| **2020 \| 2208 \| CEAS \| College of Engineering Survey** | **University of Cincinnati** |
|---|---|
| **2208-1 (2020)** | **University of Cincinnati** |

**Course:** 20CHE2064 001 - MAT EN BALANCES      **Department:** 20CHE

**Responsible Faculty:** Carlos Co      **Responses / Expected:** 78 / 119 (65.55%)

**Focus: Overall Results**

**ABET sample a thru k**
**General**

|  |  | **Responses** | | | | | | **Course** | | | | | | | **All** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  | **SD** | **D** | **NO** | **A** | **SA** | **N** | **Mean** | **Grp Med** | **Med.** | **Mode** | **Low** | **High** | **Std Dev** | **N** | **Mean** | **Grp Med** | **Pct Rnk** |
| Q1 | ... apply my knowledge of math, science, and/or engineering | 1 | 1 | 0 | 26 | 50 | 78 | 4.6 | **4.7** | 5 | 5 | 1 | 5 | .69 | **4K** | **4.2** | **4.4** | 71 |
| Q2 | ... design and conduct experiments | 2 | 10 | 20 | 23 | 23 | 78 | 3.7 | **3.8** | 4 | 4,5 | 1 | 5 | 1.10 | **4K** | **3.6** | **3.7** | 46 |
| Q3 | ... analyze and interpret data | 0 | 1 | 2 | 22 | 53 | 78 | 4.6 | **4.8** | 5 | 5 | 2 | 5 | .60 | **4K** | **4.0** | **4.2** | 81 |
| Q4 | ... design a system, component, or process to meet desired needs within realistic constraints | 0 | 4 | 2 | 22 | 50 | 78 | 4.5 | **4.7** | 5 | 5 | 2 | 5 | .78 | **3.9K** | **4.0** | **4.2** | 77 |
| Q5 | ... work as a team member | 0 | 1 | 3 | 19 | 55 | 78 | 4.6 | **4.8** | 5 | 5 | 2 | 5 | .62 | **4K** | **3.7** | **4.0** | 80 |
| Q6 | ... identify, formulate, and solve engineering problems | 0 | 1 | 2 | 18 | 57 | 78 | 4.7 | **4.8** | 5 | 5 | 2 | 5 | .59 | **4K** | **4.2** | **4.3** | 84 |
| Q7 | ... understand professional and ethical responsibility | 0 | 3 | 11 | 24 | 40 | 78 | 4.3 | **4.5** | 5 | 5 | 2 | 5 | .85 | **4K** | **3.9** | **4.1** | 66 |
| Q8 | ... communicate (orally) effectively | 0 | 0 | 0 | 17 | 61 | 78 | 4.8 | **4.9** | 5 | 5 | 4 | 5 | .41 | **3.9K** | **3.7** | **3.8** | 93 |
| Q9 | ... communicate (written) effectively | 0 | 4 | 4 | 24 | 46 | 78 | 4.4 | **4.7** | 5 | 5 | 2 | 5 | .81 | **4K** | **4.0** | **4.1** | 71 |
| Q10 | ... understand the impact of engineering solutions in a broad context | 0 | 2 | 2 | 26 | 48 | 78 | 4.5 | **4.7** | 5 | 5 | 2 | 5 | .67 | **4K** | **4.1** | **4.3** | 72 |
| Q11 | ... use techniques, skills or modern engineering tools necessary for engineering practice | 0 | 1 | 0 | 23 | 54 | 78 | 4.7 | **4.8** | 5 | 5 | 2 | 5 | .55 | **4K** | **4.2** | **4.3** | 79 |

**Responses:** [**SD**] Strongly Disagree=1 [**D**] Disagree=2 [**NO**] No Opinion/Neutral=3 [**A**] Agree=4 [**SA**] Strongly Agree=5

**Pct Rnk:** Percentile Rank (100 is best, calculated vs. precise Mean)

## Results Summary by Question Category/Sub-Category

**20CHE2064 - 001**

| **Question Categories / Sub-Categories** | **Responses** | | | | | | **Course** | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | **SD** | **D** | **NO** | **A** | **SA** | **N** | **Mean** | **Grp Med** | **Med.** | **Mode** | **Low** | **High** | **Std Dev** |
| **S1** General | 3 | 28 | 46 | 244 | 537 | 858 | 4.5 | **4.7** | 5 | 5 | 1 | 5 | .77 |
| **C2 ABET sample a thru k** | **3** | **28** | **46** | **244** | **537** | **858** | **4.5** | **4.7** | **5** | **5** | **1** | **5** | **.77** |

**Responses:** [**SD**] Strongly Disagree=1 [**D**] Disagree=2 [**NO**] No Opinion/Neutral=3 [**A**] Agree=4 [**SA**] Strongly Agree=5

**2020 | 2208 | CEAS | College of Engineering Survey**
**2208-1 (2020)**

<div align="right">

**University of Cincinnati**
**University of Cincinnati**

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| | |
|---|---|
| **Course:** 20CHE2064 001 - MAT EN BALANCES | **Department:** 20CHE |
| **Responsible Faculty:** Carlos Co | **Responses / Expected:** 78 / 119 (65.55%) |

**ABET General Questions**
**General**

| | | Carlos Co | | | | | | | | | | | | | --- Survey Comparisons --- | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **Responses** | | | | | | | **Individual** | | | | | | | **All** | | |
| | | SD | D | NO | A | SA | N | Mean | Grp Med | Med. | Mode | Low | High | Std Dev | N | Mean | Grp Med | Pct Rnk |
| **Q1** | The course was well planned. | 1 | 3 | 10 | 16 | 48 | 78 | 4.4 | **4.7** | 5 | 5 | 1 | 5 | .94 | **4.1K** | **3.9** | **4.2** | 61 |
| **Q2** | The professor was approachable to discuss problems related to the course. | 0 | 0 | 2 | 11 | 65 | 78 | 4.8 | **4.9** | 5 | 5 | 3 | 5 | .45 | **4.1K** | **4.1** | **4.5** | 82 |
| **Q3** | Class assignments and exams were relevant to the course material. | 0 | 2 | 2 | 11 | 63 | 78 | 4.7 | **4.9** | 5 | 5 | 2 | 5 | .63 | **4.1K** | **4.3** | **4.5** | 78 |
| **Q4** | The grading was fair. | 0 | 0 | 2 | 11 | 64 | 77 | 4.8 | **4.9** | 5 | 5 | 3 | 5 | .46 | **4.1K** | **4.1** | **4.3** | 85 |

**Responses:** [SD] Strongly Disagree=1 [D] Disagree=2 [NO] No Opinion/Neutral=3 [A] Agree=4 [SA] Strongly Agree=5
**Pct Rnk:** Percentile Rank (100 is best, calculated vs. precise Mean)

**ABET General Questions**
**General**

| | | Carlos Co | | | | | | | | | | | | | --- Survey Comparisons --- | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **Responses** | | | | | | | **Individual** | | | | | | | **All** | | |
| | | VP | P | A | VG | E | N | Mean | Grp Med | Med. | Mode | Low | High | Std Dev | N | Mean | Grp Med | Pct Rnk |
| **Q5** | Overall, how do you rate this course? | 1 | 1 | 7 | 17 | 52 | 78 | 4.5 | **4.8** | 5 | 5 | 1 | 5 | .81 | **4.1K** | **3.8** | **3.9** | 77 |
| **Q6** | Overall, how do you rate this professor? | 0 | 1 | 4 | 6 | 66 | 77 | 4.8 | **4.9** | 5 | 5 | 2 | 5 | .59 | **4.1K** | **4.0** | **4.3** | 82 |

**Responses:** [VP] Very Poor=1 [P] Poor=2 [A] Average=3 [VG] Very Good=4 [E] Excellent=5
**Pct Rnk:** Percentile Rank (100 is best, calculated vs. precise Mean)

**Q7 - Please enter any comments about the professor in the box below:**

**Faculty: Carlos Co**

**Response Rate: 94.87**%   (**74** of **78**)

1   he's great!

2   Very helpful and kind! He offered very good feedback and helped me grow as both a student and a person!

3   Throughout this course I have pushed myself harder than any prior class. This is not because I was forced to with the threat of grades but because I had to choose to learn. I never felt that I was learning information just to get an A. Instead I was learning to become a better engineer and expand my knowledge. Ultimately this type of thinking payed off during an interview. Professor Co always stressed the importance of being able to talk and present what one has learned. Because of all of the practice I had from being called on in lectures and the material for homework, I was able to express my understanding of engineering topics during my interview. Within three hours I had an offer from the company, and I attribute most of that success to what I have learn in Material and Energy Balance. Additionally, Professor Co is the one professor that has made online learning enjoyable, efficient, and effective. I look forward to his classes because of the his energy and method of teaching.

4   Though his methods are unconventional and take time to get used to, Carlos clearly cares about the success of his students above all else and wants them to be prepared to do well in their future. He will always respond to student concerns without any haste or annoyance, and he is persistent in his encouraging words!

5   This was downright the best course I've ever taken. This class has really hard material and I think that if I wasn't able to learn it in this fashion I would've struggled a lot. Every class period the professor was available before and after class for questions but he always emphasized asking the in class. He would go over things multiple times making sure that everyone understood. I think that out of the course load I had this semester this class was by far the hardest but it was by far the least stressful. As long as I put in time and effort into each assignment I was able to succeed. It also allowed me to better my speaking skills and learn how to explain complex problems. Now I have a library of videos on Youtube for each assignment that I can refer to and see how much better I have gotten. Thank you Dr. Co.

6   This semester, Dr.Co was one of the best professors I have had. He will probably remain one of the best professors I will have in the rest of my time at UC. He was incredibly understanding with assignments and their due dates because of everything happening in the world at the moment. He cared more about learning the material than a set in stone due date. The ability to resubmit assignments to get a better grade was extremely helpful so we could actually learn and improve. For every assignment, he gave amazing feedback as well. Though the style of homework seemed weird to me at first, I found it very beneficial as it forced me to challenge myself and see if I really understood material. His lectures were fun to attend because he wasn't so strict the entire hour and a half we were there virtually. Sometimes, his lectures got a bit confusing but that is not something that is specifically a problem with the professor. Overall, this semester was a little bit better with Dr.Co.

7   The professor was always willing to help students whenever he could and always taught the course in a manner in which students were able to learn the material and understand it fully.

8   The professor is very serious about the course and really wants you to understand the material. No matter how many times you ask the professor the same question, it is always answered. Each time he repeats himself he answers your question differently so you are able to understand the question in a different way. Overall I would be happy to pick this

proffesor again in the future.

**9** The professor always tried his best to make the class the best he could. Carlos always made the class exciting to come to and learn in. The homework was always challenging but I learned a lot from them.

**10** The professor was focused on long-term learning for each individual student. It was obvious he was very experienced. Sometimes, he taught a little fast and the information felt over the students' heads. However, he was always willing to go back to re-explain, which was helpful. Allowing homework resubmissions was generous of him and gave students the opportunity to understand and correct their mistakes.

**11** The professor was detailed oriented teacher, everything was explained clearly and if you had any questions he was willing to re-explained the materials millions until everyone is satisfied.

**12** The professor explained things as many times as needed and would always make sure that the class understood before moving forward. He was very approachable and helped a lot clear up questions with homework and allowed for corrections to assure that we were understanding the material, not just doing the homework for the grades.

**13** The professor is very willing to help students understand the required materials and will repeat the material as much as necessary that the students request. He checks the students understanding by asking them questions during class and his assignments require students to reteach the lessons he has taught to prove they understand the materials. He is a great professor and understanding of students circumstances if they have any trouble turning in assignments.

**14** The course was taught in an extremely different way than most courses. Overall much less material was covered however the depth, complexity and real life applications more than made up for it. By making us submit videos explaining what we learned really makes me understand the material, even though its challenging. It seemed like someone will either hate or love this class, it just depends on how much effort you put into it. (The more effort the more you love it). Thanks Carlos!

**15** The class was amazing and I think professor Carlos Co. is one of the best that I have had. I learned a lot about chemical engineering in this class and have also learned how to better present and communicate my ideas from the video assignments. This class was instrumental in building the building block for the next classes, and I feel like I am more prepared then I would normally be. It was hard to do the hw, but it made me a better student and person.

**16** Professor did an excellent job of creating a welcoming and healthy learning environment even with the course being completely online. He was very approachable and did not mind repeating the material to ensure that the students understood the concepts. What I appreciate the most is that he understood how hard the material was and made sure to communicate how much practice it would take and provided students with a plethora of resources so that they could successfully learn the material.

**17** Professor Co is one of the best professors at the university. The amount of time he puts into perfecting his lectures and making sure students understand the material is excellent. He is a very approachable person and makes sure any questions that are asked get answered before moving on with further material. He makes students work at their best and helps them grow and expand their capabilities. Unlike most professors Co helps students understand engineering at a workplace level. He gives the big picture and focuses on real world application. If I could recommend a engineering professor to anyone, it would be Co.

**18** Professor Co was a great professor! His teaching style is very unique and his class is very enjoyable to attend and his class prepares you for the homework assignments. His way of teaching truly makes me want to learn the material rather than just preparing us for an exam, where most of the information will be forgotten after the test. In addition to teaching MEB material, he always gave very helpful advice for chemical engineering majors as he once was a chemical engineering student that did internships as well! I truly thinks he cares about us and he wants us to succeed! I can't wait to have Professor Co in future courses!

**19** Professor Co's unorthodox method of teaching really helped me understand who I am as a student. His method rekindled my passion for engineering and I always looked forward to attending his lectures. I actually found myself learning the material because I wanted to, rather than memorizing the information for an exam. I feel like this method is perfect for me and would really help me out in my engineering career. In addition to this, his attitude and demeanor when it comes to learning is perfect and a huge reason why I enjoyed lecture so much. He really cares about whether or not we know and understand the material, which made him very approachable in and out of class.

**20** Professor Carlos is unique in both his personality and teaching style. In class, he promotes students' engagement by making jokes and encouraging interruptions. Even though I did not feel comfortable doing so, I have seen other students do and that's the clearest sign for his success. Outside of class time, he is approachable and very attentive in terms of answering questions and providing additional materials. However, what I appreciate the most about him is his acknowledgment of students' struggles and his ability to comfort and ease down those typical difficulties throughout the course. This course is unlike any I've taken, however Professor Co took that strangeness and made it work to students' advantage. The pressure of grades and the student/teacher authority dynamic are diminished in this course yet never once I feel knowledge was lost in compensation for those changes. One improvement I would like to see is a text source for the materials but I am happy with how it already is.

**21** Professor Co is one of the best professors I've had so far. The material taught in this course is very difficult and is sometimes hard to follow in class. However, the video homework submissions we had to do really pushed me to fully understand the concepts we learned in class, and I saw a lot of growth in myself as a student throughout the semester. The fact that we can also resubmit any of these homework assignments is very beneficial and allows me to continue building my knowledge on the subject. The main reason why this class setup is so great is because I didn't have to learn to pass exams or tests, but instead I got to learn simply for the sake of actually comprehending the material, which is not something most other professors do. Overall I feel like I learned a lot from this course and remembered to enjoy learning without the usual academic pressure.

**22** Professor Co. is one of the most understanding, upbeat, and intelligent professors that I've had since my start in college. Professor Co. did everything in his power to make sure that the material was understandable and always stopped and repeated himself numerous times even when students wouldn't necessarily ask him to. He is very realistic and he understands the psychology of the average college student given the age between 18 and 24 roughly. He understood that different students were in different circumstances due to COVID-19. He gave way more time to complete assignments due to these factors. He was very accommodating and fair. He also approached the class of material and energy balance the way it would actually apply in a real engineering job utilizing computational methods such as collaboratory instead of archaic pen and paper approaches. The course was difficult but this is an engineering class, what do you honestly expect? His use of modern technology was much more beneficial

**23** Professor Co is an excellent teacher who wants and expects nothing but the best from his students. He lays out the material in a way that is very engaging and engages students individually during lecture (even during online class) and makes sure that everyone has a solid understanding of the material.

**24** Professor Carlos Co. was one of the most unconventional professors I have ever had in school, and he taught in a way that no one has ever taught me before. Despite the online scenario of the class, he did a great job making every student learn the right way. By structuring his HW as all videos as a student you were forced to learn and explain. Also, he made it very clear at the start of the course that if you learn and put in the effort to the class you will get an A. This was another thing he did that most professors would not. By doing it this way, it allowed every student to really learn what the material was rather than half assing a way through a test. This was exceptional. Also, carlos's teaching style and his ease of talking to students made it more fun to learn a rather complex subject.

**25** Professor Co has been my favorite professor I have had in my entire academic career at UC. He adjusted to the new online teaching in a way that made me excited to come to class and enjoying doing the homework for the class. His homework assignments challenged me to not only understand mathematical equations or engineering problem, but also to improve

upon my communication and professional skills. By the last homework submission I was tremendously more confident in my ability to speak and present in front of a camera and my classmates.

**26** Professor Carlos is the best professor I have ever had. He always does his best to deliver the lesson to us in an easy way and he works hard everyday in order to benefit his students very well. Also, professor Carlos does an an additional classes and it's optional, which are vey beneficial. Overall,I really enjoyed and liked the semester and I'm planning to take other next courses with Dr Carlos.

**27** I thought his approach to this course was interesting. Not having any exams or quizzes just a few homework assignments. His meaning behind this was to not limit what you were supposed to be learning with guidelines. I attended almost every class and I can't say that this worked for me. Unfortunately instead, like most students, I feel like I learned the minimal to complete the few homework assignments.

**28** I think the course would have been more comprehensible with a textbook or some type of course material. I think for a lot of students it was difficult to follow along and really understand content from just one verbal lecture over zoom. Professor really cared about the students and had good intentions of helping though!

**29** I struggled with this class mainly due to the lack of structure. It seemed that the lectures were just very long talks about different things and it was hard to pay attention when the focus of the lecture changed so many times. I never knew if we were on a chapter or even if we were basing anything on a book that I could read for more information. I would appreciate more structure with the lectures and set lists of objectives for each class. Also, I realized we never got a syllabus and I like having a syllabus and a schedule for my classes.

**30** I really liked Dr. Co's teaching philosophy. He made sure we understood the material instead of just focusing on getting a good grade. The assignments were lengthy but they helped me with my oral speaking skills. The fact that we could resubmit the homework assignments also helped to strengthen our learning because since grading was lenient we could focus on the learning. Overall, I learned a lot this semester and strengthen skills that will help my later on in my educational and professional career.

**31** I loved Dr. Co's teaching style. It allowed me to grow, communicate my thoughts/way of thinking better, learn teamwork skills, and not be afraid to showcase my skills. He did a great job at preparing me for co-op work.

**32** I love the energy Carlos brings to class! He is really excited to teach and so happy to see everyone and I really like that he values learning over standardized assignments. I am, however, not the biggest fan of the teaching style (not to say that it was bad- it just didn't click with my learning style too well). There were just a few too many moments where Carlos reexplained his teaching style instead of actually teaching which I found incredibly distracting. I also wish there was a written source where I could find the concepts and information, as I learn much better when I can read a text and then apply it to the verbal teachings of an instructor, especially if the notes aren't always the most legible (consider getting someone to transcribe and post their notes on canvas?). Overall, I thought this was a good course! Carlos is super nice and makes it very clear that he will answer any question, no matter how stupid, a characteristic not all instructors tend to adopt.

**33** I honestly was skeptical about this teaching style at first. Even by the first homework assignment, I did not necessarily like this course; however, Professor Co taught us in a way where we did not even realize we were learning. By the last homework of the semester, I was so confident in my abilities to complete content relative to the course. Professor Co pushed me - and many other students - way out of our comfort zone in this course, but ultimately we ended up loving the content. This is by far the most effective teaching method I have experienced in all of my upper-level coursework, and I honestly wish more professors would follow in his footsteps. It gives us the opportunity to learn without fear of failure or rejection. Although Dr. Co can still be tough on students, he is just pushing us to learn and apply our knowledge. It would be an honor to take a class like this again.

**34** I have learned more in this one semester course than in any other course I have taken at UC. Dr. Co has done what many professors have attempted but failed. He has created a space were students are able to ask questions without judgment, make mistakes without risking their grades, scholarships, and mental health, and actually learn how to solve problems and understand concepts. He was quick to grade homework (often within 24 hrs) and actually provided students with feedback to correct their work. THEN he allowed us to resubmit, ensuring that we would understand the concept, not read the feedback then never think about it again. He came to class early and stayed late to make sure students could ask questions. I am truly sad that this class is over, but I can't wait to take transport I in the summer. Dr. Co is one of the few professors I have met that wants his students to succeed and I will be recommending him to incoming engineering students.

**35** I felt like my professor was very approachable and I would even describe him as caring for the other students and I. If I had any question or problem, I could simply email him and get a response very fast. Also, he was very considerate for our learning. He would always be willing to go over something as many times as necessary if individuals did not understand the topic.

**36** I felt as if there was no structure to this course which only increased my anxiety about the class. I would like more clear outlines about what we are doing because I honestly couldn't tell you what topics we were covering in this course. I would also very much like a textbook to reference because often google would only give broad ununiform explanations. I need a textbook as a way to read more about a topic. Only receiving information via the prof is not good because then you only can hear what they consider important, and often the way they explain something is not clear to the students. I also believe the only thing emphasized in this class was homework submissions. I would spend so much time making sure the videos were acceptable that I don't think I actually understood anything. Also OneNote is terrible. It is very hard to go back and look at problems, please consider writing on a blank Pdf page, and then posting that

**37** I feel like I learned so much from Professor Co in this format for the class.

**38** I enjoyed this class and I learned a lot. Being able to resubmit homework assignments allowed me to continue to build my knowledge of the material and continue to improve. That was my favorite part of this class. The professor was very easy to contact and ask questions. The answers were extremely helpful and he replied very quickly which made it very easy to continue working on the assignments.

**39** I don't even know where to start with prof. Co. HE IS AMAZING! His method of teaching is so beneficial, I was up early in the morning ready to learn every single day! He is the nicest and most understanding professor I have ever had (including gradeschool classes). Somehow, he managed to make these insanely complicated engineering concepts easy. Not only that, but taught them so well to where I was confident enough to teach it to someone else. His style of homework's were the perfect way to get me to break out of my shell of my fear of talking technically to others. His teaching helped me outside of the classroom as well. Professor Co always told us things that have been relevant to landing jobs, or impressing higher-ups, or even to just motivate and encourage us. He was humorous and easy to talk to and he has became somewhat of a mentor to me. I appreciate to the great extents that he goes to care for his students. There are very few professors like Prof. Co, he made my semester great

**40** He was very approachable

**41** He was a great professor and really cared about his student excpecially during a global pandemic. Although he didn't plan out his classes therefore making lectures very hard to understand and to stay engaged.

**42** He is very good professor I ever had. Thank you for teaching us.

**43** FANTASTIC PROFESSOR. By far the best professor I've had in my college career. Carlos, I cannot wait for the next class I have with you and I really hope that the not-a-lecture coding sessions happen once MEB is over. I have learned a great amount in this one semester course that is far more relevant to what I will actually need in the field than any of my other

classes.

If all professors were as dedicated to actually preparing students for real-life then the experience at UC would be renowned worldwide.

**44**   Dr.Co is an amazing professor and goes to great lengths to make sure EVERY student understands the course materials. He is extremely knowledgeable of the topics he is teaching and makes himself very approachable for questions, taking time during, before, and after class to answer questions and re-explain topics.

**45**   Dr. Co was a amazing professor and it was a pleasure to be in his class! He will do anything to help you learn and is very understanding about things going on in the world today and how that may impact you as a student.

**46**   Dr. Co was an outstanding professor. As someone who had taken and then withdrew from Material and Energy Balances in a previous semester, I didn't have high hopes for taking it for a second time. However, my hope was restored after Dr. Co reached out to us over the summer and provided a preview to the semester ahead. Throughout the semester and even in some less ideal conditions, Dr. Co never seemed to lose his passion or excitement for teaching (even in such an unusual semester online). His dedication to our learning experience and his aforementioned passion were always clear; he was easy to approach, easy to ask questions to, and never failed to make lectures interesting. His laid back and more casual lecture environment made me somewhat concerned at first for such an important core class, but I quickly came to recognize how refined and rehearsed his lectures where despite their relaxed exterior. I couldn't recommend having him as an instructor enough!

**47**   Dr. Co was the best professor I have ever had. He was passionate about the material being taught and taught the material extremely well. Dr. Co taught me more in this class than I could have ever expected and he was extremely welcoming to any students who had questions. Dr. Co is one of the best professors, not only in the college of engineering but in the entire university.

**48**   Dr. Co was the one professor I had this semester that made online classes bearable. I would recommend this class to anyone. That man deserves a raise.

**49**   Dr. Co was a very good professor, and he is very passionate about what he teaches. His personality gives more motivation to go to class and learn, especially because of his teaching methods. Dr. Co is also always very willing to come to class early, stay after class late, and answer any emails that are sent if we have questions on any of the content being taught, and that is very well appreciated. His willingness to continue to help us with assignments and helping us learn what we got wrong in our homework helps significantly with us learning the core concepts. He also holds saturday review sessions for his classes, which can help with learning the concepts more. Ultimately, Dr. Co devotes much of his time to his students, even when he has his own challenges, and this is greatly appreciated.

**50**   Dr. Co really knows his stuff. Not only was he very willing to change his approaches to teaching and review the same concepts over and over, but he was willing to teach the students the things that he knew they needed to know for work experience. There were a few issues here and there where I felt he could have been a little more understanding of the online situation, especially when it came to him choosing students to explain things over and over. In those circumstances, it became very embarrassing to be chosen multiple times and forced to explain a concept you already voiced you don't know. I understand what he was trying to do in those situations, but I found that a lot of people started to dip out of class at those moments to avoid being put on the spot. Overall though, Dr. Co is one of the best professors I could have gotten for this class, especially with it being online. He made sure that every student was on the same playing field and understood what he was saying.

**51**   Dr. Co is, without a doubt, the best professor I have ever had. I would go as far as to say that he has made the biggest impact on my education of anyone throughout my education. The approach that he took pushed me to do my best and to truly understand the material. There is no self doubt in Dr. Co's class. I do not think I would understand the course material well at all if it was approached the way classes usually are. The material was interesting and enjoyable to learn, however for me Dr. Co was the shining part of the course.

**52**   Dr. Co is arguably the best professor I've had at UC. The course seemed strange and unconventional at first, but Dr. Co's persistence and dedication to the material and his teaching methods enabled everything to begin to make sense, and it was very rewarding once it did. The teaching style helped me to present and explain how to solve engineering problems, and I grew more in this regard than I ever imagined I could in three months. I think the course and the professor helped prepare me to enter the industry with knowledge of modern, relevant tools that I can use to solve problems and the conceptual knowledge that the tools can be applied to. Overall, I would recommend taking this course with Dr. Co to every chemical, environmental, and biomedical engineer at UC, and I will be better off in the future because I did.

**53**   Dr. Co is very knowledgeable about the coursework and very enthusiastic in his teaching of the work. It is obvious that he cares about each of his students, and he worked alongside them to make the class the most suitable way of learning during this pandemic. He always made sure all questions were answered and was not hesitant to repeat himself. I always looked forward to his class.

**54**   Dr. Co is a wonderful professor. He is very passionate about learning. Every homework is making a series of youtube videos explaining a concept. I will say, paying attention in class was very hard for me. It is Carlos deriving equations the whole time. It was hard for me to connect it to real concepts. I would have preferred more practical applications of what we were learning with numbers! He said many times that he does not believe in numbers, but I think as students it helps us connect the engineering concepts to what we already know.

We also used python a good amount which is nice because of how popular the language is.

**55**   Dr. Co is a great professor. Before the semester started, he was already sending the class announcements motivating us to succeed, do optional homework assignments, and communicate with the class. Topics covered in this class were challenging but Dr. Co was always open to questions and always wanted to put students first to make sure everyone understood his content. He also integrated programming into this course, which added a substantial challenge, but we were given every resource we needed to overcome the challenge. Dr. Co cares about his students. By requiring us to submit YouTube videos for every homework assignment, he is also helping us to build resources to show to employers for our future. Overall, Dr. Co had a lot to overcome with class being online, and he handled it very well.

**56**   Dr. Co is the most personable professor I have ever had. He connected with the students and offered any help needed. Carlos is a professor that cares about all of his students and truly wants them to learn. While the teaching strategy behind this course was questionable at first, I quickly learned how beneficial it was. The approach of no tests and the opportunity for an A took an immense amount of stress off. The pressure of exams causes students to cram huge amounts of seemingly-useless knowledge into their brains, only to forget it all the second the course is over. This teaching approach allowed me to truly take the time to understand all of the topics taught and realize the correlation to an engineering career. Homework assignments forced me to show that I understood all of the work I was doing-- something normal homework assignments don't really make you do. After this course, I feel very very prepared for the rest of my engineering courses, and recommend Dr. Co to every student.

**57**   Dr. Co is an extremely kind and understanding professor. He challenged me on my communication, coding abilities, and my engineering thinking. Additionally, he adapted the class well for online. The only thing I would have Dr. Co change about his class is to set topic goals for each class. Sometimes I didn't quite understand where the class was heading. But for the most part, I enjoyed the class.

**58**   Dr. Carlos Co's class environment is incredibly unique and is something I feel should be made standard across all of CEAS. Carlos' goal is to personally connect with every single student in his class as if they were friends first and peers second, a philosophy that I find to be a first in the classes I have taken at UC thus far in my career here. His experiment with us to make

every HW a video-recording of us describing a problem thoroughly and then solving it via coding is perhaps this courses strongest attribute. The HW is challenging but is by far the most rewarding thing I have accomplished so far at UC and I feel that I have genuinely learned the material Carlos taught us because of the videos we made. I cannot stress enough how incredible Carlos and the design of this class is and the impact it has made when talking to people in the class, this model of teaching works and works well. I plan to take the lessons learned in class into my co-op rotations and beyond. Thank you Carlos

59   Dr Co is an amazing human, and he knows what he's talking about. Sometimes he was a little too knowledgeable and made things a tad bit more confusing than they needed to be, but overall decent professor. I am a bit concerned about grades, since they have not been released yet on what the result will be. He's gone a bit back and forth on what he says the result of our grades will be, but I'm just trying to not fail.

60   Doctor Co is an amazing person. He wants us to succeed and gives us every opportunity to do so. He accommodates to all of our personal needs and is friendly when it comes to us asking questions. He is smart and personable. Grades very fair and is super flexible with everything. Great guy great class.

61   Carlos was really passionate about the material. I really enjoyed taking his class and learning form such an eccentric and exciting professor. I can't wait to take more classes with him.

62   Carlos was amazing. His teaching technique was different, but I loved it so much. The way he conducted classes and recitation was awesome. He cares so much about this course and the students. He was always prepared for class and any questions that we had. I loved this course and Professor Co as well.

63   Carlos knows what he is doing. In order to not be in a state of constant confusion though, python knowledge is almost necessary and review of like basic chemistry is extremely helpful. Just work your butt off and you can pull through this class. There will be days where you go "WTF happened here", but when you understand it, all of it becomes clear. Just trust yourself, the process, and anything else that will help you grind!!!!!

64   Carlos is by far the best teacher I have experienced throughout my whole educational career. His passion for teaching is tremendous. Every day I would look forward to coming to his class as he was entertaining and also very informative. It is not until this course that I truly understood everything that I was taught. Im not saying in any way that his classes were easy, but they challenged you to think in a comfortable and approachable way. I think that carlos knows what he is doing, and he teaches in a way that makes you think and approach problems very critically. I have learned so much and enjoyed every second of carlos classes. At first I was so nervous that this would be my first CHEMe class and I would probably be failing every homework and test, but no! I hope that everyone gives carlos a chance, because I know carlos cares about each and every one of his students. Take it from me, this was a great class and i hope everyone gets a teacher like carlos. THANK YOU

65   Carlos is genuinely one of the most caring and kind individuals at the University of Cincinnati. I could not have imagined this semester without his class. Each day he came to class 15 minutes early and stayed as long as he could to answer questions or just even chat with students. He is very understanding and high energy, and was able to adapt to the online learning environment almost without flaw. While he may seem intimidating or his course daunting, he understood struggles students occurred when going to the online learning environment. I cannot speak highly enough of him and I was truly blessed to be a part of his class.

66   Carlos is an amazing professor. His ability to teach the class in the manner that he does shows a true intelligence. He is also very compassionate and understanding with his students.

67   Carlos is the professor everyone wishes they had. He is so willing to repeat any topic if you are confused about it. He is also very easy to reach out to if you are having any issues. This makes Carlos the ideal professor. He wants you to spend time to learn the material but he also wants to help you in any way possible so that the material is learned. I can't tell you how many times we went over raoult's law. The idea was so important that we covered it many times. I loved going to class because he always made it interesting and a welcoming environment. I'm sorry if my ideas were scattered I just had so much to say about him! I hope I have him for transport 1! What a great semester.

68   Carlos is an amazing professor and he made this semester not only enjoyable but beneficial to my college career

69   Carlos has been the one of the best professors that I have had in my short career at the University. I feel like Carlos' method of teaching and grading has been one of the most effective that I have experienced. The autonamous style of learining mixed with his expert level of guidance/ teaching helped in simplifiying the complicated material. I feel like the lack of pressure to do all the assignments on a certain date and a certain way, made it easy to put all your effort into each and every assignment. I enjoyed this class greatly and hope that Professor Co continues this method of teaching in the future.

70   Carlos did a great job at being accommodating during the pandemic and made sure that we came first and grades came second

71   Carlos Co definitely has a different, non-traditional way of teaching. It was less of the normal lecturing and instead almost the entirety of class was devoted to Carlos solving problems and talking about his thought process, more similar to what might actually be expected of us in the real world. The assignments also being almost all videos of us literally just explaining the material and making sure we understand it was also very helpful in a professional way in that we were able to practice our skills in explanation to say a boss in the future and we were able to see how we acted in this sort of scenario and really put our skills to the test. Overall, I felt I was able to derive much more value from this class during these turbulent times than some of my more traditionally taught classes and that both the format and professor are class acts at the university.

72   Best professor I have had at UC so far. He makes me excited to dive into the real-world situations that chemical engineers encounter.

73   An amazing professor, really cares about his students and have thems succeed in his class and in their professional careers. He is on the forefront of technology and useful engineering tools and knowledge. It is crazy how updated he is in his techniques compared to other professors. He addapts his teaching style to the chagning world and adopts tools that are useful and new in an engineers life. Overall an amazing person who is willing to give everything to his students and put in the maximum amount of effort. Amazing professor but just very complex material yet he is engaging. Don't believe there is a better man full of this knowledge it is just very hard material.

74   A terrific professor who truly wants the students to learn the material and not just memorize equations. The way he teaches allows the students to learn the material in a way that will benefit them most in the future.

## Results Summary by Question Category/Sub-Category

| Question Categories / Sub-Categories | | Carlos Co | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Responses | | | | | | Individual | | | | |
| | SD | D | NO | A | SA | N | Mean | Grp Med | Med. | Mode | Low | High | Std Dev |
| **S1**  General | 1 | 5 | 16 | 49 | 240 | 311 | 4.7 | **4.9** | 5 | 5 | 1 | 5 | .68 |
| **C2   ABET General Questions** | 1 | 5 | 16 | 49 | 240 | 311 | 4.7 | **4.9** | 5 | 5 | 1 | 5 | **.68** |

Responses: [**SD**] Strongly Disagree=1 [**D**] Disagree=2 [**NO**] No Opinion/Neutral=3 [**A**] Agree=4 [**SA**] Strongly Agree=5

## Results Summary by Question Category/Sub-Category

| Question Categories / Sub-Categories | | Responses | | | | | Individual | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | VP | P | A | VG | E | N | Mean | Grp Med | Med. | Mode | Low | High | Std Dev |
| **S1** General | 1 | 2 | 11 | 23 | 118 | 155 | 4.6 | **4.8** | 5 | 5 | 1 | 5 | .73 |
| **C2  ABET General Questions** | **1** | **2** | **11** | **23** | **118** | **155** | **4.6** | **4.8** | **5** | **5** | **1** | **5** | **.73** |

**Responses:** [**VP**] Very Poor=1 [**P**] Poor=2 [**A**] Average=3 [**VG**] Very Good=4 [**E**] Excellent=5

<table>
<tr><td><strong>2020 | 2208 | CEAS | College of Engineering Survey<br>2208-1 (2020)</strong></td><td align="right"><strong>University of Cincinnati<br>University of Cincinnati</strong></td></tr>
</table>

**Merged Courses:** 20CHE6036 001 - COMPUTATIONAL METHODS
20CHE5136 001 - COMPUTATIONAL METHODS

**Department:** 20CHE

**Responsible Faculty:** Carlos Co

**Responses / Expected:** 5 / 13 (38.46%)

**Focus: Overall Results**

**ABET sample a thru k**
**General**

| | | | | | | | | | 20CHE5136/6036 - 001 | | | | | | | | --- Survey Comparisons --- | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Responses | | | | | | Course | | | | | | | All | | | |
| | | SD | D | NO | A | SA | N | Mean | Grp Med | Med. | Mode | Low | High | Std Dev | N | Mean | Grp Med | Pct Rnk |
| Q1 | ... apply my knowledge of math, science, and/or engineering | 0 | 0 | 0 | 0 | 5 | 5 | 5.0 | **5.0** | 5 | 5 | 5 | 5 | 0 | **4K** | **4.2** | **4.4** | 97 |
| Q2 | ... design and conduct experiments | 0 | 0 | 1 | 1 | 3 | 5 | 4.4 | **4.7** | 5 | 5 | 3 | 5 | .80 | **4K** | **3.6** | **3.7** | 84 |
| Q3 | ... analyze and interpret data | 0 | 0 | 0 | 0 | 5 | 5 | 5.0 | **5.0** | 5 | 5 | 5 | 5 | 0 | **4K** | **4.0** | **4.2** | 97 |
| Q4 | ... design a system, component, or process to meet desired needs within realistic constraints | 0 | 0 | 0 | 1 | 4 | 5 | 4.8 | **4.9** | 5 | 5 | 4 | 5 | .40 | **3.9K** | **4.0** | **4.2** | 91 |
| Q5 | ... work as a team member | 0 | 0 | 1 | 2 | 2 | 5 | 4.2 | **4.3** | 4 | 4,5 | 3 | 5 | .75 | **4K** | **3.7** | **4.0** | 60 |
| Q6 | ... identify, formulate, and solve engineering problems | 0 | 0 | 0 | 0 | 4 | 4 | 5.0 | **5.0** | 5 | 5 | 5 | 5 | 0 | **4K** | **4.2** | **4.3** | 97 |
| Q7 | ... understand professional and ethical responsibility | 0 | 0 | 0 | 1 | 4 | 5 | 4.8 | **4.9** | 5 | 5 | 4 | 5 | .40 | **4K** | **3.9** | **4.1** | 94 |
| Q8 | ... communicate (orally) effectively | 0 | 0 | 0 | 0 | 5 | 5 | 5.0 | **5.0** | 5 | 5 | 5 | 5 | 0 | **3.9K** | **3.7** | **3.8** | 97 |
| Q9 | ... communicate (written) effectively | 0 | 0 | 0 | 1 | 4 | 5 | 4.8 | **4.9** | 5 | 5 | 4 | 5 | .40 | **4K** | **4.0** | **4.1** | 93 |
| Q10 | ... understand the impact of engineering solutions in a broad context | 0 | 0 | 0 | 1 | 4 | 5 | 4.8 | **4.9** | 5 | 5 | 4 | 5 | .40 | **4K** | **4.1** | **4.3** | 91 |
| Q11 | ... use techniques, skills or modern engineering tools necessary for engineering practice | 0 | 0 | 0 | 0 | 5 | 5 | 5.0 | **5.0** | 5 | 5 | 5 | 5 | 0 | **4K** | **4.2** | **4.3** | 96 |

**Responses:** [**SD**] Strongly Disagree=1 [**D**] Disagree=2 [**NO**] No Opinion/Neutral=3 [**A**] Agree=4 [**SA**] Strongly Agree=5

**Pct Rnk:** Percentile Rank (100 is best, calculated vs. precise Mean)

## Results Summary by Question Category/Sub-Category

| | | | | | | | 20CHE5136/6036 - 001 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Question Categories / Sub-Categories | | | Responses | | | | | Course | | | | | |
| | SD | D | NO | A | SA | N | Mean | Grp Med | Med. | Mode | Low | High | Std Dev |
| **S1** General | 0 | 0 | 2 | 7 | 45 | 54 | 4.8 | **4.9** | 5 | 5 | 3 | 5 | .49 |
| **C2 ABET sample a thru k** | 0 | 0 | **2** | **7** | **45** | **54** | **4.8** | **4.9** | **5** | **5** | **3** | **5** | **.49** |

**Responses:** [**SD**] Strongly Disagree=1 [**D**] Disagree=2 [**NO**] No Opinion/Neutral=3 [**A**] Agree=4 [**SA**] Strongly Agree=5

| 2020 | 2208 | CEAS | College of Engineering Survey<br>2208-1 (2020) | University of Cincinnati<br>University of Cincinnati |
|---|---|

**Merged Courses:** 20CHE6036 001 - COMPUTATIONAL METHODS
20CHE5136 001 - COMPUTATIONAL METHODS

**Department:** 20CHE

**Responsible Faculty:** Carlos Co

**Responses / Expected:** 5 / 13 (38.46%)

**ABET General Questions**
**General**

|  | | Responses | | | | | | Carlos Co — Individual | | | | | | | --- Survey Comparisons --- All | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | SD | D | NO | A | SA | N | Mean | Grp Med | Med. | Mode | Low | High | Std Dev | N | Mean | Grp Med | Pct Rnk |
| **Q1** The course was well planned. | 0 | 0 | 0 | 1 | 4 | 5 | 4.8 | **4.9** | 5 | 5 | 4 | 5 | .40 | **4.1K** | 3.9 | 4.2 | 88 |
| **Q2** The professor was approachable to discuss problems related to the course. | 0 | 0 | 0 | 0 | 5 | 5 | 5.0 | **5.0** | 5 | 5 | 5 | 5 | 0 | **4.1K** | 4.1 | 4.5 | 94 |
| **Q3** Class assignments and exams were relevant to the course material. | 0 | 0 | 0 | 0 | 5 | 5 | 5.0 | **5.0** | 5 | 5 | 5 | 5 | 0 | **4.1K** | 4.3 | 4.5 | 95 |
| **Q4** The grading was fair. | 0 | 0 | 0 | 0 | 5 | 5 | 5.0 | **5.0** | 5 | 5 | 5 | 5 | 0 | **4.1K** | 4.1 | 4.3 | 95 |

**Responses:** [SD] Strongly Disagree=1 [D] Disagree=2 [NO] No Opinion/Neutral=3 [A] Agree=4 [SA] Strongly Agree=5
**Pct Rnk:** Percentile Rank (100 is best, calculated vs. precise Mean)

**ABET General Questions**
**General**

|  | | Responses | | | | | | Carlos Co — Individual | | | | | | | --- Survey Comparisons --- All | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | VP | P | A | VG | E | N | Mean | Grp Med | Med. | Mode | Low | High | Std Dev | N | Mean | Grp Med | Pct Rnk |
| **Q5** Overall, how do you rate this course? | 0 | 0 | 0 | 1 | 4 | 5 | 4.8 | **4.9** | 5 | 5 | 4 | 5 | .40 | **4.1K** | 3.8 | 3.9 | 89 |
| **Q6** Overall, how do you rate this professor? | 0 | 0 | 0 | 0 | 5 | 5 | 5.0 | **5.0** | 5 | 5 | 5 | 5 | 0 | **4.1K** | 4.0 | 4.3 | 94 |

**Responses:** [VP] Very Poor=1 [P] Poor=2 [A] Average=3 [VG] Very Good=4 [E] Excellent=5
**Pct Rnk:** Percentile Rank (100 is best, calculated vs. precise Mean)

**Q7 - Please enter any comments about the professor in the box below:**

**Faculty:** Carlos Co

**Response Rate:** 100.00% (5 of 5)

1. This course is invaluable. It should be taught in place of engineering models with a prerequisite coding class. The professor was able to relate course material to student experience, current events in the industry and and core concepts of ChemE education at UC. Of all my classes, this one translated best to the virtual classroom.

2. Professor Carlos Co has been very insightful throughout the years as he has been a very fair and level-headed professor. Despite having a more negative view of him in my early years of college, my perception of this professor has done a complete 180, where now he challenges students and gives them valuable, worthwhile feedback, before I had heard quite the opposite. He shows a concern for his students and wants to provide a valuable education to all those who dare enter his classroom. I have not only learned lessons in relation to coding and models of complex theory, I have also learned about compassion and vision. As this semester has had a try on everyone's mental health and wellbeing, I have seen compassion like no other from Carlos, and what it means to look to the future with one's head held high, regardless of circumstances. I have enjoyed having Carlos as a professor, likely my favorite over 5 years, and would recommend him to everyone, especially if you enjoy a challenge.

3. Dr. Co was very good about conducting the class in a way that made learning the material realistic and gratifying, despite the complexity of coding. I was very nervous when I received the syllabus for this course because I had never coded before, and I wasn't sure how to apply it engineering problems. But, because Dr. Co wrote his code live with us while talking through mistakes and solutions, I now feel much more comfortable with writing code and am actually even more interested in learning more.

4. Co is an enthusiastic and understanding professor that focuses on the learning aspect of engineering instead of the attainment of good grades. Never a dull moment in class. Even in the virtual semester, the class was engaging and with our webcams on, it felt more like I was a classroom. Thank you for the wonderful semester.

5. Carlos is very knowledgeable in chemical engineering and his application of Python to common chemical engineering problems. His class has been very useful and has helped me learn material that was skipped in some of my previous engineering classes. Additionally, his homework consisted of videos of ourselves explaining what we learned in class. This has been helpful in my understanding of the material, and has helped me become more comfortable speaking in front of a computer in these socially distant times. I highly recommend taking this class and learning Python from Carlos, I am certain I will use the skills I learned in this class in my career.

## Results Summary by Question Category/Sub-Category

**Question Categories / Sub-Categories**

|  | | Responses | | | | | | Carlos Co — Individual | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | SD | D | NO | A | SA | N | Mean | Grp | Med. | Mode | Low | High | Std |

|  |  |  |  |  |  |  |  | Med |  |  |  |  | Dev |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S1** General | 0 | 0 | 0 | 1 | 19 | 20 | 5.0 | **5.0** | 5 | 5 | 4 | 5 | .22 |
| **C2** ABET General Questions | 0 | 0 | 0 | 1 | 19 | 20 | 5.0 | 5.0 | 5 | 5 | 4 | 5 | .22 |

**Responses:** [**SD**] Strongly Disagree=1 [**D**] Disagree=2 [**NO**] No Opinion/Neutral=3 [**A**] Agree=4 [**SA**] Strongly Agree=5

## Results Summary by Question Category/Sub-Category

|  |  |  |  |  |  | Carlos Co |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Question Categories / Sub-Categories** | | **Responses** | | | | | | **Individual** | | | | |
|  | **VP** | **P** | **A** | **VG** | **E** | **N** | **Mean** | **Grp Med** | Med. | Mode | Low | High | Std Dev |
| **S1** General | 0 | 0 | 0 | 1 | 9 | 10 | 4.9 | **4.9** | 5 | 5 | 4 | 5 | .30 |
| **C2** ABET General Questions | 0 | 0 | 0 | 1 | 9 | 10 | 4.9 | 4.9 | 5 | 5 | 4 | 5 | .30 |

**Responses:** [**VP**] Very Poor=1 [**P**] Poor=2 [**A**] Average=3 [**VG**] Very Good=4 [**E**] Excellent=5