

**Chemical and Biological Engineering
Summary of Actions
2018-19**

Concern	Recommendation	Action	Follow-up
1. While reviewing courses and assessing whether courses have the necessary content to make students likely to achieve certain outcomes, some concerns associated with the feasibility of assessing Outcome 4 (Ethics).	Faculty recommend the additional assessment of ethics and professional responsibilities in engineering situations be added to the design courses (ECHM/EBIO 411 and 412)	Instructors are adding additional assessment tools with help from the Montana Engineering Education Research Center (MEERC).	These additional assessment tools will be used for assessing Outcome 4 at the end of the next academic year (2019-20).
2. The Department Advisory Committee (DAC) recommended an increased focus on the development of general business skills – specifically recommending that students be encouraged to take EGEN 325 (Engineering Business Practices course).	Various options were discussed by the faculty, but, in the end, it was decided to increase and diversify business skill coverage in EBIO/ECHM 412 and to make EGEN 325 a more prominent elective recommendation for students interested in developing their business skills.	Dr. Russell was asked to develop additional content for ECHM 412 and EBIO 412 that supported the development of general business skills. EGEN 325 will also be encouraged more strongly as a technical elective course.	Dr. Russell is also being asked to assess business skills in ECHM/EBIO 412 so student learning can be measured. Students will also be surveyed to gather opinions on the new content in ECHM/EBIO 412.
3. The DAC recommended the addition of a “Safety Moment” at the beginning of some classes because it is considered a best practice in industry.	Courses will be identified during the fall retreat where a safety moment can be added to the course content. The initial recommendation is 2-4 courses.	Courses will be identified during the fall retreat where a safety moment can be added to the course content. Guidelines on how to conduct a Safety Moment will also be distributed.	The effectiveness and student perception of the Safety Moment will be discussed by the faculty and students (if available) at the end of the 2019-20 academic year.
4. The DAC recommended enhancement of career	It was recommended that the department head contact Career	The goal is to have presentations from Career	The students will be interviewed by the DAC during their next

guidance resources for students because students were unaware of resources that are available to them.	Services to request additional presentations on the support available through Career Services.	Services to both first- and second-year students during the coming academic year.	annual meeting to determine if the presentations were helpful or not.
5. Student Outcome 3 (communicate effectively with a range of audiences) is difficult to assess based on previous activities in EBIO/ECHM 412.	Department Head recommended that communication with a range of audiences be assessed during the Engineering Design Fair poster presentations using community members, faculty from other departments, students, and DAC members.	A rubric was developed and used by representatives from a wide range of audiences (community members, non-engineering faculty, students, local engineers, etc.) this past spring at the Engineering Design Fair poster presentations.	The feedback from reviewers representing a wide range of audiences was very favorable. In fact, the feedback on the effectiveness of student communication was generally more favorable for individuals with less background in Chemical or Biological Engineering.
6. One of the courses required for the Biological Engineering degree (BIOM 360 General Microbiology) has a prerequisite that has been waived by the Microbiology department for Biological Engineering students for the past decade. Microbiology indicated that waiving this prerequisite for Bio. Eng. Students was no longer recommended.	Changes to the Biological Engineering degree requirement were proposed by the department head at a faculty meeting that included a prerequisite course for BIOM 360. The recommended changes included requiring students to take either BIOB 160 or BIOB 260, and the transition of BIOB 375 General Genetic from a required course to a technical elective.	The faculty approved the department head's recommendation, and the flowcharts and DegreeWorks templates were changed in the summer of 2019. The catalog changes will not be effective until the 2019-20 catalog.	The performance of Biological Engineering students in BIOM 360 will be reviewed in 3 years to determine if the new prerequisite requirement is improving student performance in the course.