

**CHEM-643, Intermediary Metabolism, Fall 2010**  
**Final Instructor Evaluation - Numerical Responses (19/19)**  
**HAROLD B. WHITE – Instructor**

Anonymous on-line Course evaluation conducted before final examination

**QID 3425** - The instructor demonstrated thorough knowledge of the subject matter.

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean:</b>	<b>Std. Dev:</b>
Scale text							
Scale value	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	4.95	0.23
Total	0	0	0	1	18	<b>Median:</b>	<b>Mode:</b>
Percent	0%	0%	0%	5.3%	94.7%	5	5

**QID 3426** - The instructor presented the materials in an interesting way.

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean:</b>	<b>Std. Dev:</b>
Scale text							
Scale value	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	4.74	0.56
Total	0	0	1	3	15	<b>Median:</b>	<b>Mode:</b>
Percent	0%	0%	5.3%	15.8%	78.9%	5	5

**QID 3427** - The instructor encouraged class participation.

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean:</b>	<b>Std. Dev:</b>
Scale text							
Scale value	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	4.95	0.23
Total	0	0	0	1	18	<b>Median:</b>	<b>Mode:</b>
Percent	0%	0%	0%	5.3%	94.7%	5	5

**QID 3430** - I would recommend this instructor because of his/her teaching to others considering taking this course.

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean:</b>	<b>Std. Dev:</b>
Scale text							
Scale value	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	4.42	1.07
Total	0	2	2	1	14	<b>Median:</b>	<b>Mode:</b>
Percent	0%	10.5%	10.5%	5.3%	73.7%	5	5

**QID 4332** - The instructor's lectures were well organized.

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean:</b>	<b>Std. Dev:</b>
Scale text							
Scale value	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	4.42	0.96
Total	0	1	3	2	13	<b>Median:</b>	<b>Mode:</b>
Percent	0%	5.3%	15.8%	10.5%	68.4%	5	5

**QID 4333** - The instructor was helpful if you sought help outside of class. (Don't respond if you didn't.) Response 17/19

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean:</b>	<b>Std. Dev:</b>
Scale text	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	4.82	0.39
Scale value	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	4.82	0.39
Total	0	0	0	3	14	<b>Median:</b>	<b>Mode:</b>
Percent	0%	0%	0%	17.6%	82.4%	5	5

**QID 4334** - Overall, the instructor was effective in facilitating your learning of the material in this course.

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean:</b>	<b>Std. Dev:</b>
Scale text	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	4.53	0.84
Scale value	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	4.53	0.84
Total	0	1	1	4	13	<b>Median:</b>	<b>Mode:</b>
Percent	0%	5.3%	5.3%	21.1%	68.4%	5	5

**QID 4648** - I would recommend Dr. White as a teacher to other students

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean:</b>	<b>Std. Dev:</b>
Scale text	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	4.58	0.84
Scale value	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	4.58	0.84
Total	0	1	1	3	14	<b>Median:</b>	<b>Mode:</b>
Percent	0%	5.3%	5.3%	15.8%	73.7%	5	5

**CHEM-643, Intermediary Metabolism, Fall 2010**  
**Final Instructor Evaluation - Narrative Responses**  
**HAROLD B. WHITE – Instructor**

**QID 3435 - Comment on the instructor.**

Responses (13 of 19)

- Dr. White does a good job of getting students to understand course materials. He is always available to his students and presents materials in an organized and interesting way.
- Dr. White is the best teacher/professor in my academic experience. He is one of the few professors who actually seems to care about us and our comprehension. He excels at the PBL format and I was surprised when he turned out to also be the best lecturer I have had. His assignments challenged me and helped me to gain a much deeper comprehension of the material than I had thought possible. Of all the professors I have had, he is the one who has taught me the most useful lessons. Just as the concepts of a set of reactions can be applied throughout metabolism, I think the underlying concept of this class have helped me to grow. More than any other class I feel responsible for my learning and performance. More than anything else, I think Dr. White has served as an example for me. His PBL approach seems controversial at best among the faculty, yet he is passionate about what he does and he does it well. His curiosity about the

world, his humility and desire to improve, and the fact he cares about his student set him apart from most other professors.

- Dr. White's passion for understanding is inspiring. His emphasis on learning concepts rather than a body of (sometimes) trivial facts makes the challenging material of his classes significantly less tedious. Professor White is an instructor who has learned to incorporate learning with interesting storylines. I understand more using his methods than I ever have in a conventional course.
- Dr. White, as always greatly contributed to aiding me in learning the material taught in this class. His lectures were both informative and interesting and his use of PBL learning was very helpful. Overall Dr. White is an excellent teacher and I would strongly recommend him as a teacher.
- Prof. White's method of instruction, 'problem based learning', is very effective. It encourages extensive individual participation. This active form of learning is much more interesting and beneficial to the student than passive lectures.
- Dr. White was extremely knowledgeable and helpful throughout the entire course. He demonstrated genuine interest in the well-being and learning of the student regarding not only in the subject but other classes as well.
- Dr. White provided good background information and lectures on metabolism that ensured a solid foundation in the subject. At the same time, PBL type problems were well written and worked well to stimulate self-guided learning and a deep understanding of the material.
- He always made himself available for help or guidance outside of class, which was much appreciated. His expectations are almost unreasonable though, especially with the case studies. Often times he asked questions to the class that only one person was able to answer.
- Very unique teaching style that is very effective. Good balance of group work, lecturing, and small group instruction. Dr. White is one of the most knowledgeable professors I have ever had. He has extremely high expectations but is not unreasonable. He is very helpful outside of class, and this is one of the best classes I have taken at UD. Few students take classes of this rigor and intensity, but few students get this much out of the education they receive in class.
- Dr. White is helpful and is willing to help the students do well if they seek help. He is also very good at pushing students to do their best. Likes PBL. PBL is not my favorite, but he does a decent job of it. Knows a great deal about the topic and is willing to help. Seems like he enjoys teaching this class.

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

Responses (13 of 19)

- I have mixed feelings about the assignment of groups. On one hand it is fair to distribute the talent; on the other hand, it would be nice to work with the people we are used to working with. I feel like part of the dynamic of a successful group is people being comfortable with each other. Too wide of a range of understanding seems to cause some people to be intimidated and not contribute.
- Dr. White is a very good instructor and has obviously been doing this for a while. His expectations are usually clear. Exam preparation for this course is challenging, there were no answer keys to past midterms. But this is really just nit-picking.
- Professor White is great at teaching, I cannot think of anything he really could improve upon for this course.
- The methods Dr. White employs to teach are both highly effective and very interesting. By encouraging learning patterns, concepts and some specific facts I feel that I learn more in classes taught by him than in similar classes. Also exploring the material ourselves is much more beneficial than having to memorize material. The only thing I would have liked is learning

specific enzymes and enzyme nomenclature as this has rarely been touched on in other biochemistry courses.

- Perhaps more time should be spent lecturing than is currently practiced, but I think Dr. White is capable of deciding this. The class was extremely challenging and if students were not well versed in previous classes the materials presented would be almost impossible to digest.
- Maybe have a quiz on carbohydrate metabolism in the beginning to ensure self-guided review and leave more time in the syllabus for other topics in metabolism that have not been covered in other classes.
- It was great that he spent more time teaching at the board. I learned a lot that way. The pbl still troubles me. I feel that it is so easy to get left behind/not hear what someone said/not understand what someone said, etc. Any sort of group work usually brings problems among people and I can say that there were times when I felt left out and not believed in my group. I feel that pbl could be improved if he spends a day after the completion of each case study to teach all of the important points that some of us could have missed. That way people could end up on the same page. This means not asking 'does anyone have any questions' but actually going through everything. Possibly assessing students before and after this review
- Working in the same groups the entire semester tends to cement individuals into certain learning roles. While this can help foster learning, it can also lock people into an unfavorable learning situation. Shuffling the groups once or twice a semester may help ensure all students in the class benefit more equally.
- n/a
- I wish the pace was slower. Sometime the material is hard to digest at first glance in class. Also there need to be shorter case study. I felt as if the interesting topics like amino acid metabolism and cofactor deficiency were pushed off till end of semester and was rushed. Eliminate photosynthesis.
- Dr. White could better prepare students for quizzes and exams- perhaps a study guide, or a list of references. Explain the problem sets after we do them in class - some of them I never got actual answers to and it bothers me. More closure on the PBL problems.

**QID 3608 - Identify or describe some thing(s) that Professor White does particularly well.**

Responses (13 of 19)

- Dr. White excels at facilitating his students' understanding instead of memorization. This is an important skill, and one that few courses emphasize.
- PBL, lecture Good at putting things into perspective insightful imparting understanding asking challenging questions inspiration
- Professor White understands the course material quite thoroughly but is not remotely arrogant about it. He admits when he doesn't know the answer to a student's question, but is always good enough to at least recommend the thought process he would use to find the answer. I believe that he takes serious effort to show that he cares about whether or not his students learn, something that is rarely seen in college professors.
- He causes the entire class to become engaged in his lectures, making students want to ask questions as well as answer them. He occasionally makes us doubt ourselves which can be good for learning. The assignments he gives us make us think and try to work together to understand everything better.
- He engages students like few professors can. By not revealing information upfront, he teaches students not just the information, but also how to obtain it independently.
- Teaching and engaging the student. Making us truly interested in the topic as well as keeping us motivated.

- He stimulates learning with interesting PBL problems and good starting points for investigation into a topic. He also relates metabolism back to the macroscopic issues such as agriculture and global health.
- He encouraged thinking and understanding over memorization.
- He is great at giving just enough information to push us toward the right answer while still allowing us to figure the problem out by ourselves. He is also very good at writing interesting homework and exam questions.
- The problem sets were very challenging, but they really forced students to understand the material instead of simply copying information out of the book. This was very helpful for studying for exams. Knew his subject material inside out and presented in a interesting manner
- Dr. White is excellent at guiding PBL discussions and it is very helpful that he grades quickly and makes many comments on assignments.
- Good at highlighting what he thinks is important in the course. Can be confusing or clear depending on what he's talking about. Good at letting groups go and work on their own, not so good at helping the groups.

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**Final Course Evaluation - Numerical Responses (19/19)**  
**HAROLD B. WHITE – Instructor**

**QID 4329** - The course was well organized.

Scale text	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean:</b>	<b>Std. Dev:</b>
Scale value	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	4.47	0.90
Total	0	1	2	3	13	<b>Median:</b>	<b>Mode:</b>
Percent	0%	5.3%	10.5%	15.8%	68.4%	5	5

**QID 4330** - The course textbook was very useful.

Scale text	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean:</b>	<b>Std. Dev:</b>
Scale value	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	3.71	1.21
Total	1	2	3	6	5	<b>Median:</b>	<b>Mode:</b>
Percent	5.9%	11.8%	17.6%	35.3%	29.4%	4	4

**QID 4331** - The course examinations emphasized understanding of the material.

Scale text	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean:</b>	<b>Std. Dev:</b>
Scale value	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	4.61	0.70
Total	0	0	2	3	13	<b>Median:</b>	<b>Mode:</b>
Percent	0%	0%	11.1%	16.7%	72.2%	5	5

**QID 3419** - The course emphasized understanding of the material rather than memorization.

Scale text	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean:</b>	<b>Std. Dev:</b>
Scale value	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	4.79	0.54
Total	0	0	1	2	16	<b>Median:</b>	<b>Mode:</b>
Percent	0%	0%	5.3%	10.5%	84.2%	5	5

**QID 4650** - I am a

Scale text	<b>Undergraduate</b>	<b>Graduate Student</b>
Scale value	<b>A</b>	<b>B</b>
Total	19	0
Percent	100%	0%

**QID 4651** - On average, I spent \_\_\_ hours a week outside of class on work related to CHEM-643.

Scale text	<b>&lt;3 h/wk</b>	<b>3-6 h/wk</b>	<b>6-9 h/wk</b>	<b>9-12 h/wk</b>	<b>&gt;12 h/wk</b>
Scale value	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
Total	2	4	8	3	2
Percent	10.5%	21.1%	42.1%	15.8%	10.5%

**QID 4629** - I found working on the homework problems in the first half of the course to be a valuable learning experience.

Scale text	<b>Strongly Agree</b>	<b>Agree</b>	<b>No opinion/Undecided</b>	<b>Disagree</b>	<b>Strongly disagree</b>
Scale value	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
Total	12	4	3	0	0
Percent	63.2%	21.1%	15.8%	0%	0%

**QID 4630** - I found working on case studies in the second half of the course to be a valuable learning experience.

Scale text	<b>Strongly agree</b>	<b>Agree</b>	<b>No opinion/Undecided</b>	<b>Disagree</b>	<b>Strongly disagree</b>
Scale value	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
Total	6	10	2	1	0
Percent	31.6%	52.6%	10.5%	5.3%	0%

**QID 4631** - I learned more working on the homework problems than I did working on the case studies.

Scale text	<b>Strongly agree</b>	<b>Agree</b>	<b>No Opinion/Undecided</b>	<b>Disagree</b>	<b>Strongly disagree</b>
Scale value	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
Total	3	4	6	5	1
Percent	15.8%	21.1%	31.6%	26.3%	5.3%

**QID 4632** - Based on things I learned this semester, I would really like to learn more about intermediary metabolism.

Scale text	<b>Strongly agree</b>	<b>Agree</b>	<b>No opinion/Undecided</b>	<b>Disagree</b>	<b>Strongly disagree</b>
Scale value	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
Total	9	6	3	1	0
Percent	47.4%	31.6%	15.8%	5.3%	0%

**QID 4633** - Instead of case studies and group work in the second half of the course, Dr. White should have lectured for the whole semester.

Scale text	<b>Strongly agree</b>	<b>Agree</b>	<b>No opinion/Undecided</b>	<b>Disagree</b>	<b>Strongly disagree</b>
Scale value	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
Total	1	0	4	10	4
Percent	5.3%	0%	21.1%	52.6%	21.1%

**QID 3583** - The assignments I turned in were graded and returned promptly.

Scale text	<b>Never</b>	<b>Rarely</b>	<b>Sometimes</b>	<b>Frequently</b>	<b>Always</b>	<b>Mean:</b>	<b>Std. Dev:</b>
Scale value	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	4.84	0.50
Total	0	0	1	1	17	<b>Median:</b>	<b>Mode:</b>
Percent	0%	0%	5.3%	5.3%	89.5%	5	5

**QID 4634** - A considerable amount of the material in CHEM-643 reviewed material I had in other courses.

Scale text	<b>Strongly agree</b>	<b>Agree</b>	<b>No opinion/Undecided</b>	<b>Disagree</b>	<b>Strongly disagree</b>
Scale value	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
Total	2	9	2	5	1
Percent	10.5%	47.4%	10.5%	26.3%	5.3%

**QID 4635** - I personally learned a lot researching my term case study assignment.

Scale text	<b>Strongly agree</b>	<b>Agree</b>	<b>No opinion/Undecided</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
Scale value	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
Total	12	6	1	0	0
Percent	63.2%	31.6%	5.3%	0%	0%

**QID 4636** - I found the work load in this class to be excessive.

Scale text	<b>Strongly Agree</b>	<b>Agree</b>	<b>No opinion/Undecided</b>	<b>Disagree</b>	<b>Strongly disagree</b>
Scale value	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
Total	2	3	7	7	0
Percent	10.5%	15.8%	36.8%	36.8%	0%

**QID 4637** - My grades on the assignments reflected the skills and knowledge I have developed in this course.

Scale text	<b>Strongly agree</b>	<b>Agree</b>	<b>No opinion/Undecided</b>	<b>Disagree</b>	<b>Strongly disagree</b>
Scale value	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
Total	4	10	5	0	0
Percent	21.1%	52.6%	26.3%	0%	0%

**QID 4638** - I frequently talked about topics from this course with friends and other people not taking this course.

Scale text	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean:</b>	<b>Std. Dev:</b>
Scale value	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	3.42	1.22
Total	2	2	4	8	3	<b>Median:</b>	<b>Mode:</b>
Percent	10.5%	10.5%	21.1%	42.1%	15.8%	4	4

**QID 4639** - I feel confident in my ability to learn what I need to know to understand issues in intermediary metabolism.

Scale text	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean:</b>	<b>Std. Dev:</b>
Scale value	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	3.95	0.91
Total	0	2	2	10	5	<b>Median:</b>	<b>Mode:</b>
Percent	0%	10.5%	10.5%	52.6%	26.3%	4	4



**QID 4640** - I would prefer that the course had a PBL format for the entire course rather than just the last half.

Scale text	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean:</b>	<b>Std. Dev:</b>
Scale value	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	2.42	0.84
Total	2	9	6	2	0	<b>Median:</b>	<b>Mode:</b>
Percent	10.5%	47.4%	31.6%	10.5%	0%	2	2

**QID 3602** - Wireless laptop computers are of little use in this course.

Scale text	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean:</b>	<b>Std. Dev:</b>
Scale value	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	1.79	0.63
Total	6	11	2	0	0	<b>Median:</b>	<b>Mode:</b>
Percent	31.6%	57.9%	10.5%	0%	0%	2	2

**QID 4642** - Other members of my group did their fair share.

Scale text	<b>Hardly Ever</b>	<b>Occasionally</b>	<b>Sometimes</b>	<b>Frequently</b>	<b>Almost Always</b>	<b>Mean:</b>	<b>Std. Dev:</b>
Scale value	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	3.84	1.07
Total	0	3	3	7	6	<b>Median:</b>	<b>Mode:</b>
Percent	0%	15.8%	15.8%	36.8%	31.6%	4	4

**QID 4643** - The instructions on writing a case study problem were insufficient guidance for me.

Scale text	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean:</b>	<b>Std. Dev:</b>
Scale value	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	2.84	1.17
Total	1	9	3	4	2	<b>Median:</b>	<b>Mode:</b>
Percent	5.3%	47.4%	15.8%	21.1%	10.5%	2	2

**QID 4644** - I would prefer if this class met in the late afternoon.

Scale text	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean:</b>	<b>Std. Dev:</b>
Scale value	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	2.89	1.45
Total	3	7	2	3	4	<b>Median:</b>	<b>Mode:</b>
Percent	15.8%	36.8%	10.5%	15.8%	21.1%	2	2

**QID 3599** - I found the course web-site to be a useful resource.

Scale text	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean:</b>	<b>Std. Dev:</b>
Scale value	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	4.21	0.54
Total	0	0	1	13	5	<b>Median:</b>	<b>Mode:</b>
Percent	0%	0%	5.3%	68.4%	26.3%	4	4

**QID 4645** - I liked the structure of the quiz with an individual response followed by group response.  
(Response 18 / 19)

Scale text	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean:</b>	<b>Std. Dev:</b>
Scale value	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	4.44	0.51
Total	0	0	0	10	8	<b>Median:</b>	<b>Mode:</b>
Percent	0%	0%	0%	55.6%	44.4%	4	4

**QID 4647** - I would recommend this class to other students.

Scale text	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean:</b>	<b>Std. Dev:</b>
Scale value	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	4.28	0.90
Total	0	1	2	6	9	<b>Median:</b>	<b>Mode:</b>
Percent	0%	5.6%	11.1%	33.3%	50%	4.5	5

**CHEM-643, Intermediary Metabolism, Fall 2010**  
**Final Course Evaluation - Narrative Responses**  
**HAROLD B. WHITE – Instructor**

**QID 3436 - Comment on the course.**

Responses (13 of 19)

- The course has taught me a great deal about metabolism, and has served as a great resource to tie together much of the information that I have learned in my previous biochemistry courses.
- Excellent last undergraduate biochem course. I found the homework was very useful and was useful in the first half of the semester when used in conjunction with the problem sets. Homework may prove to be a useful supplement for the second half of the course as well.
- This was a very good course. I think that it covered a lot of the same material that CHEM641 did, but I feel that I remember and understand the material 2-3 times as well as I did after taking that course. This course is quite challenging, and the PBL format used for about half of the course is an interesting way to learn and gives students ownership over the learning process. Because I feel a sense of ownership for the knowledge that I acquire, I am more motivated to work hard in this class. The only drawback to the class is that, with a PBL format, it is difficult to know precisely what you are responsible for knowing. Many of the things that a student does learn in this class are learned with the help of group members, making it difficult to take examinations alone. Because the exams are so conceptual, the habit of solving problems within a group context actually increases the difficulty of the exam beyond the challenge of the problems alone. Still, this was one of my favorite courses thus far in my undergraduate career. Good subject matter, good approach, emphasizes patterns. The course has a lot of interesting components to it. I found learning about the pathways to be rather intriguing. The connections between everything and following patterns was something I had never thought of doing in previous courses, but definitely helped with understanding everything.
- 'Problem based learning' should be more widely implemented. Dr. White shows it is effective even in a course where gleaning a number of facts is required.
- The course was very challenging but provided a great deal of knowledge and not just in a memorization manner but in understanding as well.

- Favorite course I have ever taken. Wish I could take two semesters of metabolism to cover everything. I guess that's what medical school is for.
- Difficult at times-the exams in particular. Problem solving is not everyone's strong area & Pbl can also be difficult for visual learners (if the group speaks the answers quickly and doesn't write things out on the board which was generally the case) so the two combined made exams really troubling. The assignments were really good, even though they were hard, I felt like I was learning a lot and showing my knowledge. The exams, I felt like I couldn't show what I knew because I got lost in the questions. Also, I really feel that something needs to be done about the pbl. I can see its benefits but maybe requiring more use of the boards would help. Also teaching for one day about the case study after its completion.
- In all, one of the best courses I've had at this university, both in terms of information learned and interest in the class.
- One of the most rigorous, challenging, and beneficial courses I have ever taken. You actually discover the right way to learn.
- Slow down and focus on amino acid and cofactor which are more interesting
- This course was much more helpful than CHEM342. CHEM342 was difficult because the students did not have enough background knowledge at that point in their education to be able to hold effective discussions. The course was well-organized and had a great balance of lecturing and PBL.
- Based on patterns and understanding of metabolism. Some memorization required, but really need to know the principles behind what's going on and be able to see similarities and differences between compounds and processes. Wish we got more in the way of notes to look back at and use in the homework/case study problems.

**QID 4649 - In a sentence or two, describe or characterize CHEM-643 to someone who might consider taking the course.**

Responses (15 of 19)

- This course is about building a foundation in intermediary metabolism, and through the process developing the ability to teach yourself about different elements of metabolism.
- I found the focus on conceptual understanding particularly useful. Facts from many courses seem to have limited applicability to most careers as it is a simple matter just to look them up; however, the ability to think/analyze facts and confidence in my ability to solve problems will, I think, be of much more use.
- CHEM643 is a review of many of the metabolic processes that might be discussed in an introductory biochemistry course, but it emphasizes the patterns observed across many types of metabolic processes and consequently encourages a significantly better understanding than an intro-course might.
- This course is a part-problem based learning, part-lecture course that focuses on the metabolic fate of multiple compounds in the human body.
- The course is problem based learning, if you do not like problem based learning, you may not like this course. If you are not able to think on your own when given a challenging problem, you will not do well in this course.
- Chem 643 is about metabolic pathways and their associated reactions. The course stresses understanding of the material and associated problems involved with each pathway.
- CHEM643 uses 'problem based learning' which emphasizes independent and group inquiry into topics of metabolism. The course teaches you how to learn. It's more interesting than a lecture-based course.
- A hard course in metabolism that not only strengthen previous materials but also helps you utilize your own personal knowledge in a useful and interesting manner.

- The class can be difficult and frustrating with expectations that are at times unreasonable. I learned an enormous amount of information researching my case study and very little attempting to work in a group trying to understand complicated biological pathways.
- A challenging course that will push the student to learn difficult but interesting information.
- A class teaching primary and secondary metabolic pathways, as well as general trends in metabolism and techniques for understanding metabolic pathways.
- A person taking this course must be motivated to do work and learn.
- The quote near dr. White office summarizes course well Memorize it and I'll forget it Show it and I'll forget it Involve me and I'll remember it. Something like that
- Although I think this is a great course, there is a lot of background knowledge needed to be successful in the class. It employs a lot of outside of the box thinking that would be nearly impossible without knowing the fundamental principles.
- Advanced metabolism class based on understanding of pathways and molecular conversion. Done in PBL format with some lecture interspersed. Homework for first half, huge case study for second half.

**Question ID: 3610 Reread the course syllabus and provide some thoughtful feedback. e.g. Did the syllabus adequately describe the course? Are there aspects of the syllabus that are unclear or misleading that should be revised? What is missing that should be included? Feel free to discuss this question with your classmates.**

#### Responses (15 of 19)

- The syllabus adequately described the course. I did not find any aspects of the syllabus confusing.
- I referred to the syllabus often throughout the course and found it very useful. It is clear and outlines the expectations. It's quite comprehensive.
- This is the second course I have had with Dr. White, and the syllabus seems to be very typical of his style. It is clear and it is thorough, it emphasizes his expectations of students in the course, and it also reflects how challenging the course will be. Before taking this course, I read the syllabus to get an idea of what it would be like, and I would have to say that the course didn't deviate to wildly from my expectations.
- The syllabus adequately describes the course, and I see no issues or anything missing. I do not think the course syllabus could be any more detailed. It is rather long, but considering the type of detailed course this is, it seems reasonable that the syllabus would be long and detailed. Nothing really seems to be missing.
- The syllabus accurately described the course and no aspects of it were misleading. I cannot think of any part that is missing.
- The syllabus accurately describes the course.
- The syllabus was helpful but it was ambiguous in terms of how much each item was worth in terms of the overall grade.
- The syllabus does a good job of informing the class ahead of time what is coming and what is expected. Everything seems to be accurate.
- The syllabus was well put together and laid out almost exactly how the course was run. Compared to other courses I have taken this syllabus is much better at keeping how the course will actually flow.
- The course syllabus alone does a good job laying out the format of the course. It doesn't specifically address topics from the course, but this is covered in the course schedule.
- The syllabus was definitely adequate
- All was properly described.

- The course syllabus is not misleading. However, certain things, such as the case study assignment, could be made more clear. For instance, it was easy to miss aspects that were essential to the case study, simply because the assignment description was so long. Many homework problems are the same way and it would be helpful to have a brief recap at the end, almost like a checklist, just to make sure the students remember what they were originally asked to do.
- The syllabus did a fair job of describing the course. I didn't have anything I needed to know that wasn't listed

**QID 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 (13 of 19)

- I think that homework throughout the course would be useful, albeit more difficult for you. I'm not sure what you could possibly do about the case study. That was one of the most useful assignments we had and I think everyone should have to do it. If only we had listened to your advice... I like how personal the class was and the fact you offered help when we got stuck. Exceptional course!
- Great course, and I strongly recommend to anyone interested in metabolism. Honestly, I wasn't totally sure about what metabolism is in this course, but now I think about many things in the context of metabolism. I thought it was great that the course emphasized not only an understanding of human metabolism, but sought to show the similarities and differences between metabolism occurring in a variety of organisms. It was often difficult to write down all the information given at the start of class on the "mystery molecules" or relevant topics drawn on the board, and it would be nice if a section on the website was updated with structures and a brief description after each class. Overall the class seemed pretty refined through years of evolution, and I don't believe that it needs much improvement.
- While this course did move at a fairly fast pace and the homework seemed to cover questions that we weren't expecting based on in-class work, I see no glaring issues with this course and did thoroughly enjoy the meetings we had.
- I really enjoyed the lecture components to the course, especially when they went along with things I already knew/learned causing further understanding. I think the best part to the course was doing the problem sets. They made me think and do further research outside of class. The problems sets made me want to work with other students rather than forcing me to, like the case studies tend to do.
- I suggest that you lecture a little more. Students can learn how to investigate problems outside of class. Some guidance in this area is certainly beneficial, but I think students learn more when you are directing the class vs. during most group discussion.
- Overall the course was almost perfect in teaching what was intended. One thing that can be improved is to have the course be a two semester affair so other aspects of metabolism can be investigated.
- I loved the course. Although I see the merit in problem-based learning, I was actually (and ironically) more engaged and interested in the lectures during the first half of the semester. The workload was very heavy but useful and productive. The review of carbohydrate metabolism is an interesting issue here. The review solidified information learned in 641 and made me realize how little I actually learned and remembered in 641. Therefore, the review was very useful. However, I would have loved to cover more topics in metabolism, so perhaps a mandatory self-guided review of carb. metabolism would have been better.
- There need to be some improvements to the functioning of the pbl. Possibly change groups mid semester so that things are more fair for everyone. It would also help us learn more because we

would be hearing things from different people and getting to know more people we could work with outside of class. Also, I said before about teaching a day after the completion of a case study (teaching about the case study) so that people can learn the things they missed.

- I enjoyed this course a lot more than 342. This is most likely because I felt as though I had a much better background of concepts that I could relate back to. The class was still difficult even though I put in a lot of time studying and looking over concepts that didn't make sense.
- As mentioned before, switching the groups around mid-semester might help the course. The case study was quite a lot of work, but a worthwhile experience. Slow down and focus on just TCA cycle fatty acid amino acid and cofactor study. Plant was too much n steroid was as well.
- I enjoyed this course. It covered a wide variety of topics and incorporated a lot of different material. I feel like I learned a lot. I enjoyed the case study project far more than CHEM342's hemoglobinopathy assignment. This project allowed us a fair amount of independence and allowed us to use our creativity. It was very interesting and I enjoyed learning about my topic. I feel like I was better prepared for this course than for CHEM342- partially due to the fact that this was not the first PBL course and I have acquired more knowledge at this point in my education. As far as improvement, just the two main things that I suggested in previous questions: better quiz/exam preparation and recapping the main points/questions in assignments.
- I don't mind the PBL form, I wish there was more explanation/ lecture mixed into the case studies so that I have more notes to look back on. Also, the timing for some of the stages was off - some we had too much time to talk about.

**Question ID: 11490 In groups you have worked through four extended case studies this semester.**

- Life without oxygen**
- Are you what you eat?**
- Plants vs Animals in the dining hall**
- Kellogg's Product 19**

**Please rank the four in terms of their overall value to your learning. And, state the virtues of the case study that you ranked number 1.**

Responses (15 of 19)

- 1.Life without oxygen 2.Kellogg's Product 19 3.Plants vs Animals in the dining hall 4.Are you what you eat? I think that life without oxygen taught students a lot about glycolysis. The part that students analyze the graphs really was good at teaching how there is a flow down a pathway and how to experimentally find out where it might be regulated.
- 1.Plants vs animals in the Dining Hall 2.Are you what you eat 3.Life without oxygen 4. Kellogg's Product 19 I found the Plants vs Animals case study to be the most useful because of the emphasis on primary data. The focus on the data takes away the temptation to simply google everything. Thinking about the data helped me see more patterns. Background research helped in terms of assisting with finding the answer rather giving the answer. I also spent the most amount of independent time attempting to understand these data, so part of the reason I liked it is because I feel like I accomplished the most myself. All the case studies were useful and it was difficult to order them.
- II, III, I, IV. I thought that the hook for the Are you what you eat? case study was particularly interesting, in that it got students thinking about a topic that they'd probably seen before in a very new and biochemical context. The case study was well-developed and challenging, and it emphasized a conceptual understanding of carbon-flow. Besides this, it showed some of the ways in which humans can use carbon-flow to get an understanding of their environment. Although it tackled multiple topics, I thought that it still remained cohesive.
- Life without Oxygen seems to be the most valuable to my learning as this case study was reviewed more often and developed clearer than the others did.

- 1) Life without oxygen, 2) Plants and animals in the dining hall, 3) Are you what you eat?, 4) Product 19. I enjoyed Life without oxygen the best because it really built on my previous knowledge, and then expanded on it. Simply understanding the basics of photosynthesis is lot different from looking at the data used for this case study. I truly enjoyed learning how each step reacted to each other depending on experimental conditions. Learning how the different products of photosynthesis cause a fluctuation in the flow was also very interesting in this case study.
- 1)Animals in the Dining Hall: This case study aided me in learning about amino acid metabolism, which I feel is very important, as well as cofactors that are common in metabolic pathways. 2)Are you what you eat 3) life without oxygen 4)Kellogg's Product 19 plants vs animals life product 19 are you what The top rated case study: The fact that some amino acids are only partially essential showed that things aren't black or white; often they're a matter of degree.
- 3,1,2,4 I think the plants vs animals was most significant to me as it presented materials in a manner that seemed pertinent as well as touching on fundamentals of amino acid metabolism
- highest to lowest: iii, i, iv, ii. I ranked plants and animals in the dining hall as the highest one because it required us to research a lot of the common information about vitamins and vegetarianism etc that covered a broad range of topics. The case study also included charts and graphs from classical sources that made us think about amino acid metabolism. The case study also tied in information we were learning in Lehninger. We spent a lot of time on this case study too
- 2, 3, 1, 4
- 1st: ii 2nd: i 3rd: iii 4th: iv Case Study ii introduced a number of concepts from photosynthesis, a topic that doesn't often get covered. It also taught some concepts from radiolabeling, an important biochemical technique.
- ii- are you what you eat i- life without oxygen iii- plants vs. animals iv- kelloggs "are you what you eat" really forced us to relearn what we were supposed to have learned in chem641, and gave us a solid foundation to work off of for the rest of the course. It also introduced some of the concepts that Dr. White focused on for the rest of the semester.
- Product 19 Plants vs animal Are you what you eat Life with oxygen Product 19 was very interesting from a medical point of view Which I liked. Also the integration involved lot of topics of metabolism and showed principles of metabolism easily. The reactions were interesting.
- 1) Plants vs. Animals 2) Kellogg's Product 19 3) Are you what you eat? 4) Life without oxygen Plants vs. animals was broken down very effectively and it was easy to see what direction to take- what questions to ask and why they are relevant. This also provided valuable information about the synthesis of amino acids, which is fundamental and not covered in other courses.
- 1)Are you what you eat? 2)Life without oxygen 3) Plant's vs animals 4) Kellogg's product 19. I liked the case study are you what you eat because I feel like I learned the most from it. It reinforced the difference between the light and dark reactions of photosynthesis for me. It also taught me about kinetic isotope fractioning, which I had not learned about before. I also learned more about the difference between C3 and C4 plants