# Fall 2015 Course and Curriculum Assessment Review

**UG Committee Evaluation Completed: February 23, 2016**

***General Action Items:***

1. Review the student feedback on competency proficiency for your Fall 2015 class(es) (located on the J drive groups\chemeFaculty\competency feedback\Fall 2015). For at least the three competencies with the greatest number of “No” responses, consider possible improvements for your course for the Fall 2016 semester. **Responsible: ALL**
2. For each course you teach, review the action item(s) listed in this document before the semester begins and respond to them in your course evaluation at the end of the Fall 2016 semester. If you are teaching a course for the first time, you should look at the past history of action items to provide guidance for your course preparation. **Responsible: ALL**
3. Before the students fill out the ABET competency evaluations at the end of the semester, spend a few minutes in class reviewing the subset of competencies being evaluated. A simple, brief review of material that the students have covered is likely to improve the feedback and help them to feel more confident about their preparation. **Responsible: ALL**

***Curriculum Level Items:***

1. **Ongoing Feedback Loop:** Competency 6.6 (rationalize units, order of magnitude estimates/reasonableness) recommended to be assessed throughout the curriculum. Possible ideas: Teaching Moment in faculty meeting; benchmark assessments in quiz, exam, etc.; clicker or Poll Everywhere exercises. **Responsible: All faculty, with support and development by the Undergraduate Committee**.
2. **Ongoing Feedback Loop:** Review of seminar class (x91) effectiveness and placement within curriculum. **Responsible: Undergraduate Committee**.
3. **Ongoing Feedback Loop:** Improve statistics coverage and other UO lab concerns (e.g., assign one faculty member to be responsible for each experiment). **Responsible Faculty: UG Committee, 475 and 477 instructors, Mike Beliveau**.

***Competency Changes:***

1. Several ideas are suggested for ChEn 374 and ChEn 475, but none are settled.

***ChEn 170:***

1. **Closed Feedback Loop:** New competencies in place.
2. **Closed Feedback Loop:** Continue with a project, such as the ChE car, to allow students to experience the major aspects of a project, including performing a safety analysis/review, some kind of sign-off or approval process to proceed, and setting and reviewing milestones along the way.
3. **Closed Feedback Loop:** Continue to emphasize the chemical engineering experience rather than any particular technical topic.

***ChEn 191:***

1. **Feedback Loop:** Emphasize resumes and building them (perhaps using a gap analysis). Help with life-long learning. The UG Committee recommends that a faculty member should teach this. **Responsible: ChEn 191 instructor and the department chair/co-chair.**

***ChEn 263:***

1. **Ongoing Feedback Loop:** The UG Committee believes we need to revisit computing platforms in the curriculum. Based on the student feedback, we still may need to adjust. We recommend consideration of adding a programming course as an elective to the curriculum. **Responsible: Undergraduate Committee, ChEn 263 instructor, and the rest of the faculty.**
2. **Closed Feedback Loop:** No competencies were ranked below 3 by instructor this semester.
3. **Feedback Loop:** From a review of the student comments, it appears that some instructional changes should be considered. We agree with one of the instructors that the coverage may be too great, but we feel it is in the area of programming. Additionally, please consider streamlining the content by removing coverage of ODE’s (based on the recommended math sequence, the students have not covered these when they are taking this class). Finally, 263 is not a numerical methods class. The purpose is for students to learn to use appropriate computer tools to solve ChE problems at an undergraduate level. The most important outcome is for the students to feel confident in solving problems and being able to select the best tool to do it (Competencies 6.2 and 6.6) at the Excel/Mathcad level with some exposure to Python or VBA. **Responsible: ChEn 263 instructor(s).**

***ChEn 311:***

No issues.

***ChEn 374:***

1. **Ongoing Feedback Loop:** Are safety valve sizing calculations being covered? **Responsible Faculty: 374 instructor.**
2. **Ongoing Feedback Loop:** Review student comments on competencies for which they felt weak and consider helping them to set appropriate expectations as part of the solution. **Responsible Faculty: 374 instructor.**
3. **Potential Competency Change:** May want to reword Competency 3.2.4 to include a molecular view of viscosity and its implications. Please consider possible changes to Competency 3.2.4. **Responsible Faculty: 374 instructor.**
4. The UG Committee feels that Competency 10.3.3 is important. Please make time for it and cut other content, if needed. Consult with the UG Committee, if needed. **Responsible Faculty: 374 instructor.**
5. **Potential Competency Change:** The UG Committee recommends spending more time on pumps in Competency 10.3.2 and agrees with the previous instructor that this can be done by deleting turbine coverage. Also, valve concepts are related to flow control (e.g., using a globe instead of a ball valve for control). Consider including wording similar to 10.5.3 (“Students will have a qualitative understanding of the role of valves in process control.”) from 436. **Responsible Faculty: 374 instructor.**

***ChEn 378:***

1. No issues.

***ChEn 391:***

1. **Closed Feedback Loop:** UG Committee assessment of ChEn 391 effectiveness and possible improvements. This UG Committee discussed this and the possible addition of a 291 sophomore seminar at some length, but decided to postpone changes for now. However, it remains on our agenda for future work (captured in the “Curriculum Level Items” on the first page.
2. Be sure to cover resumes (it looked like one instructor may have skipped this). Tommy will discuss the matter with the Chair.
3. From their comments, it looked like the students wanted more field trips. Encourage participation in AIChE-sponsored trips and consider offering broader options.

***ChEn 436:***

1. **Closed Feedback Loop**: Competency 10.5.3 reworded to read “Students will have a qualitative understanding of the role of valves in process control.”
2. **Ongoing Feedback Loop**: The scope and content of the course must still be addressed with concerned constituents. **Responsible: ChEn 436 instructor with the UG Committee, Industrial Advisory Board, and ChEn 374 and 451 instructors.**
3. How much do we expect from competency 3.8.1? Make sure the emphasis is on feedback control. Do we need to separate out feedforward in a separate competency or just have the instructor set appropriate expectations for this competency? Please consider these thoughts.
4. **Feedback Loop**: Based on student feedback to Competency 3.8.5, the coverage may be heavy on theory. Consider providing more practice and practical problems. **Responsible: ChEn 436 instructor.**

***ChEn 475:***

1. **Ongoing Feedback Loop:** Currently working Statistics optimization with other user departments (ME and CEEn). **Responsible: Undergraduate Committee.**
2. **Ongoing Feedback Loop:** Proposals to simplify the competency structure still should be considered. **Responsible: ChEn 475 instructors and UG Committee.**
3. **Closed Feedback Loop:** The English 316 structure is not likely to be changed in the near-term. (Based on some discussion at the Dean’s level, it received little traction.)
4. **Potential Competency Change:** Consider removing “in their lab reports” from Competency 4.7, which currently reads “Students will demonstrate an understanding of basic engineering statistics in their laboratory reports.”

***ChEn 476:***

1. **Closed Feedback Loop:** The instructor and ChEn 451 instructor discussed ideas to better-assess simulator proficiency.
2. **Competency Change:** Competency 10.4.7 (“Students should understand the implications of non-ideal phase behavior (e.g., azeotropes and partial miscibility) and the practical constraints of pressure, temperature, and available utilities on distillation column design.”) will be changed to read “Students should be introduced to the implications of non-ideal phase (e.g., azeotropes and partial miscibility) and understand the practical constraints of pressure, temperature, and available utilities on distillation column design.” **Responsible: UG Committee (Tommy).**

***ChEn 477:*** (A section is now being taught in the Fall.)

1. Consider options, such as a class manual or assigning a single faculty member to be in charge of each piece of equipment. **Responsible: UG Committee in consultation with the 477 instructors.**