KINGSBOROUGH COMMUNITY COLLEGE
The City University of New York

CURRICULUM TRANSMITTAL COVER PAGE

Department: Physical Sciences **Date:** 9/22/21

Title Of Course/Degree/Concentration/Certificate: Chemistry Ready Assessment

Change(s) Initiated: (Please check)

- ☐ **Closing of Degree**
- ☐ **Closing of Certificate**
- ☐ **New Certificate Proposal**
- ☐ **New Degree Proposal**
- ☐ **New Course**
- ☐ **New 82 Course (Pilot Course)**
- ☐ **Deletion of Course(s)**
- ☐ **Change in Degree or Certificate**
- ☐ **Change in Degree: Adding Concentration**
- ☐ **Change in Degree: Deleting Concentration**
- ☐ **Change in Prerequisite, Corequisite, and/or Pre/Co-requisite**
- ☐ **Change in Course Designation**
- ☐ **Change in Course Description**
- ☐ **Change in Course Title, Number, Credits and/or Hours**
- ☐ **Change in Academic Policy**
- ☐ **Pathways Submission:**
  - ☐ **Life and Physical Science**
  - ☐ **Math and Quantitative Reasoning**
  - ☐ **A. World Cultures and Global Issues**
  - ☐ **B. U.S. Experience in its Diversity**
  - ☐ **C. Creative Expression**
  - ☐ **D. Individual and Society**
  - ☐ **E. Scientific World**
- ☐ **Change in Program Learning Outcomes**
- ☒ **Other (please describe):** Chemistry Ready Assessment and Placement for CHM 1100

PLEASE ATTACH MATERIAL TO ILLUSTRATE AND EXPLAIN ALL CHANGES

DEPARTMENTAL ACTION

Action by Department and/or Departmental Committee, if required:

Date Approved: _____ **Signature, Committee Chairperson:** _____

If submitted Curriculum Action affects another Department, signature of the affected Department(s) is required:

Date Approved: _____ **Signature, Department Chairperson:** _____

Date Approved: _____ **Signature, Department Chairperson:** _____

I have reviewed the attached material/proposal

Signature, Department Chairperson: John Mikalopas

Revised/Augl.2018/AK

KINGSBOROUGH COMMUNITY COLLEGE
★ DREAMS BEGIN HERE ★

To: Fall 2021 Curriculum Committee

From: John Mikalopas, Chair, Department of Physical Sciences

Date: September 24, 2021

Re: Summary: CUNY Removal of Stand-alone Developmental Courses, Chemistry Ready Assessment, and Changes to CHM 100, CHM 200, and CHM 1100

Below is a summary of the Chemistry submissions for the Curriculum Committee.

CUNY has mandated **no** stand-alone developmental courses beginning in Fall 2022.

Physical Sciences has one stand-alone developmental course: CHM 100 – Preview of General Chemistry (0 credits, 2 equated credits, 2 hours). This course which plays a critical role in our Chemistry Sequence (CHM 1100/1200/3100/3200). As an open admission institution with an open major declaration we must address a vast spectrum of student preparedness. For our Chemistry Sequence that readiness ranges from: Students who are foreign licensed physicians seeking USA credentials to students who had zero high school physics and chemistry.

At present, there are three starts to the Chemistry Sequence:
1. CHM1100 (4 credits, 6 hours) [72 hours]
2. CHM100 (0 credits, 2 hours) [24 hours] followed by CHM 1100 [72 hours] in following semester.
3. CHM200 (3 credits, 4 hours) [48 hours] followed by CHM 1100 [72 hours] in following semester.

For students assessed as not meeting the prerequisite skills for a credit bearing course, CUNY requires the instruction in the stand-alone developmental course be: 1) co-requisite **linked to;** or 2) **embedded into** the credit bearing course. (Numerous policy statements.)

With the approval of these proposals, there will be **three** possible starts to our Chemistry Sequence:
1. CHM 1100 (4 credits, 6 hours) [72 hours]
2. CHM 100 **linked** to CHM 1100 = CHM100 (0 credits, 2 hours) + CHM1100 (4 credits, 6 hours) [96 hours in one semester]
3. CHM200 (3 credits, 4 hours) followed by CHM 1100 [72 hours]

Start 1 -- has not changed
Start 3 -- has not changed (continues to be an option for students to enter the Chemistry sequence)
Start 2 -- meets the specifics of the CUNY mandate by linking the instruction in the developmental course of CHM 100 to the credited course of CHM 1100 (corequisite model).

The submissions are as follows:

1. This cover letter of explanation --- *Cover Letter (included with the Chemistry Ready Placement submission)*
2. Proposal Chemistry Ready Placement --- *CDTS Chemistry Ready Placement Fall 2021*
3. Proposal to change Pre-, Co-, and Pre-/Co-requisites to CHM1100 --- *CDTS CHM1100 Fall 2021*
4. Proposal to change Corequisite and Pre-/Co-requisite to CHM 100 – *CDTS CHM 100 Fall 2021*
5. Proposal to change Pre-/Co-requisite to CHM 200 – *CDTS CHM 200 Fall 2021*

CDTS Chemistry Submissions Fall 2021
Without changes to the course curriculum: The Pre-, Co-, and/or Pre-/Co-requisites to CHM 100, 200, and 1100 are updated to match changes to placement and CUNY developmental course policy

KINGSBOROUGH COMMUNITY COLLEGE
★ DREAMS BEGIN HERE ★

To: Fall 2021 Curriculum Committee

From: John Mikalopas, Chair, Department of Physical Sciences

Date: September 24, 2021

Re: Chemistry Ready Assessment

Below is the Physical Sciences proposal for a Chemistry Ready Assessment for placement of students into the appropriate Chemistry sequence.

PRESENT

The present Chemistry Sequence is:

- General Chemistry I CHM 1100
- General Chemistry II CHM 1200
- Organic Chemistry I CHM 3100
- Organic Chemistry II CHM 3200

At present, there are three starts to the Chemistry Sequence:

1. CHM 1100 (4 credits, 6 hours) [72 hours]
2. CHM 100 (0 credits, 2 hours) [24 hours] *followed* by CHM 1100 in following semester.
3. CHM 200 (3 credits, 4 hours) [48 hours] *followed* by CHM 1100 in following semester.

Students are placed (advised) into the Chemistry Sequence based upon:

1) MAT course prerequisites; and
2) A Chemistry Ready Placement process.

The assumption of any first year General Chemistry course is that a student has the preparation equivalent to one year of high school chemistry in preparation for the study of chemistry at the college level. --- It is the international standard of all textbooks. It is the recommendation for college bound students by the NYC Department of Education. It is the assumption of the American Chemical Society Division of Education in their 1st year college chemistry standardized examinations. It is the standard of the College SAT/AP Board. --- It is what is necessary to complete the lower undergraduate division chemistry sequence (Organic Chemistry II) in the normative time of the end of the second year of college and for the student to go on to upper undergraduate division chemistry courses.

Our present Chemistry Ready Placement process is simple and effective.

- Every semester we give final exams in CHM 100 (Preview to General Chemistry.)
- Any student wishing to be automatically exempt from CHM 100 (Preview to General Chemistry) and placed directly into CHM 1100 (General Chemistry I) may just show up to the final exam for any section of CHM 100 in the preceding semester and take the final exam. The procedure is well announced. Any student earning a passing score on the CHM 100 final exam is automatically placed in CHM 1100.
- Students may also petition the Department for direct placement into CHM 1100. Students who:
    - Have an earned college degree; OR
    - Have relevant foreign credentials; OR
    - Have earned credits in a college science course; OR
    - Have advanced credits in mathematics; OR
    - Other demonstration of possessing the preparation required for success in CHM 1100

PROPOSED

CUNY has mandated there will be an end to stand-alone developmental courses by Fall 2022. For students assessed as not meeting the prerequisite skills for a credit bearing course, CUNY requires the instruction in the stand-alone developmental course be: 1) co-requisite linked to; **or** 2) embedded into the credit bearing course.

There will be three possible starts to our Chemistry Sequence:

1. CHM1100 (4 credits) [72 hours]
2. CHM0100-CHM1100 (4 credits) [96 hours in one semester] – CHM0100 **linked** to CHM1100
3. CHM200 (3 credits) followed by CHM1100 [72 hours]

As CHM 100 (Preview to General Chemistry) will no longer be a stand-alone course with stand-alone final exams, we must update our Chemistry Ready Placement process.

A Self-administered and Mostly Self-assessed Online Chemistry Ready Placement & Preparation Process
Establish an online Chemistry Ready Placement & preparation process to identify the appropriate General Chemistry I (CHM 1100) sequence for students, and to help prepare student for the first day of their chemistry course. It would be composed of (approximately):

Topics (Review Material and Practice Question)

- Measurements—Units; Significant figures; Use of polynomials, exponents and logarithms; Unit Conversions; Temperature scales; and Density
- Atomic Theory---Concepts of atoms, molecules, elements, and ions; and Introductory concepts in atomic composition (protons, neutrons, electrons and isotopes)
- Stoichiometry -- Atomic and molecular weights, Moles, Formulas of compounds; and Balancing chemical equations

Assessment

20 multiple-choice problems in two sections

- 10 questions assess chemistry knowledge
- 10 questions assess quantitative skills.

Scoring

- *Chemistry Score: 0–5 and Quantitative Score 0-5 --- Recommended to enroll in CHM 200 (optional) required to enroll CHM 100 + CHM 1100 (linked support)*
- Chemistry Score: 6–8 and Quantitative Score 6-8 --- *Enroll CHM 100 + CHM 1100 (linked support)*
- Chemistry Score: 9–10 and Quantitative Score 9-10 --- *Enroll in CHM1100*

The goal in Chemistry Ready Placement, as it has always been, will continue to be for students to truly:

- Understand the expectations of General Chemistry I; and
- Understand their preparedness for General Chemistry I