

## Chemistry Session Notes

### Disciplinary Sector Leaders

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Based on a review of the Chemistry Academic Transfer Pathways materials provided, 20 faculty members, one transfer specialist and one MAST program representative identified the following potential foundational courses for the chemistry major.

- General Chemistry I and II
- Organic Chemistry I and II
- Calculus I and II
- Physics I and II

It would be possible for motivated community college students who satisfy the Mass Transfer block and earn appropriate grades in these eight courses to complete a baccalaureate degree in

chemistry with two years of post transfer, full-time study. Due to the availability of upper level classes, this could be more challenging for students who transfer for the spring term.

Many students will require more than two years of full-time study at the community college to prepare for transfer, especially students with low entering academic skills in mathematics.

The credit awarded for specific course titles is not always consistent across public higher educational institutions in Massachusetts. For example, both 3 and 4 credit versions of Calculus I and Calculus II are available. There was some discussion about how this would impact degree completion. In most instances, state universities and UMass campuses indicated that a degree requirement is considered to be complete, from the perspective of the major department, if the course content is evaluated as equivalent, regardless of the number of credits earned. Since each student must still earn a minimum of 120 credits to be awarded a degree, however, some students may have to earn an additional credit. In some cases this may be an elective credit, and in other cases, it must be in a specified academic discipline. The group recommended that this issue be referred to the transfer professionals group for further discussion and the development of an approach that can be consistently applied across all disciplines. Questions arose concerning whether, or not, this is, or could be, addressed in the common transfer policy.

The wide variety of introductory/general chemistry courses offered by Massachusetts community colleges led to some complexity in assigning MAST numbers and titles. A rubric was developed for this purpose based on course descriptions, the number of courses in the chemistry sequence, lab requirements and chemistry and mathematics prerequisites. These assignment criteria were discussed with the group. It is clear that additional syllabi review is necessary to ensure confidence that there is a sufficient degree of consistency of core course content within specific MAST chemistry numbers. A request was made for a similar materials be made available for MAST introductory physics courses.

American Chemistry Society accreditation standards must be considered as an important part of this work.

A process needs to be developed to allow for the identification of essential course content for each of the eight recommended fundamental courses and for each institution to identify the course(s) offered on their campus that most closely matches these criteria. There was an acknowledgement that courses should be included if they meet the minimum standard articulated, however there was also discussion of the need to ensure that the content was covered in sufficient depth to prepare students for success in subsequent courses

The MAST representative agreed to develop a chart that would include just the eight foundational courses being considered for inclusion in the Academic Transfer Pathway. The chart would include the required course at each state university and UMass campus, the related MAST number and the linked community college courses by institution. It was agreed that a pilot with one course title will be developed and shared with the Chemistry Team Leaders; revised based on their input and then duplicated for the remaining seven courses.

The following additional data: was requested.

- The number of Chemistry majors at each state university and UMass campus

- The number of Chemistry majors at each state university and UMass campus who began their coursework at a Massachusetts community college
- The number of chemistry graduates at each state university and UMass campus
- The number of chemistry graduates at each state university and UMass campus that started at a Massachusetts community college.