

Detailed Opinions

SENIOR CLASS 2007

Students opinions gathered the last day of class.

I have no complaints about the structure of the class or the way it was taught. It can be very stressful at times, but in the end I have learned a lot. I think the part that I took away from it is the fact that the class isn't necessarily geared towards teaching any technical aspects (although it does some), it teaches hard work, decision making, leadership, and possibly the most important, confidence. Although I felt that I was prepared to enter industry after the fall semester, I know now that I can accomplish anything.

Well capstone was a whole lot of work, and it even felt like two whole semesters split up by spring break! But, I am extremely proud of all that my partner and I accomplished in such a short period of time on our project! It's amazing what a little pushing can do. I learned a whole lot about different engineering softwares, and I am so relieved that graduation is a week away! Thanks for pushing us!

I cannot believe this class is over. There were times of despair, frustration, joy, and more importantly accomplishment. I will not and cannot say that the journey was an easy one. But just as with all chemical engineering courses, the satisfaction for working hard in the end was completely worth it.

I remember the first day of class and sort of being afraid of it because of everything I had heard for years. I just put forth all of the effort I had and I think that it turned out alright. I told you at the very beginning that I wanted to end this class with no regrets. I have done things in my life that I ended feeling as if I could have done more or worked harder. Capstone ended up being more of a mission for me, and I would challenge other students to feel the same way. We only have one shot at capstone and to apply all of what we have worked for in the last few years. I never let anyone deter me from my work regardless of how much fun they were out having. I am one to work before I play and if not enough work has been done in my eyes, there will be no fun.

You are right that the class is very intense. In fact, I came in thinking I knew how to push myself and felt that way for much of the semester. But I did not know what pushing myself meant until the last two weeks before the project was due. I was getting 4-5 hours of sleep a night and working all day. This was not from procrastination, but more that I wanted my paper and project to be more in-depth and to achieve a state of excellence I did not think possible. I wanted to have an amazing finished project to show fellow students, professors and parents. I wanted to show my potential and hard work that I had not been able to show others throughout the years of chemical engineering and college. That was my moment and my chance and I took full advantage and I feel great knowing that I could not have worked harder or with more dedication to the course.

I recall reading from former students that the best moment of the semester and of college is the moment that people are clapping for the presentation being over. For me this was a great moment, but as other students feel, hearing praise from you meant more to me than that moment. I cannot explain how good it felt to hear you say that our presentation was great. So good in fact, I was excited enough not to be able to sleep much that night. It feels great to know that after all the hard work and perseverance, it paid off in the end.

About you Dr. Bagajewicz. I now understand the methodology of your teaching. Even though students may present you something that is good, you constantly push them to feel as if more could be done despite their good work. I felt this way at times. I would look at the things we had done and I felt they were good, but you felt we could do more. You never let us settle with anything but putting all we had into the project. Looking back, I thank you for that even though it was frustrating at the time. Thank you for helping us with our project. It took some understanding between us and constant research to finally get somewhere. I do not think any other professor is as helpful and dedicated to his work and students as you are. In fact, I can say I have never met anyone else in my life that is as dedicated to what he was MEANT to do in his life. I can tell you dedicate your time to the development of students, technology, knowledge, and your family. I can only hope to be as dedicated to any one thing as you are to all of those. I do not know how you handle all of your research especially with students coming in every 10 minutes for help. What you manage to accomplish each day is amazing and I cannot thank you enough for helping students as much as you do.

I'll leave students with this:

Push yourself even in the face of failure.
Dedicate yourself to the point of exhaustion.
Put all of your talents on the table and use them to the full extent.
Persevere through the obstacles and overcome your fears.
If you give the class all of your soul's energy, the joy you feel in your heart at the end is something that you may only feel a few times in your life and is yours forever.
Good luck to you all!

Capstone looks a great deal better from this side. It was a challenge I am glad to have faced but would not be eager to repeat. I realize that the pursuit of maturity and character development is a dangerous quest because it often necessitates enduring situations involving pressures that any person would rather avoid. There were times during this semester when I felt myself going through the familiar chemical engineering curriculum ringer. I am sufficiently intimidated; I realize that the more I learn, the less I know. My time as an undergraduate has impressed upon me the need to be a lifelong learner. I also gained a better appreciation concerning project scope and depth: excellence does not correspond to perfection. I am simultaneously thankful and amazed that I actually survived Capstone.

I thought that the quizzes weren't too bad, and gave me a reason to study some of the key points that I was supposed to take from previous classes. In hindsight I actually enjoyed the two assignments, although I wouldn't have said that while I was working on them. The weeks that those were due were definitely the toughest weeks from a time-management perspective. The week before spring break I slept less than I have during any other week in college. But I got a lot of satisfaction from completing those - and doing well on them. I wished we had learned more programming before this class, because I had to put in a lot of time in to do the GAMS part of the second assignment (it was much more difficult than the GAMS part of the first assignment), but I also really enjoyed this part of the assignment because it was problem-solving and troubleshooting using a tool that I had never had experience with before. Some parts of the assignments were a little tedious, and that got tiring during those weeks I was lacking sleep. One good thing was that since the fact that this class is really time-consuming has become a well-known fact to Chem E students, I was able to plan in advance and set my schedule up for this semester so that I would be able to allocate a substantial portion of my time to this class.

As far as the projects go, I hated working on my projects (both of them) at first because I didn't know where to start and felt like I was spending a lot of time researching without making any tangible progress. But I learned how use the research and come up with the right questions to generate a good plan to get going. Once I had this plan, I enjoyed working on them and felt like I learned a lot specific to the projects, and general to chemical engineering. For example, I thought that I learned a lot during both projects about reasonable values for equipment sizes and process conditions, just from doing calculations and reading about processes. During my first project, I learned a lot about what factors must be considered when looking at chemical markets - demand and prices - and how to make preliminary cost estimates with limited information. All in all, I wish I could have stayed on my first project, because I felt like we could have turned it into something really good, but you clarified to me why I was moved, and I appreciated and understood that.

The most important thing I think that I learned in this class is how to make the best decision I can, based on the information available. I have always had trouble making decisions about how to do things, and often probably waste more time reading and researching than I should. During this class, due to time constraints, I often had to just decide on a good method, make sure I could justify it, and go with it. I think this will definitely benefit me in the future, being that it was something I saw myself struggling with during my internship. I appreciated you encouraging feedback from us, and responding to it, throughout the semester. This made me feel like, even though I was frequently overwhelmed, at least you were aware of the situation. You also did a great job of making sure we as students were always aware of where we stood, what we needed to improve on, and what was expected of us. I thought you did a good job keeping us informed about how we would be and were being judged in the class with respect to our projects.

I improved my leadership skills and learned how to make the best out of a difficult situation. I also think that I learned how to work with people who have different standards and expectations than me, and how I can work in this sort of environment without lowering my standards for myself. I think this class improved my confidence while I'm being criticized. I learned how to defend the work I've done without taking things personally or becoming defensive. Overall, its been a great, often exhausting, experience. Thanks for everything!

Good Things -

The projects are hard, but when you get an answer it is a really rewarding feeling. I think the workload is acceptable. Anything less and I would feel like I didn't work hard enough. The assignments were good practice for conducting simultaneous tasks, but if there are going to be two I think they should be split up. One before spring break and one after spring break.

Bad Things -

Something needs to be done about the economics side of the projects. When we were in Design I, Peters, Timmerhaus and West was almost like the Bible. Now, we get to Capstone and you tell us that Peters and Timmerhaus is not a great reference. Also, during the presentations, some of the students were questioned profusely on the economics. I didn't take an economics class and it's not required in the curriculum. I think this problem needs to be addressed.

All in all, I think the class was great. I am glad with the results Isaac and I obtained and I am proud of my work. Hopefully, a publication will come out of this sometime in the future. I think we make a good case, but more work needs to be done. I think I could probably spend the next five years, or more, working on this problem. It would be nice to get paid though.

Most importantly, if you deem the paper or presentation good enough to compete in an AICHE competition, or something similar, please contact me. I will be around next year and I would be willing to compete. I don't want to end up doing a whole lot of new work, but I think there are several small things that could be done to really improve the presentation

This class was definitely as challenging as I had heard it was. It was alot of hard work, more than I knew I could handle actually. However, I do not regret having spent so much time on this class. I think all of the stuff that we ended up learning, and the time management that we had to practice, definitely prepared me more for my job than any other class that I have taken. You (Dr. Bagajewicz) did a great job summing up everything that we've learned for the past 4 years, and weeding out the stuff that was not important and focusing on what IS important.

There were many Friday and Saturday nights that were spent at the senior lab working on our projects, but I also do not regret this. The

time that I got to spend with my classmates is definitely worth giving up Friday and Saturday nights to study.

Although I hated the quizzes at the time, looking back, I think the quizzes are a good thing to have. A refresher on all of the classes that we've taken is a perfect way to prepare us for what we will be faced in the industry as chemical engineers. Just by reviewing the main points of each course, we were able to refresh on topics that we had not thought about in two years or so.

The assignments were time consuming!!!! After the first assignment, "I remember thinking, I do not think that I've spent that much time doing anything in my entire life." But learning how to use pro II and GAMS was very helpful, so I think it was a good experience too, as much as I hate to say it. The only thing I can think of that could be changed in this class would be the assignments being so long. I think there could have been a simpler way to introduce us to these besides these long problems that took a week straight, 12 hours each day, to complete. Well that may be somewhat of an exaggeration, but it seems like they took that long. But like I said previously, they were helpful in preparing us for our projects.

Thank you for being so available to help us also. I do not know of one other professor that spends as much time and effort on their students. You were always so willing to give advice, and not just on Projects, but on everything. I really appreciate that.

I absolutely cannot believe that I've made it through capstone!! I think overall it was a stressful, stressful, time consuming, but worthwhile learning experience. I enjoyed it. Thank you

This semester had a fourth of the amount of deadlines that I did in the previous two semesters combined, yet I still found myself just as busy (and confused) as ever. This class forced me to be organized and to tolerate the intolerable. You made me do things that I thought were ridiculous and things that I deemed worthless. But in the end, no matter what my excuse was, the ends justified the means.

I am writing this journal today to discuss your class. I can truly say that I enjoyed it. Because of the fact that we were constantly pushed to improved upon our ideas and ways of thinking, I feel I grew as a chemical engineer and truly delivered a great project and presentation by semester's end. Starting Sophomore year, we had always heard how hard your class was. This however was not the full story. What we did not hear was how you learn to grow as a student of chemical engineering, a student of knowledge, and most importantly a person who is set up to succeed in life. I for one feel that I am entering the work force with a heads up on my peers thanks to the education I have received here at the University of Oklahoma. Thank you for your help and wish you the best of luck in the future!

I definitely accomplished a lot more in this class than I could ever imagine. In the beginning, I looked over some of the projects in years past and was overwhelmed. It seemed impossible to me to produce such a large amount of work. But I was definitely wrong! By balancing both scope and depth, we developed a project that I am very proud of. I was also very lucky in my project in the fact that it was a subject outside of typical chemical engineering. I had the opportunity to combine knowledge from not only my engineering classes, but calculus, economics, computer programming, chemistry, and biology. It is very rewarding for me to take a moment and reflect on all that we've accomplished.

In terms of evaluation, I think the class went pretty well. The period before spring break was pretty rough, balancing projects, quizzes, and assignments. The assignments were a burden, especially in the fact that it took away from project time. HOWEVER, some of the problems were very helpful, especially Pro/II based ones. In Design, I had partners that would churn out Pro/II simulations instantly, and I never had a chance to use it. Basically this class was the first time I really used the damned thing. I did end up becoming very familiar with it from the assignments.

The nagging was useful, although it did cause a lot of stress at times. I guess that's expected. I did have to take a day or two off at times to re-coop, but I just get more stressed than most people.

I have gained a substantial amount of confidence from this class, and I am very pleased.

I'm also glad that all this crap is over. Good God.

Well.. It's hard to believe its all over. This class is what I expected and everything I've heard it is made out to be from previous seniors. Once, you think you might be gaining ground everything changes and you have to start from scratch again. I am glad it is over and the part about it consuming my life was good and will be fun to look back upon. Already, looking at everything we did and accomplished I am still amazed. Thank you for pushing us so much. I always knew I could accomplish almost anything, but this class has just made another example.

I really liked how the class was set up. Having all the quizzes and homeworks due before spring break was great. My only suggestion is to keep individuals on the same project both before and after spring break. I understand how this cannot always work as individuals could not be working good together, but if the groups are good and everything is going good. Switching projects requires a lot of time understanding the background.

In the end, now that it is over, I can say that I really enjoyed the class. It's a memory that will last a life time.

As for the class, I am not a fan of the homework but understand why it needs to be done. I would actually like to see the assignments become smaller but have more than two (same amount of work just spread out more). This way they can be worked in over more of the semester. I actually liked the quizzes/exams more because they were a good review of important topics. I also didn't like how presentations were the week of dead week. I spent all of my time working on my project so that my whole dead week was consumed by my project causing other classes especially my night class's final to have limited study time. I would like to see the presentations done one week earlier with the report being due on dead week.

All-in-all, I actually ended up enjoying the class because now that it is done, I appreciate the work I did.

I wanted to thank you for helping me improve my presentation and analytical skills. Although, I still need improvement, I am considerable better at presenting than how I was at the beginning.

Well its all over so I can say what I really thought the whole time....I thought it was great, you are an amazing professor. You know had to push everyone's buttons but at the same time you get what you want and what is best out of everyone. No one should be scared of you, just work hard for you and they will be fine.

In respect to the structure of the class, I thought the quizzes were good, they were not killers but they were good refreshers, and needed at that. I would agree with everyone that the homework is absolutely awful, but I can understand the reason you do it and its a good one, to have us learn how to balance it all. Everyone just needs to learn not to procrastinate on it and they will be somewhat alright. In respect to the presentations I think they are great for your speaking skills and help very much with the final presentation so that you don't look stupid in the end. All in all I was terrified to take the class and looking back it's been fun, interesting, hard, and amazing all at the same time. Some may say that capstone should be like it is at all the other schools....Don't change anything its perfect the way it is, but that's because you teach it. If anyone else taught it, it would suck!!! Well it was great having you, I hope I made you proud and happy about the work we did.

P.S. you can put my name with this for future seniors to read I don't mind

Justin Woody

This class was amazing! i never thought i would be graduating feeling so fulfilled. i learnt more about engineering than i have ever learnt in any class. i enjoyed the constant motivation from your end. it helped me see that even when we think we are not capable, we are. it is hard to see that when someone else is not letting you know the potential they see in you. i believe every human being has something to

give and with a little hard work it comes out fine. this class was very time consuming for sure but it was time well spent. i particularly appreciated the fact that we got to present to you regularly helping us build our confidence and our ability to be criticized and bombarded with questions. chemical engineering is a science motivated field but you brought out the ART aspect which made everything worth it at the end of the day. also giving seemingly impossible projects was a huge plus. the projects were real-world quality and it developed my ability to start from some here even if i did not see the big picture yet. the management of scope and depth was very applicable in this class. i also loved the fact that you made yourself available when we were having tough times. you invested so much into our success that it totally blew me away. your one goal was to see us be the best we could be and nothing less. you have achieved that more than you will ever know. you also made me see that learning is a life long process. you never stop. you seemed so knowledgeable in every project you gave and you also provided resources for information we could barely obtain. i hope the next set of chemical engineers cherish your motivating abilities. i know i do.

Things I liked:

- Done with assignments and quizzes (mostly) in the first half of the semester. It made the first half of the semester a little crazier but it was much better than trying to deal with assignment when we were finishing up the projects. Also, other classes are usually a lot busier in the second half of the semester so being basically done with capstone helped.
- Small teams: In design I and design lab we were in four or five person teams, this made coordination significantly more difficult. As an individual we didn't have to do as much work, but as a whole there were more people that could drop the ball and make more work for others in the group.
- Being able to talk to you pretty much whenever needed: Your availability was excellent, other than there might be a bit of a line to talk to you. You also responded to emails very quickly and sometimes as all hours of the night.
- The opportunity to change partners/projects after spring break: I didn't experience this personally but if things had not been going well with my partner or if I really didn't enjoy my project, the ability to express those concerns to you and you take the necessary action was a good thing
- Not having class just to have class: I liked it that you cancelled class when you didn't have anything to cover or wanted us to be working on our projects instead of having class and wasting everyone's time

Things I didn't like

- I can't really think of anything that I really didn't like about the class

I know that most people don't like the quizzes or the assignment or the amount of work required. I don't have these feelings. I thought the quizzes were helpful in that they reminded us that this information is disposable and if we don't use it we will lose it. The assignments were a real pain but I am now much more comfortable with Proll and GAMS than I was before so I think the exercises were helpful. Finally I am used to working hard, this was just a different kind of hard work, but it was still a good experience.

I am inclined to tell you that the ability to pick our partner/group would be an improvement; however, in past experiences I have found that "friends" are not necessarily good partners when grades are involved. When it is all over you might end up hating each other if things don't go well, so I think the system in place to determine groups/projects is sufficient and should continue.

I want to start off by saying that I feel that I have learned a lot during the course of this semester.

My only concern over the course was doing two half semester projects. I felt that although I learned something different from working on the two projects, I thought that both projects could have been better than they were. With the first project, it seemed that I almost finished a really good project. I think that I would have rather worked on one project over the course of the entire semester. Maybe the first project didn't have very much room to expand, and I understand that it would not make sense to continue a project if it couldn't significantly progress any further. Nevertheless, I would have liked to have spent the entire semester trying to produce one really good project.

Overall, I think that you do a very good job of teaching the class. I like that you try to get the quizzes and assignments over with during the first half of the semester. I also like that you spend a lot of time in helping us make our projects better. Thanks for your help.

I am so glad to be finished! This has been a difficult class, but I feel like I learned a lot from it. I would like to thank you for designing the class the way that you have, because I think it encourages a lot of development. This is the first time that we are faced with such an open-ended problem where we have to make so many decisions about where to go with the project. You really helped build my confidence in my abilities to solve this sort of problem. At the end of this class, I have a project that I am proud of, and that is a great feeling. Although the presentations were nerve racking, it was exciting to tell people about all the work that we did this semester.

If there were one thing that I would suggest changing, it would be the assignments. I think that the assignments are very important, but it might be better to give the class one problem from the assignments per

week. Having them all due at once was stressful, but I feel like more assignments that are smaller might make it easier to manage. I'm not sure if that is true for everyone, though. Just a suggestion.

Thanks again for the experience!

I really wish I could have stayed with the same project. I think my experience would have been better if I had. It is hard to learn a new project and be able to contribute to it in just 5 weeks. Also it is difficult to voice dissent over people who have been working on the project since the beginning of the semester. Obviously there are some projects that will only be half-semester projects, but I think it would be better to stay on one project the entire semester.

That is really my only gripe (or suggestion) for the class.

I think that the assignments and quizzes are fair and that the structure of the class is fine. I do think that the small groups work well and that should stay the same. A lot of people complain about the work load, but I think that just goes with the territory of being in this major.

... I must say that I have had a great time this semester. Granted, times did get rough. The start of my semester was horrible and I had never experienced anything that hard before in my life. My project got off to a slow start as I was unable to really concentrate on anything. But things got better. The partner change was the best thing that happened to me after spring break. I got to be with one of my best friends and my attitude about the project completely changed. It was no longer an obligation to work on the project but a fun chemical engineering activity. I don't know how to describe this or say this but I am used to being one of the top performers in the class. With this project, I was not at all. I don't know if it was the project or partner situation but I was a little disappointed in myself. But overall, I think it was a great learning experience and I am really proud of how everyone did. It was amazing to see everyone step up and work diligently on a project.

The class assignments were a good way to learn Pro/II and GAMS. However, at times, I feel I was putting too much time into finishing the assignments than working on my project. In fact, I know I was. But I do not feel the assignments should be done away with by any means. This past summer, I interned at Chevron Phillips and most of the interns were very experienced in Pro/II and Aspen. Us OU students had only done ONE problem dealing with Pro/II and spent no more than an hour looking at the problem. We need more assignments with these programs! I spent the first week of my summer running through Aspen tutorials before working on my project. I can't wait to return this summer and show them that I can actually use Pro/II now thanks to this class.

All and all, the class was great. It was definitely different from any other chemical engineering class but a great way to really wrap things up. I thought it really brought out the best in a lot of students, a

side of them that we rarely got to see. I think it would be more beneficial to choose our own partners but other than that, I do not feel anything about the class should be changed.

Dr. Bagajewicz, you have been a great professor. I wish I could have impressed you more. Don't change anything. I promise, I will not "look like an idiot" when I start my job. (Did you hear Nelson use that line in the video??)

I had a difficult time at first in the class. I think this is because I hadn't expected to work so hard. After I got in the flow of things I think I did real well. I have never worked so hard in any class, but feel great now that it is over and I produced quality work I can be proud of.

Notes to future classes.....

Pick your partner well, it will make or break you. The juice is worth the squeeze, and success never tasted so sweet. Professor Bagajewicz is a mad man but if you listen to him you will accomplish more than you ever thought possible.

Notes to you on future classes.....

Don't ease up on the project work, we are all capable of doing well since we made it to your class. I would suggest starting in groups of 3 rather than 2 in the beginning because it will help the project get started and students might not feel so overwhelmed. The quizzes are not too difficult and that was a nice reprieve so keep them at the same difficulty level.

On a personal note....

I appreciate a professor with a sense of humor and you, like myself, enjoy a nice laugh. I had a great time give you some crap and enjoyed taking it in return. Thank you.

Make sure you are at the roast tomorrow night if not I'll hunt you down.

Whew, it's over!

I will always probably be slightly bitter over being moved to a new project, but I survived. If nothing else, this class taught me to endure and try to learn even when I found the circumstances disagreeable.

O.K....so the semester is over but the lessons I learned in this class will last for a long time.

I just wanted to thank you for pushing me to do a good job. I honestly do appreciate it. I did enjoy both of the projects for different

reasons but at the end of the day it felt good to be done. Also, I think the class is fine the way it is.

I will not complain about the homework assignments (or the large workload, in general) as I know that complaints of that nature are common and futile. I understand and respect that the class is demanding and I appreciate this fact because I believe it to push people to achieve their limits and prepare them for the future.

That being said, I enjoyed the experience of your class this semester, although I am very glad that it is over (assuming that I pass the class, of course). I strongly believe that you are the best instructor for this class. Although I will concede that you are up front with your comments and opinions with respect to the projects, I urge you to continue to carry this behavior -- EVEN IF IT OFFENDS PEOPLE OR HURTS THEIR FEELINGS. Students need to realize what the real working world is like. Your boss isn't always going to pat you on your back and give you a hug to comfort you if you do something wrong. Many times they will not even congratulate you on a job well done. These are facts of life for which graduates should be prepared. The difference between you and most professors is that you put SO MUCH time and consideration into each one of the projects, giving valuable insight to every student in the class. No matter who whines or cries about your teaching methods (or raises hell in a grade appeal to some dean or provost in an office across campus who has no clue as to the meaning of a valuable educational experience), you should feel good for one simple reason: you did what you could to make a positive difference in an era where challenges are becoming more and more unwelcomed by both students and faculty. In my opinion, you did it right this semester.

I have really enjoyed this class a great deal and I have also hated it a great deal as well. The best skill I took from this class was the ability to speak effectively in front of others. I was really surprised that during the public Capstone presentation I did not feel nervous at all. I remember one year ago at this time I was already looking at the Capstone presentations with dread. I have really come a long way and I thank this class for that because we got plenty of chances to brush up on those skills with multiple presentations. The writing of the paper and the revising process was also extremely beneficial. It was a great way for us to see what our mistakes were and how we could best fix them. I will admit that the homeworks were the low point of the course. If nothing else, they gave me a chance to get used to doing things I don't necessarily like that our boss might tell us to do. I am sure this will happen a lot on the job. I think that you are the perfect teacher for this class because you tend to be a little intimidating at times. In hindsight, I think that was good because it pushed me to do the best work I could possibly do. You can be extremely blunt, but at least you give that disclaimer at the beginning of the semester. At least we never had to guess how you felt about something. In summary, I think the class is set up extremely well right now and should continue in the same fashion.

Overall, I am disappointed with myself in how I have performed in your class. I just seem to have some overarching sense of inadequacy that makes me think irrationally and hampers my ability to realize my potential. That does not reflect on the worth of your class, however; it's just something I've been dealing with for a long while and can't seem to conquer.

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My experience in your class has certainly helped me to develop my speaking and presentation skills. I am a fairly quiet person who tends to shy away from the focus of attention, so presenting has always been particularly difficult for me. And while I had delivered many presentations before, I had never done them so regularly or at such length. I was almost surprised with myself at how well (in my opinion) I did in the final presentation. I now have much more confidence with myself in presenting, which I think will serve me well in any career I choose.

Hopefully, I will figure myself out soon and begin to excel again. I am sorry I didn't do that in your class.

Thanks for everything.

Finally done. Despite being tired and wanting to just quit, I managed to keep working hard right until the very end. I think I got some good results, and as much as this project frustrated me at various time, I actually enjoyed working on it.

Out of all my CBME courses, capstone helped me develop the most into an engineer. I really feel that this class was the most challenging, yet the most rewarding. It's amazing to see what we are capable of accomplishing with such open ended projects. This class has helped prepare me for any challenge I'm faced with in industry.

There is nothing that stands out to me that needs to be changed. The two assignments were pretty dreadful. And that's just because it felt like they took forever to do. I do wish more professors could have made it to the presentations. It would have been good for the professors to see how we have built off the foundation they taught us. But in all, I don't see anything major that needs to be changed.

Pretty much anyone that takes this capstone course needs to bite the bullet and know its going to be difficult and challenging! That's why we are engineers! If anyone could do it, then we wouldn't stand out as special from the rest. Nothing is impossible, even capstone!

Thanks again,

Overall, I am happy with the way this semester ended. It was very hard at times, but now I'm done so it doesn't seem so terrible anymore. I'm just glad I don't have to do it again. Thanks for your help this semester.

Evaluation of Class Experience:

I know I've missed a few of the previous journals, but I def. wanted to make sure I sent you my last one. I'm on the 5 year graduation plan, and so I had the option of taking this class last spring with my own peers. I opted not to for many reasons. I had heard all kinds of horror stories of the difficulty of the class and the teacher. To be blunt, I was a little intimidated and scared of you. After this semester, those notions have completely changed and my feelings have changed from fear to respect. You have a great understanding of your ownself (both positives and negatives) and of your student's capabilities ---- and you make sure that you push us until we reach these. One of the things that I will keep with me the most from this class and take with me as I graduate is your discussion on time, depth, and scope. I know other majors' Capstones are a joke and initially I wished that Chem E's was like that as well, a cakewalk. However, now, after a semester's worth of hard work and seeing what I was able to get out of it, I'm glad the class is structured the way it is, as it is a true culmination of your undergraduate years and a great preparation for the real world. Getting that prize was truly a great surprise and I can honestly say was one of my best moments at OU. It made all that time and effort just that much more worth it. I know that a couple of times this semester I went missing in action and I now realize that you are right: "You need to make some kind of reassessment of how you run things. Either you are trying to do too many things at the same time, or you can't plan how to attend all your commitments properly." This is something that I've sometimes thought about but it really hit home this semester and I thank you for your "nagging" in showing this to me. In the past I was able to get away with this kind of behavior because the only person that was affected was me, and I made it up on my own time. However, as you said, "I can guarantee you that no matter what you do from now on, school or job, it will not work that well anymore." I had 2 strikes this semester, but thanks to you I know that there will be no more "tricks" or a 3rd one in the future. One of the quotes you posted has stuck with me and is now one of my favorites: "Good judgment comes from experience, and experience - well, that comes from poor judgment." A.A. Milne I've made my poor judgments and so now I have the experience thanks to Capstone to make good judgments in the future.

What to Change/Add/Eliminate:

I liked the fact that the majority of the quizzes/tests were done early. If there was any way, I would have a review session before each of these. I felt much more comfortable with the quiz whenever a review session preceded it. I would say to split the HW into 1 before the

break and 1 after, but I realize that you need some of the stuff from HW 2 for the projects. So, my only suggestion with HW is to have more info/tutorials on the programs i.e. GAMS, PROII, @Risk, etc. I know that part of the goal of the assignments is to force you to learn on your own these things, but some more help or guidance would be much appreciated by the students. Overall, the HW was quite challenging. To be frank, had I not had the help of other students, esp. with the PROII stuff, I would not have been able to complete them. But perhaps that's one of the things that the HW was intended to do and so if that's the case then I would keep the difficulty as is, otherwise make it a little bit more straightforward and clear.

This class is a great class to prepare students for the real world. You got it into our heads that you should want to know everything we are suppose to know like the back of your hand, lest you embarrass yourself and the school and get fired! I know you shook some sense into me.

There were times that we didn't see eye to eye. I knew that I upset you and you definitely upset me at times. But this never got in the way of us getting the job done and you being available to listen to new developments and whatnot.

Complaints that I have about the class...there's really nothing I can think of. I mean, I look at things as what can I learn from this situation. So whatever negative experience I may of had, I came up with a way for me not to go through that again or to handle the situation better in the future. Sorry that I could not be of help in that department.

Again I think the class is good as it is. The class really helps us open our minds and think outside the box, whether it's about Chemical Engineering or Global Warming! But I think we aren't necessarily 100% prepared, but we left this class way better than we came. At least I did. Now it's just our responsibility to deliver our good work ethic, interpersonal skills with teams and knowledge to whatever company we work for. Thanks for being hard on us. It's true that teachers that are always on you may not be your favorite teacher at the time, but in the end you respect them for what they did to and for you.

YEY!! I'm done! Its really exciting, and I'm glad (big sigh of relief). I thought that this capstone class was really beneficial; I learned a whole lot and I am definitely more confident in my engineering abilities than I was before this semester. Thank you so much for all of your time and effort; it was really refreshing to have a professor ready to drop everything to help out and listen. I appreciate your feedback, and ultimately I feel that it will just make me a better engineer. Again thank you for everything and have a wonderful summer.

To say that this class was a challenge would belittle the amount of work that everyone put into it. This class was a lot of time and work from the very beginning. It was more than I expected in a few ways. I honestly thought you would be harder on me from what you said on the first day of class. Not to say that you weren't hard on me but I thought the blend of challenge and encouragement was great. I never felt like I couldn't do something but was able to see that if I just put in the time and effort that I could give you something close to what you wanted. I also expected a little lull in the class, as I've experienced in previous classes. Obviously we didn't get to experience such a thing but I'm glad we didn't. And one final thing that was unexpected was the way you defended your students after their presentations. It really showed me that you honestly wanted us to do well and was willing to take the blame for some issues that we didn't cover. This class is one of the best/worst experiences in my life. I do feel prepared and adequate enough to enter the real world but would not want to re-live this semester ever again. Thank you Dr. Bagajewicz for the time and effort that you invested in making us legitimate engineers! Now that I'm finished I'm going to go have a social life.

I'm not going to lie. This class was very frustrating initially. I felt very helpless at times. I'm not sure how knowledgeable we were for the first presentation. However, I think we have improved greatly since that time. The project was a true learning experience for real life. There were communication problems, a person dropping, and adding two new people. There were times where I had to pull all-nighters and times when I felt like breaking down, but now that I look back at it, it was all worth it. This class taught me the most on how to handle adversity. Yes, I can read a textbook and take tests, but there was an intangible aspect that the project provided that a classroom setting didn't. I am very grateful to have been through the experience. Would I want to do it all over again? Absolutely not, but I am glad to have gone through it.

As for the other parts of the class, I'm not a big fan of the homework assignments. It just felt unnecessary especially when my project was hardly related to the work I was doing. I think it would be better to have 3 short homeworks rather than 2 long homeworks.

I don't have a problem with the class tests. I think it was helpful for a refresher course in what we've learned. Actually, I think that having more tests wouldn't hurt.

Overall, this was by far the best class I took here at OU. I wouldn't want to take it again, but I think that this was a learning experience like no other.

I'm glad to be done! I have one paper to write for my honors class, then the year is over! And, at this point, I do not feel like writing any more, so, in the spirit of what you suggested at the beginning of the semester, I'll just make this short and submit it as per requirement. Have a good summer!

Overall, I actually enjoyed the class! Though I started to really get the WHOLE chemical engineering in Design 1, I really gained an understanding of what it takes to do chemical engineering. And though I am going to graduate school for something different (well, slightly different), I certainly have a bit more respect for chemical engineering design than I would have had if the class was structured or taught differently. But my big beef with the whole thing actually starts with my experience with GAMS. By the time I finished with the second project, I actually started to understand GAMS a little, and I now realize how important of a tool it can be in design applications. But, for a project that greatly utilized it, I feel like I still don't know it as well as I should. And, for that matter, I am not sure than I can say that I am walking away with my degree actually understanding the software used over the past year and a half as well as I really should. What I mean by this is that, though we were given plenty of opportunity in the last year to use GAMS and PRO/II, I feel like merely incorporating them into the two design courses is not enough. They have so much potential and I believe they should have a course devoted to them. Now, I understand that future students may complain that they didn't get into chemical engineering to learn programming and software, but this falls short of realizing the importance of these programs; saying that a course devoted to GAMS and PRO/II is merely a programming course is like saying that the Fundamentals course is merely an Algebra course or that Controls is merely a differential equations course--and those classes are clearly more important than that. So, I realize that this isn't per se a complaint about the course--it's more of a complaint about preparation for the course and THEN it's a complaint that the course isn't utilizing the computing tools available to the students enough.

Other thoughts that you may find worthwhile begin with the fact that I actually like how the quizzes are structured. I like that they're concise enough with the material that, if we actually paid attention in the original course, we only need the night before to review. I also REALLY like that they start to get into the important material we've learned, or rather, they remind us of what we're most likely going to need to remember. I really don't think those quizzes could have been utilized in a better manner. Concerning the homework, well, I'm not sure they're quite so necessary. I understand the need for review of concepts and, of course, the introduction to GAMS, but each assignment just swamped me for a week and a half to two weeks at a time. Granted, I could have started each about three weeks out, but rather than having just a lot to do for three weeks, I still think that my preference for having a week and a half of regular amounts of work followed by a very intense week and a half worked better for me. But, still, I don't know if I got as much out of those assignments in the long run. Maybe if they were broken up into four smaller assignments it would have been better--I really can't know. But, I do know they were more of a distraction than a help. However, should you decide to keep them as they are, I certainly think they should both be due before spring break. And, that leads me to my last comment. I like that almost everything after spring break was devoted to the second project. Having the class that way allows for more concentration on the project and, ultimately, less stress on the student. That has to be one of the best features of the course. Actually, there is one more comment I

have. You pushed, and pushed, and pushed, and then pushed us some more. And you were right to do so. I know I'm certainly not the best chemical engineer in our class, but I can still say that, from a chemical engineering perspective, I was proud of the work I did on the second project (and if I stayed on the first project, I think I would have been equally proud there, too). But, I don't think I would have done as much work if you had not pushed as much as you did. Because of your pushing, my partner and I managed to turn what could have been a simple case of "Oh, use this program to copy the results of this published paper" into "We have this algorithm that we know a lot about and know how to use it very well. In fact, we know how to manipulate it to be able to verify results of this published paper. Hey, we even think that this is a good start to making a marketable program!" And, for all of that pushing, I thank you!
