Ohio | Department of Higher Education

John R. Kasich, Governor
John Carey, Chancellor

Memorandum

To: Organic Chemistry Professionals

From: Paul Sampson, Ph.D.
Faculty Lead, Organic Chemistry TAG Review/Revision Panel

Re: Updates to the Organic Chemistry Transfer Assurance Guide (TAG) Course Sequence Learning Outcomes

Date: December 12, 2016

Background

The Ohio Articulation and Transfer Network (OATN) sent a request to me as the Organic Chemistry Transfer Assurance Guide (TAG) Review Panel lead during spring 2016 to determine if the Organic Chemistry TAG courses were in need of a review/update. The recent statewide discussions on the nature of the natural science laboratory experience in the Ohio Transfer Module, coupled with the extensive (ten year) period since the Organic Chemistry Transfer Assurance Guide (TAG) was first developed, led the Organic Chemistry TAG Panel to meet during summer 2016 to discuss possible updates/revisions to the Organic Chemistry TAG learning outcomes. As a result of these discussions, the Organic Chemistry TAG Statewide Faculty Review/Revision Panel has made some minor changes to the Organic Chemistry TAG criteria.

Updates

In the attached document, you will find a set of revised TAG learning outcomes for OSC010 "Full-Year Sequence of Organic Chemistry with Labs." The Panel agreed that a full-year organic chemistry sequence (including both lecture and lab courses) would continue to be important and required for guaranteed transfer via the Organic Chemistry TAG.

Specific changes to the Organic Chemistry TAG criteria center on the following areas:

1. Clarification and consistency of laboratory learning outcomes in accordance with the American Chemical Society (ACS) Public Policy Statement on the Importance of Hands-on Laboratory Science, leading to the requirement that "All experimental organic chemistry lab work will be performed in a traditional hands-on lab setting."
2. A TAG course description, which was missing in the original TAG document.
3. Inclusion of more explicit language governing the skills to be developed during the organic chemistry sequence, especially relating to organic mechanism (core competency 16).
4. Expanded language governing coverage of the applications of organic chemistry in society (core competency 19) to explicitly include "biological and synthetic polymers." This reflects a recent decision by the ACS to include a greater emphasis on polymer chemistry in the

25 South Front Street
Columbus, Ohio 43215

phone 614.466.6000
fax 614.466.5866
web **www.OhioHigherEd.org**

curriculum required for ACS accreditation. Coverage of "biologically/medicinally relevant organic chemistry" is also now required, reflecting the current status of most organic chemistry courses.

5. Expanded language governing use of NMR spectroscopy in the lab (core competency 20) to "strongly recommend" the analysis of NMR spectra collected using a student's own samples, although the use of "standard spectra" is still permitted.
6. Modified language outlining the types of organic transformations conducted in the lab courses to more explicitly require multi-step synthesis which includes the purification and characterization of synthetic intermediates (core competency 21).

The American Chemical Society (ACS) clearly articulates the importance of hands-on laboratory experiences in traditional lab settings at all levels, including major's sequences such as organic chemistry. An American Chemical Society Public Policy Statement on the Importance of Hands-on Laboratory Science can be found at: https://www.acs.org/content/acs/en/policy/publicpolicies/invest/computersimulations.html.

Extensive discussion among the TAG Panel members led to the expectation that all organic chemistry lab courses within the Organic Chemistry TAG must be conducted in a traditional hands-on laboratory setting. Similar language is also now included in the recently revised General Chemistry I and II TAG criteria.

Considerable panel discussion focused on whether "hands-on" NMR spectroscopy should be expected of all students in the organic chemistry lab sequence. Institutional feedback from those public institutions with currently approved Organic Chemistry TAG course sequences suggested that there may be some fiscal and logistical challenges associated with requiring all students to collect their own NMR spectra "hands-on" at the instrument. Thus, compromise language was developed whereby collection of NMR spectra recorded on a student's own samples (typically run either by the student themselves or through use of an auto sampler) would be strongly recommended, but not required.

If you have any questions on the revision to the Organic Chemistry TAG criteria, please feel free to contact me at psampson@kent.edu or (330) 672-0034.

I wish to express my thanks for the dedicated work of the Organic Chemistry TAG Statewide Faculty Review/Revision Panel for their collaboration in updating the learning outcomes. The faculty members of the Organic Chemistry TAG Review/Revision Panel included: Paul Sampson (Revision/Review Panel Lead, Kent State University), Jane Myong (Sinclair College), Daryl Stein (Stark State College), Christopher Callam (The Ohio State University), Christopher Hadad (The Ohio State University), and Deborah Lieberman (University of Cincinnati).

Implication to Your TAG Courses

Although the spirit of the previous learning outcomes/competencies continues to be implemented for the course sequence, the Organic Chemistry TAG Faculty Review/Revision Panel recommends that all previously approved Organic Chemistry TAG course sequences be submitted for re-validation according to the revised criteria. Many of the TAG approved course sequences were last reviewed up to a decade ago. OATN staff provided the Panel with a list of institutions and course sequences based on the initial

approval dates. Based on that information, each institution has been assigned a submission and review schedule. Each institution will be granted one year to submit their two semester package of Organic Chemistry lecture and laboratory courses for review. Approval of those course sequences by the Organic Chemistry TAG Review Panel will be required in order for students to be able to continue taking advantage of the statewide TAG course equivalency guarantee. Some of your courses may require additional time for changes to the TAG courses, including the assessment materials. Therefore, the assigned submission schedule is mindful of the institutional curriculum change process. If your institution is ready to submit earlier than your assigned schedule, please communicate with your TAG coordinator, so that he/she can communicate with the OATN staff.

If an institution's two-semester Organic Chemistry TAG course package(s) is (are) not approved by the Panel within one year, the current TAG approval(s) will be expired by the OATN staff. The Review Panel greatly appreciates your coordination and cooperation to stay on track and proactively get the submission work started early on your assigned schedule. Delay in this process will not only result in disservice to our students but also will place an unnecessary burden on both the submitter and the Review Panel.

According to the OATN staff, their TAG course description website provides submission templates that you need in order to work with your TAG coordinator. Should you have any questions about the submission process, please contact Hideo Tsuchida at (614) 644-0642 or htsuchida@highered.ohio.gov or Michelle Blaney at (614) 644-9601 or mblaney@highered.ohio.gov at the Ohio Articulation and Transfer Network.

Below is the resubmission schedule for your institution: **January 2018-December 2018 (Winter, Spring, and Fall Review Cycles)**

Bowling Green State University	OSC010 – CHEM 3410, 3440, 3450 OSC010 – CHEM 3410, 3440, 3460
Central State University	OSC010 – CHM 2401, 2402
Cuyahoga Community College	OSC010 – CHEM 2300, 2310
Kent State University	OSC010 – CHEM 20481, 20482, 30475, 30476
Lakeland Community College	OSC010 – CHEM 2500, 2600
Lorain County Community College	OSC010 – CHMY 271, 272
Miami University	OSC010 – CHM 251, 252, 254, 255
Owens Community College	OSC010 – CHM 201, 202
Rio Grande Community College	OSC010 – CHM 26202, 26303, 27202, 27303

Shawnee State University	OSC010 – CHEM 3305, 3306
Stark State College	OSC010 – CHM 241, 242
The University of Akron	OSC010 – 3150 263. 3150 264, 3150 265, 3150 266
The University of Toledo	OSC010 – CHEM 2410, 2420, 2460, 2470
Youngstown State University	OSC010 – CHEM 3719, 3720

Below is the resubmission schedule for your institution: **January 2019-December 2019 (Winter, Spring, and Fall Review Cycles)**

Cincinnati State Technical & Community College	OSC010 – CHE 201, 202, 211, 212
Cleveland State University	OSC010 – CHM 331, 332, 336, 337
Columbus State Community College	OSC010 – CHEM 2251, 2252, 2254, 2255
Ohio University	OSC010 – CHEM 3050, 3060, 3080, 3090
Sinclair College	OSC010 – CHE 2111, 2121
The Ohio State University	OSC010 – CHEM 2510, 2520, 2540, 2550
University of Cincinnati	OSC010 – CHEM 2040, 2040L, 2041, 2041L
Wright State University	OSC010 – CHM 2110, 2110L, 2120, 2120L

Thank you very much.

Attachment 1