluations conducted during the last week of classes.

#### Responses to questions about the instructor

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Total (26)</th>
<th>Mean</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>QID 3425 The instructor demonstrated thorough knowledge of the subject matter.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>23</td>
<td>26</td>
<td>4.88</td>
<td>0.33</td>
</tr>
<tr>
<td>QID 3426 The instructor presented the materials in an interesting way.</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>7</td>
<td>17</td>
<td>26</td>
<td>4.58</td>
<td>0.64</td>
</tr>
<tr>
<td>QID 3427 The instructor encouraged class participation.</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>22</td>
<td>26</td>
<td>4.81</td>
<td>0.49</td>
</tr>
<tr>
<td>QID 3430 I would recommend this instructor because of his/her teaching to others considering taking this course.</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>8</td>
<td>14</td>
<td>26</td>
<td>4.31</td>
<td>0.97</td>
</tr>
<tr>
<td>QID 4332 The instructor's lectures were well organized.</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>8</td>
<td>14</td>
<td>26</td>
<td>4.38</td>
<td>0.75</td>
</tr>
<tr>
<td>QID 4333 The instructor was helpful if you sought help outside of class. (Don't respond if you didn't.)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>17</td>
<td>22</td>
<td>4.77</td>
<td>0.43</td>
</tr>
<tr>
<td>QID 4334 Overall, the instructor was effective in facilitating your learning of the material in this course.</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>8</td>
<td>13</td>
<td>26</td>
<td>4.19</td>
<td>1.02</td>
</tr>
<tr>
<td>QID 3581 Instead of group work, I think Dr. White should lecture more.</td>
<td>4</td>
<td>7</td>
<td>3</td>
<td>8</td>
<td>4</td>
<td>26</td>
<td>3.04</td>
<td>1.37</td>
</tr>
</tbody>
</table>
Essay Responses for CHEM342010 for 2012 Spr (2123) - Instructor White III, Harold Bancroft

Question ID: 3435 Comment on the instructor.

Responses (16 of 27)

- The previous questions were difficult to answer because this class was so much different from any course I have taken. Dr. White was a great teacher. When he came around group to group he was very insightful and led the class in a good direction every time. I really liked the idea and the function of the class but I think I would have liked a few more standard-style lectures from Dr. White.
- The times when Dr. White talked or explained concepts from the articles were the most enjoyable parts of class. He makes the subject matter exciting and interesting. I wish he took more class time to do this.
- Dr. White is very clear about his expectations and purpose for his methods. Being aware of his reasoning behind his methods gives the students more accountability for their actions and makes the learning experience more valuable. He is a good facilitator by knowing when to provide information and when to help the students figure it out for themselves.
- This class was very effective in teaching core concepts of biochemistry.
- His method of teaching was very interesting. It helped me really understand basic chemistry concepts through analysis of articles.
- The teaching is definitely different from typical classroom. It can see the benefits of group activity, but I personally like typical classroom structures.
- Dr. White obviously knows a lot about biochemistry, and the fact that he likes to talk about it and teach it to his students is very evident.
- Professor White is very knowledgeable and offers help inside and outside of the classroom. He lectures for about the first ten minutes of class, however, the class is not set up where Professor White will lecture. Overall, Professor White is very personable and yearns to get to know his students and help them become better learners.
- He's a nice teacher.
- Was very helpful during office hours. Not completely opposed to problem based learning but not a fan to an entire course being this way.
- Dr. White did a very good job of facilitating the work of the groups.
- Excellent professor. Excellent attitude and very knowledgeable about biochemistry. At times difficult to gauge what is expected.
- Dr. White is very willing to help you with materials and allows one to develop their own understanding of concepts by encouraging group and individual work.
- Dr. White is nothing short of brilliant. I believe the PBL learning style he employs is effective, but at times can be very overwhelming and leave you with entirely too much work.
- Dr. White was very effective when I sought help outside of class. He was always available and open to questions. In class when he visited groups he was excellent at being able to explain confusing concepts.
I loved this style of learning. It was interesting, engaging, and really helped me to grow as a student. I would definitely recommend it. I think the experience had much to do with Dr. White's organization of the class.

**Question ID: 3608** Identify or describe some thing(s) that Professor White does particularly well.

**Responses (20 of 27)**

- He sets the stage for us to gain a deep understanding of the material. By putting the onus of learning the material on ourselves, we learn more. By putting us in groups, there is more motivation to learn because a) you are accountable to your group mates and b) you are aware of the level of work your group mates are doing and are motivated to match them.
- He made a great environment for learning. Between the readings and his short lectures and his attitude and availability outside of class he made many opportunities to grasp the material.
- He is an expert on the subject matter and gets the class engaged by showing visual demonstrations. He asks excellent questions that probe us to think.
- He reiterates the reasoning for his methods which reminds us the bigger picture purpose of all the work we do. He provides learning issues and POGIL activities to guide our learning. He moves around the classroom and facilitates group discussion without taking away from it.
- Everything!
- He continues to challenge all of our understandings until we can actually really grasp the concepts to a level further than the surface.
- He is very good at questioning people to think in the right direction and encouraging the students to think deeper into the topic and explore other related topics.
- He is really good at leading you to the right answer, but making you do all the work. I feel like I'm actually learning the material instead of just being "talked at."
- He knows a great deal amount of the material and is very passionate about it.
- Dr. White is very welcoming. Basically, he is the opposite of intimidating. It's very easy to go ask him a question because you know that he'll never think that you are dumb for asking it. Also, he does a very good job of answering your question in that he doesn't just answer your question, he explains it and makes sure you understand.
- Professor White gets to know his students on a personable level and enjoys discussion with his students.
- asking questions that provoked participation. good with reminders and well organized course
- His brief visits with each group did a lot to increase our understanding of the topics.
- He presents you with the opportunity to investigate things that interest you. Very good at facilitating learning, but is careful to make sure you work for it on your own.
- He encourages us to learn on our own but if we get stuck he guides us in the right direction.
He is very good at organizing the class and returning tests and assignments promptly. In addition, he provides an understanding of the concepts that help one comprehend them better. He also makes students think and encourage them to research things they don’t understand.

He does a good job of outlining the class. Even if you didn't attend class, you could have followed along because the course was so well laid out for you.

He explains things excellently.

See above

He encouraged critical and analytical thinking, while being helpful when our group was stuck. Also, he asked insightful questions to get us to think about issues on a deeper, more fundamental level.

**Question ID: 3609** Identify or describe some way(s) that Professor White could improve his teaching (and your learning).

Responses (18 of 27)

- I think it would be good to have a lecture at the end of each article to make sure we know all the details of the material. Giving out his personal set of Learning Issues at the end of each article achieves this goal to some degree, but some of the issues in his list is clearly not material that will be presented on an exam.
- As mentioned earlier I would have appreciated a few more standard lectures. At least one or two main concepts that one would need to understand the reading maybe before we read. That way it facilitated the reading but didn't give it away. (aka you would still have learning issues and have to work through the article but wouldn't need to struggle with the procedure)
- a little more of lecture just to give a better background knowledge of what is going on in each article would be helpful. the peer tutors aren’t teachers, and as students we don’t know what it important to learn and what isn’t, so a little more help with those kind of issues would be very helpful.
- I would have liked more guidance. I enjoy learning from him teaching and I wish he would have done that more. I do think that the PBL style is useful and a good experience in preparing the students for grad. school and the science world. However, I personally think that there needed to be more of a balance between lecture and group learning for me to be successful in this course.
- I appreciate having to do the learning issues, but once I got an A on them, I stopped doing them and felt less responsible for the papers. Perhaps having some sort of task to ensure that group members continue to read and stay on top of the papers would be helpful even if they're not graded to the same extent as the learning issues. For example, simply turning in a list of 5 learning issues gets you points, even if the quality is not there, the fact that you had to do them will force you to read the papers. The only other thing that might help is breaking up the research paper into drafts so students get started on it earlier. I appreciate the check-list so I know what to include too!
• He could go over what he discussed with each group to the entire class as every group may have obtained different information and are in a different stage of analyzing the articles.
• In some sense, I feel like the only issues I had were because of the group. Sometimes we lost motivation or people were absent.
• Once a week lecture recapping and reviewing main material and concepts on the articles.
• Can't think of any right now.
• I think Professor White could lecture about the subject matter for a little longer in front of the class. Also, I think a question and answer discussion at the beginning of class with everyone involved would be very helpful.
• Definitely lecture more. There seemed to be a few topics no one understood in class, and if you don't lecture on it early enough then students won't understand it or learn the wrong thing. Then you won't know you learned the wrong thing until after the test.
• Dr. White could improve by explaining the basics of an article before it needs to be read for class to give everyone an idea of what it will be.
• I think Dr White at times should prepare more of a lesson plan to guide the direction of learning he wants. Only a list of learning issues was given out for reach topic/article, and sometimes I felt a short lecture would be good for a base to build knowledge on top of.
• He could visit group more often and prompt more questions if anything.
• More lectures would have been helpful, especially latter in the semester. I understand the point of PBL, but I feel like I would have done better and learned more if there was more of a balanced between PBL and lecture. A once a week lecture would have been nice, alongside with 2 PBL sections a week.
• I wish he would lecture more, and go over pogils in the class.
• None.
• I think I would like to see an answer key to a few of the practice questions, so my group and I could know that we were on the right track.
### Responses to questions about the course

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Total (25)</th>
<th>Mean</th>
<th>Std. Dev</th>
</tr>
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<tbody>
<tr>
<td>QID 4329 - The course was well organized.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>11</td>
<td>14</td>
<td>25</td>
<td>4.56</td>
<td>0.51</td>
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<td>QID 4330 - The course textbook was very useful.</td>
<td>0</td>
<td>2</td>
<td>11</td>
<td>3</td>
<td>7</td>
<td>23</td>
<td>3.65</td>
<td>1.03</td>
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<td>QID 4331 - The course examinations emphasized understanding of the material.</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>9</td>
<td>12</td>
<td>24</td>
<td>4.38</td>
<td>0.71</td>
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<tr>
<td>QID 3419 - The course emphasized understanding of the material rather than memorization.</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>7</td>
<td>17</td>
<td>24</td>
<td>4.64</td>
<td>0.57</td>
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<tr>
<td>QID 10369 - The process-oriented guided inquiry learning (POGIL) activities (e.g. protein crystallization for Zinofsky, experimental decisions relating to Dintzis, and natural selection on hemoglobin for Allison) should be used in future offerings of CHEM-342.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>15</td>
<td>25</td>
<td>4.60</td>
<td>0.50</td>
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<td>QID 13008 - I preferred my group's first tutor to the one we had after Spring Break.</td>
<td>1</td>
<td>4</td>
<td>13</td>
<td>5</td>
<td>2</td>
<td>25</td>
<td>3.12</td>
<td>0.93</td>
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<tr>
<td>QID 13009 - I think my group functioned better after Spring Break than before.</td>
<td>1</td>
<td>5</td>
<td>12</td>
<td>5</td>
<td>2</td>
<td>25</td>
<td>3.08</td>
<td>0.95</td>
</tr>
<tr>
<td>QID 248 - Overall, I learned a great deal in this course, including factual knowledge, principles of behavior, or skills.</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>7</td>
<td>15</td>
<td>25</td>
<td>4.48</td>
<td>0.71</td>
</tr>
<tr>
<td>QID 3577 - It would be a good idea to form new groups after midterm.</td>
<td>2</td>
<td>8</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>24</td>
<td>3.13</td>
<td>1.33</td>
</tr>
<tr>
<td>QID 3579 - Peer evaluation of student performance within groups was a worthwhile activity.</td>
<td>0</td>
<td>2</td>
<td>9</td>
<td>11</td>
<td>2</td>
<td>24</td>
<td>3.54</td>
<td>0.78</td>
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<tr>
<td>QID 3580 - My group would have done fine without a tutor-facilitator.</td>
<td>12</td>
<td>9</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>24</td>
<td>1.63</td>
<td>1.50</td>
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<tr>
<td>QID 3582 - I think examinations in CHEM-342 should focus more on factual information and less on problem solving.</td>
<td>1</td>
<td>9</td>
<td>6</td>
<td>8</td>
<td>0</td>
<td>24</td>
<td>2.88</td>
<td>0.95</td>
</tr>
<tr>
<td>QID</td>
<td>Description</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>22</td>
<td>24</td>
<td>4.92</td>
</tr>
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<td>-------</td>
<td>------------------------------------------------------------------------------</td>
<td>---</td>
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<td>------</td>
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<tr>
<td>QID 3583</td>
<td>The assignments I turned in were graded and returned promptly.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QID 3584</td>
<td>A considerable amount of the material in CHEM-342 reviewed material I had studied in other courses.</td>
<td></td>
<td></td>
<td>4</td>
<td>2</td>
<td>15</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>QID 3585</td>
<td>It was a bad idea to change tutor-facilitators after Spring Break.</td>
<td>2</td>
<td>10</td>
<td>10</td>
<td>3</td>
<td>0</td>
<td>25</td>
<td>2.56</td>
</tr>
<tr>
<td>QID 3586</td>
<td>My jigsaw group's concept map reflected mostly the efforts of one or two group members.</td>
<td>1</td>
<td>13</td>
<td>3</td>
<td>8</td>
<td>0</td>
<td>25</td>
<td>2.72</td>
</tr>
<tr>
<td>QID 3587</td>
<td>I think grades in CHEM-342 should be based solely on individual performance.</td>
<td>0</td>
<td>16</td>
<td>6</td>
<td>3</td>
<td>0</td>
<td>25</td>
<td>2.48</td>
</tr>
<tr>
<td>QID 3588</td>
<td>I talked about subjects and issues arising in this course with people not enrolled in the course.</td>
<td>2</td>
<td>8</td>
<td>4</td>
<td>9</td>
<td>2</td>
<td>25</td>
<td>3.04</td>
</tr>
<tr>
<td>QID 3589</td>
<td>I feel that I can apply the general principles I learned in CHEM-342 to problems in other courses.</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>12</td>
<td>8</td>
<td>24</td>
<td>4.17</td>
</tr>
<tr>
<td>QID 3590</td>
<td>I found the hemoglobinopathy assignment worthwhile.</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>12</td>
<td>9</td>
<td>24</td>
<td>4.13</td>
</tr>
<tr>
<td>QID 3591</td>
<td>As a result of this class my ability to find, read, and analyze information has improved.</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>7</td>
<td>14</td>
<td>24</td>
<td>4.46</td>
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<tr>
<td>QID 3592</td>
<td>I feel confident that I can read and understand research articles.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>17</td>
<td>7</td>
<td>24</td>
<td>4.29</td>
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<tr>
<td>QID 3593</td>
<td>I am comfortable working in groups.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>20</td>
<td>4</td>
<td>24</td>
<td>4.17</td>
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<tr>
<td>QID 3594</td>
<td>I feel comfortable sharing information.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>17</td>
<td>8</td>
<td>25</td>
<td>4.32</td>
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<tr>
<td>QID 3595</td>
<td>I feel comfortable asking help from others.</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>17</td>
<td>6</td>
<td>24</td>
<td>4.21</td>
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<tr>
<td>QID 3596</td>
<td>I feel comfortable in relying on information obtained from others.</td>
<td>1</td>
<td>2</td>
<td>6</td>
<td>12</td>
<td>3</td>
<td>24</td>
<td>3.58</td>
</tr>
<tr>
<td>QID 3597</td>
<td>Given the opportunity, I would like to take another class designed like this one.</td>
<td>2</td>
<td>2</td>
<td>6</td>
<td>10</td>
<td>5</td>
<td>25</td>
<td>3.56</td>
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<tr>
<td>QID 3598</td>
<td>Discussion of the mystery molecules helped me make connections to things I had learned in other chemistry courses.</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>13</td>
<td>6</td>
<td>25</td>
<td>4.32</td>
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<tr>
<td>QID 3599</td>
<td>I found the course web-site to be a useful resource.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>10</td>
<td>12</td>
<td>25</td>
<td>4.32</td>
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<tr>
<td>QID 3600</td>
<td>I found the quotations on the board thought provoking.</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>16</td>
<td>4</td>
<td>25</td>
<td>3.92</td>
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<tr>
<td>QID 3601</td>
<td>I enjoyed working in the jigsaw group for one week.</td>
<td>0</td>
<td>5</td>
<td>3</td>
<td>12</td>
<td>5</td>
<td>25</td>
<td>3.68</td>
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<tr>
<td>QID 3603</td>
<td>My group made use of the classroom library</td>
<td>2</td>
<td>7</td>
<td>10</td>
<td>6</td>
<td>0</td>
<td>25</td>
<td>2.80</td>
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<tr>
<td>QID 3612</td>
<td>I found the scratch-off group-quiz format a useful learning activity.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>16</td>
<td>6</td>
<td>25</td>
<td>4.08</td>
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<tr>
<td>QID 3613</td>
<td>Having a group outing at the beginning of the course helped my group to work well together.</td>
<td>1</td>
<td>3</td>
<td>12</td>
<td>7</td>
<td>2</td>
<td>25</td>
<td>3.24</td>
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<table>
<thead>
<tr>
<th>Question</th>
<th>Unsatisfactory</th>
<th>Satisfactory</th>
<th>Good</th>
<th>Very Good</th>
<th>Excellent</th>
<th>Total (25)</th>
<th>Mean</th>
<th>Std. Dev</th>
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<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| QID 3604 | Overall, I would rate this class: | 1 | 2 | 5 | 8 | 9 | 25 | 3.88 | 1.13 |

<table>
<thead>
<tr>
<th>Question</th>
<th>1 - 0</th>
<th>3 - 2</th>
<th>5 - 4</th>
<th>7 - 6</th>
<th>8 or more</th>
<th>Total (26)</th>
</tr>
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<tbody>
<tr>
<td>QID 260</td>
<td>On the average, the number of hours per week I spend working on this course outside of class is:</td>
<td>0</td>
<td>8</td>
<td>6</td>
<td>10</td>
<td>1</td>
</tr>
</tbody>
</table>
Essay Responses for CHEM342010 for 2012 Spr (2123)

Question ID: 3436  Comment on the course.

Responses (15 of 27)

- I was forced to work in this class and learned a lot.
- I really liked the style of it. I think it was very effective and taught about concepts not just specific examples.
- I enjoyed learning about biochemistry through the use of hemoglobin. It is such a relevant topic and very interesting to learn about and see the progression of science. I think the structure of the course is logical, from the chemical concepts of oxidation-reduction to more biological ones of protein synthesis and genetic selection. The problem based learning format of the course definitely encouraged personal initiative in learning and I feel that I have learned the material better than I would have in a survey course.
- I was apprehensive about this course at first, but this course was very rewarding. The only course where the instructor has to tell the class to leave.
- It was a different experience in that we had to put in extra effort before each class and investigate learning issues further by analyzing articles. We had to really learn the concepts behind the chemistry and demonstrate the knowledge to group members.
- The course in my opinion should focus on topics on biochemistry and not just hemoglobin.
- The course helped me realize that I really like biochemistry, and whereas I had doubts before this course, I realized that I chose the correct major. However, I feel like this course needs more time than other courses, because there is so much material, so many concepts to understand, that 50 minutes three times a week just isn't enough.
- I have never been in a PBL class before. This was an interesting experience. It definitely makes you work outside of the class room a good amount in order to understand the material better.
- I really dislike problem based learning, but that's just me. I didn't like having to work in groups and sometimes depend on information from other students (especially on Learning Issues) that was more than likely going to be incorrect.
- It was a very interesting course to take and I feel like I learned a lot about what to do when faced with a scientific article.
- Very different from the majority of other courses, so hard to adjust to. The style forced met to learn a lot about the topic, and improved my study habits.
- It encouraged me to learn the material, however there was so much that could have been on the exam it was slightly difficult to guide my understanding.
- The group midterm was a curve ball and there was really no way to prepare for it.
- The textbook probably would have been useful if I had used it more. The quizzes and exams were challenging but I felt that sometimes I definitely understood the material and knew the concept the question was addressing, but would get questions wrong due to tricky wording or trick questions rather than getting questions wrong because of lack of understanding.
• I would definitely recommend it to other biochemistry students, particularly those looking to go into research. I enjoyed the interdisciplinary nature and encouragement of problem solving.

Question ID: 3607 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 27)

• This course encourages you to take responsibility for your own learning, a very rewarding skill. The topic you learn about is hemoglobin, and through it, you touch on many biochemical principles, as well as behavioral skills like working in a group, reading scientific articles and designing concept maps.

• This course teaches you effective group and individual discovery and learning skills while teaching a lot about the function of biochemistry.

• This course teaches you how to find out what you don't know so that you can learn to fill those holes. You need to be self-sufficient.

• The course is about teaching you how to think and ask questions and apply the material you learn in class. As much as you learn the content, you learn skills that you can carry with you to other areas.

• I was apprehensive at first, then I was glad I took this course. The only course where the instructor has to tell the students to leave when class is over.

• Students learn to synthesize information from different articles and learning issues to learn about other relevant issues.

• This course is about learning how to learn, and forcing yourself to identity what you don't know, so you can learn that too.

• The course focuses on research articles focusing on hemoglobin, you learn about biochemistry concepts that are associated with the articles.

• This course helps you in the sense that you won't always have a professor around to give you information. It teaches you to know what you don't know, and then look it up.

• The essence of this course is to become a better learner by understanding what you already know and realizing what you do not know.

• This course focuses on learning generic chemistry principles by reading a series of research articles on hemoglobin and sickle cell anemia. There is very little teaching a more group oriented learning based around the articles.

• CHEM-342 is a different kind of glass where everything is done in small groups with a student who has already taken the class. There is no lecturing so you must make sure you learn what you need to out of class to prepare yourself to meet with your group.

• Main ideas are teamwork, communication, and learning to use your resources (anything you can find) to help solve a problem. Teaches you to count on your group members and want to
Contribute for their benefit as well. Big stress on pursuing individual curiosities and confusions as they help everyone learn something.

- This class is heavy on reading, but it helps a lot with how you should approach any science class.
- To learn how to not memorize but understand.
- This course is designed to introduced the earliest studies of biochemistry and help students prepare for CHEM 641 by studying hemoglobin.
- It integrates concepts from introductory science classes, and shows their applications to biochemistry. At times it can seem kind of stupid, but it’s worth it in the end. Your reading comprehension and communication skills will improve.
- To learn how to work in a group, and analyze research papers.
- This course focuses on learning principles of biochemistry through reading primary research articles. Students will discover what it means to really fully understand a concept as opposed to thinking you understand it.
- In this class, you study historical scientific articles pertaining to hemoglobin. In groups, you use a concepts used from a variety of fields to fully understand the methods and processes in the article.

**Question ID: 3611** Open Mic. Reflect on the course and identify those aspects that you like or think could be improved. Please suggest ways for improvement.

Responses (21 of 27)

- The POGIL activities were very useful, but some of them were not extremely thought-provoking and could have been altered to give more value. I felt this way about the POGIL associated with the Alison article in particular. Sometimes I felt that my tutor had us focus on very basic material that we knew. It was in an attempt to understand the larger issues in an article, but we went too deep into the foundation of the problem which we already understood.
- I think what I said earlier will cover this
- I liked both the lectures and working in groups. I would like more lecturing.
- I think providing more checkpoints for students will help students stay on top of assignments. For example, once students get the grade they want on their learning issues, they still have to turn them in but not for a grade. This way, students are encouraged to continue reading the papers on time and responsible to their group. Another checkpoint would be to ask for drafts of the hemoglobinopathy research paper ahead of time to ensure that students get the research done and give them time to ask questions and fix mistakes.
- I would have appreciated more time spent on articles, as well as more time to be able to turn in learning issues.
- The Jig Saw groups was a little crazy. Not much time to actually cover both articles and create a concept map.
- The course was very useful in learning the actual concepts behind factual information.
- I think there needs to be more peer evaluation. Also, shuffling the groups around might be good so you can experience different types of group dynamics.
• I think Dr. White should lecture at least once a week.
• Personally, I really enjoyed this course. Sometimes my group had questions that no one could answer, but Dr. White was talking with another group, and that was sometimes frustrating because we wanted to know, but that's also a good sign, because that frustration meant we were really curious and wanted to understand what was happening, not just know that it happened. Also, Dr. White is a very good professor.
• I liked how the peer tutor was able to guide discussions and give insightful information when necessary; however, I feel like I would have gained a better understanding of some things if Dr. White would have lectured more.
• Definitely more clarity from the teacher on some of the issues we covered. I could not stand being given Learning Issues then having groups collect their answers and some of them being wrong. It's incredibly frustrating to think you spent time learning something that was wrong. I would also have liked there to be recommended chapters from a biochem textbook to read. Having an actual textbook to look over would have facilitated the learning a lot better. And I know there were textbooks we could use but 75% of the time we had no idea what topic it would fall under in the textbook.
• I like that there is an aspect of accountability in the groups to make sure work is done. It definitely takes a good amount of work though.
• perhaps lecture once a week/ every two weeks wouldn't be bad. Perhaps a quiz after each article could help summarize and imprint the important information that was learned, so it isn’t forgotten for the exam. this also to increase number of grades. if one bad grade is earned there’s not a lot of time to bring it up.
• I think that the lay out of the course is very interesting and demanding. A way for improvement could be to have more quizzes on the articles to keep students motivated.
• More POGIL activities would be useful to help guide us in the right direction.
• I really like this course. It allowed me to open up and ask questions about concepts I didn't understand.
• I personally think that a little less PBL and a little more lecture would be nice, but this is just my preference. I think this course is a good way for biochem majors to "catch up" to other majors that focus more on reading, writing, and communication skills. One of my room mates often tells me to "stick to the science" in a derogatory sense, meaning that science majors are robotic by nature and cannot relate to others. I feel like this class helped me "branch out" from my science, and helped me connect to the world and other people, effectively disproving my room mate's remarks.
• Other than the group midterm which I was very unprepared for, some of the test questions could have been worded more clearly. Or the directions printed the day before so I can look over them, because I used up at least 10 min trying to understand question directions. Also, Dr. White should have in class Q and A sessions for the first 10 mins of class or the last 10 mins.
• At the beginning of the semester I felt that I wasn't really learning anything new just relearning what I already knew, but the end of the semester I learned a lot about proteins and biochemistry and was kept interested throughout the course. Looking back to the beginning I
really didn’t understand the concepts of acid-base or redox reactions as well as I thought, and the course helped me grasp them. I tutor freshmen in CHEM103/104, and as the semester progressed I felt that my participation in CHEM342 made me a better tutor of CHEM103/104.

- I think a major component of this class was my group. We were all motivated students who were willing to do the work and meet frequently outside of class. Therefore, although it must be very difficult, I would suggest choosing groups carefully since I know other people did not share my experiences. Also, I think there was some confusion on how well we would have to know the jigsaw articles for the midterm. Some tutors said that they could choose a certain number of questions on the midterm. Therefore, we were told that although we should know all the jigsaw articles, we only needed to have a deep understanding of 2. I don’t think it is unreasonable to expect us to fully understand all the articles, but I think expectations were unclear, and we were unprepared for some of the more comprehensive questions on the mid-term.