Resolution #48 2014-2015
College Senate

TO: Dr. John R. Halstead, College President
FROM: The College Senate: 03/23/2015
RE:  
I. Formal Resolution (Act of Determination)
II. Recommendation (Urging the Fitness of)
III. Other, For Your Information (Notice, Request, Report, etc.)

SUBJ: CompleteChemistryMinimumGrade-Chemistry (22-14-15 UC)

Signed: [Signature]
Date: 7/7/15
(P. Gibson Ralph, 2014-15 College Senate President)

Please fill out the bottom portion and follow the distribution instructions at the end of this page.

TO: P. Ralph Gibson, College Senate President
FROM: John R. Halstead, College President
RE:  
I. Decision and Action Taken on Formal Resolution (circle choice)
   a. Accepted  Implementation Effective Date**: Fall 2015
   **Implementation of resolution requires final approval from SUNY- State Education Department.  ___YES  ✓ NO
   b. Deferred for discussion with the Faculty Senate on ___/___/___
   c. Unacceptable for the reasons contained in the attached explanation

II, III. Response to Recommendation or Other/FYI
   a. Received and acknowledged ___/___/___
   b. Comment:

Signed: [Signature]
Date: 7/7/15
(Dr. Mary Ellen W Zuckerman, Provost/Vice President Academic Affairs, Officer in Charge, The College at Brockport)

DISTRIBUTION: Upon approval, the College President will forward copies of resolutions to his staff who will, in turn, forward copies to their staff. The College Senate Office will post resolutions to the College Senate Web at http://www.brockport.edu/collegesenate/resolutions.
COLLEGE SENATE OFFICE
RESOLUTION PROPOSAL COVER PAGE
DEADLINE FOR SUBMISSIONS: FEBRUARY 28
Incomplete proposals will be returned and proposals received after the
deadline may not be reviewed until next semester.

INSTRUCTIONS
• Use committee guidelines available at brockport.edu/collegesenate/proposal.html.
• Prepare ONE complete document in Word format: include this proposal cover page, proposal, attachments and support letters from your
department chair and dean if applicable.
• Locate the Resolution # and date this proposal will replace at our “Approved Resolutions” page on our Web site.
• Email completed proposal to senate@brockport.edu. (General Education Proposals and questions go to diamphro@brockport.edu in the Vice
Provost's Office first.)
• Make revisions on the paperwork emailed to you from the Senate office that shows the assigned routing number on top. Submit updated
document to senate@brockport.edu.
• Questions? Call the Senate office at 395-2586 or the appropriate committee chairperson.

1. PROPOSAL TITLE: Please be somewhat descriptive, i.e. Use a course number and/or title, indicate if for GED code, etc.
   Introducing a Minimum Grade in CHM205/206, College Chemistry I/II for Chemistry Majors

2. BRIEF DESCRIPTION OF PROPOSAL:
   A minimum grade of C in each of the two first-year courses CHM205/206, College Chemistry 205/206 is proposed for Chemistry Majors.

3. WILL ADDITIONAL RESOURCES AFFECTING BUDGET BE NEEDED? _x__ NO ___ YES EXPLAIN YES

4. DESCRIBE ANY DATA RELATED TO STUDENT LEARNING OUTCOMES ASSESSMENT USED AS PART OF
   THE RATIONALE FOR THE REQUESTED SENATE ACTION.
   Tracking of Majors through the program over a 5-year span (2010-2014)

5. HOW WILL THIS AFFECT TRANSFER STUDENTS:
   Minimum grade requirement in CHM205/206 equivalent courses will be waived if students have an
   average GPA of 2.0 or higher in their Major

6. ANTICIPATED EFFECTIVE DATE:
   Fall 2015

7. SUBMISSION & REVISION DATES: PLEASE DATE ALL REVISED DOCUMENTS TO AVOID CONFUSION.
   First Submission  Updated on  Updated on  Updated on
   Febr. 9, 2015

8. SUBMITTED BY: (contact person)
   Name          Department    Phone       Email
   Markus Hoffmann Chemistry & Biochemistry 395-5587  ionman@brockport.edu

9. COMMITTEES: (Senate office use only)
   Standing Committee  Forwarded To  Dates Forwarded
   __ Executive Committee  Standing Committee  02-09-15
   __ Enrollment Planning & Policies  Executive Committee  02/23/15
   __ Faculty & Professional Staff Policies  Senate  03/02/15, 03/23/15
   __ General Education & Curriculum Policies  Passed GED's go to Vice Provost
   __ Graduate Curriculum & Policies  College President  07/07/15
   __ Student Policies  OTHER
   X Undergraduate Curriculum & Policies  REJECTED -WITHDRAWN

NOTES: Res # 48
1.) A side-by-side comparison of the old and new program in tabular form

Changes to the Major in Chemistry are highlighted in italic bold face

### a) Chemistry Major requirements

<table>
<thead>
<tr>
<th>Previous Requirements</th>
<th>No Changes are proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM205 - 206, College Chemistry I and II</td>
<td>CHM205* – 206*, College Chemistry I and II</td>
</tr>
<tr>
<td>CHM301, Chemical Safety</td>
<td>CHM301, Chemical Safety</td>
</tr>
<tr>
<td>CHM302, Inorganic Chemistry I</td>
<td>CHM302, Inorganic Chemistry I</td>
</tr>
<tr>
<td>CHM303, Analytical Chemistry I</td>
<td>CHM303, Analytical Chemistry I</td>
</tr>
<tr>
<td>CHM400 - 401, Seminar I and II</td>
<td>CHM400 - 401, Seminar I and II</td>
</tr>
<tr>
<td>CHM405 - 406, Physical Chemistry I and II</td>
<td>CHM405 - 406, Physical Chemistry I and II</td>
</tr>
<tr>
<td>CHM408 - 409, Physical Chemistry Lab I and II</td>
<td>CHM408 - 409, Physical Chemistry Lab I and II</td>
</tr>
<tr>
<td>Chemistry Credits</td>
<td>Chemistry Credits</td>
</tr>
<tr>
<td>35</td>
<td>35</td>
</tr>
</tbody>
</table>

| MTH201 – 202 - 203, Calculus I, II, and III | MTH201 – 202 - 203, Calculus I, II, and III |
| Math Credits | Math Credits |
| 12 | 12 |

| PHS235 - 240, Physics I and II | PHS235 - 240, Physics I and II |
| Physics Credits | Physics Credits |
| 8 | 8 |

| General Education | variable |
| Electives | variable |
| Summary of Credit Hour Changes | Required Courses (55 credits) |
| Required Courses (55 credits) | Required Courses (55 credits) |

### b) Additional requirements for the ACS certified Major in Chemistry - No Proposed Changes

<table>
<thead>
<tr>
<th>Previous Additional Requirements</th>
<th>No Proposed Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM467, Biochemistry I</td>
<td>CHM467, Biochemistry I</td>
</tr>
<tr>
<td>Six lecture credits of either</td>
<td>Six lecture credits</td>
</tr>
<tr>
<td>Elect from any 400 level chemistry lecture course</td>
<td>Elect from any 400 level chemistry lecture course</td>
</tr>
<tr>
<td>Four lab credits of either</td>
<td>Four lab credits of either</td>
</tr>
<tr>
<td>Any 400 level chemistry lab course or</td>
<td>Any 400 level chemistry lab course or</td>
</tr>
<tr>
<td>CHM341, Advanced Organic Chemistry Lab (1)</td>
<td>CHM341, Advanced Organic Chemistry Lab (1)</td>
</tr>
<tr>
<td>CHM342, Advanced Organic chemistry Lab II (1)</td>
<td>CHM342, Advanced Organic chemistry Lab II (1)</td>
</tr>
<tr>
<td>Additional Credits</td>
<td>Additional Credits</td>
</tr>
<tr>
<td>13</td>
<td>13</td>
</tr>
</tbody>
</table>
2) Rationale
Our department has reviewed the attrition of our majors over a five year span (class of 2010 to class of 2014). As typical in the sciences, the required courses build upon another, with the first few chemistry courses being CHM 205/206, College Chemistry I and II, followed by CHM305/306 Organic Chemistry I and II for both chemistry and biochemistry majors. During the five-year time span corresponding to the graduating classes 2010-2014 there were 76 chemistry or biochemistry majors completing CHM205, of which 7 received a grade of lower than C. 59 majors completed CHM206 with 12 receiving a grade lower than C. Because of an influx of transfer students, the numbers of majors increased in CHM205 where 62 majors completed CHM205 with ten having a grade of lower than C, and 54 majors completed CHM206 with 7 obtaining a grade of lower than C.

It is worth noting that 41 majors completed CHM203, Analytical Chemistry, with 11 students receiving a grade of lower than C (because CHM203 requires more quantitative skills and hinges perhaps even more so than CHM205/306 on the content and conceptual thinking of College Chemistry. Most remarkably, we found that none of the majors who had a low grade in CHM205/206 wound up graduating with a chemistry or biochemistry degree. Consequently, every single student who graduated with a chemistry or biochemistry degree had grades in CHM205/206 better than C. (In fact, they nearly all had B or higher).

From these observations, it is evident that a poor performance in the foundational level course of CHM205/206 is a strong predictor for not completing the major. Furthermore, it is also apparent that many of the students leaving the major did so only after several semesters of trying to come around in the major. Ultimately, these students were just not succeeding in the sophomore or junior level chemistry courses.

We propose to introduce a minimum grade requirement of C in CHM205 and CHM206 to benefit our students in the following way:

1.) Majors struggling in CHM205/206 will be prompted sooner to come for individual help to the instructors (lecture and lab section instructors) that we consciously offer to our students. We can then attempt intervening by working with the struggling students to meta-cognitively improve their learning strategies as recently outlined on campus by the presentations and workshops of Dr. McGuire.

2.) When a struggling major repeats CHM205 or CHM206 the chances of succeeding in this course and the resulting gain in confidence are more likely to occur than when moving on ill-prepared to the sophomore level courses.

3.) Because students are forced to retake CHM205 or CHM206 when not obtaining a grade of C or better, it is more likely that a serious discussion with the major’s advisor will take place to either devise plans for improving study habits or to consider (for the right reasons such as having discovered interests in other areas etc.) alternative major options. If some of the initial chemistry and biochemistry majors possess indeed stronger skill sets and intrinsic motivation and passion for another major, we believe that the minimum-grade requirement will prompt this realization sooner rather than later in their College career.

4.) Since only majors with a grade of C continue on to the sophomore level chemistry courses, they are more likely to succeed also in these courses, and the attrition of our majors presently observed in these courses will become less.

5.) Since only majors with a grade of C continue on to the sophomore level chemistry courses for chemistry and biochemistry majors such as CHM302, Inorganic Chemistry I or CHM303, Analytical Chemistry, the instruction of these and following courses will potentially be facilitated with a higher possibility for the instructor to increase the pace and/or intellectual challenge of material. This will potentially bring enhanced opportunities for advancing our majors during the remainder of the major’s curriculum towards higher level of thinking as described by Bloom’s taxonomy.

For Transfer Students we propose to implement the minimum grade requirement in CHM205/206 case by case as follows:

Case 1: Transfer student has only completed or not completed yet the equivalent courses of CHM205/206. Here, the minimum grade requirement will apply.

Case 2: Transfer student has completed courses in the major beyond CHM205/206, then the minimum grade requirement will be waived if the student has an average GPA of 2.0 or higher in their Chemistry or Biochemistry Major.
3) Description of any new courses
Does not apply.

4) Staffing issues
The proposed changes will not lead to a change in staffing needs.

5) Academic administration commentary

February, 2015
To: Undergraduate Curriculum Committee, College Senate

I support both the Senate proposal to require a minimum grade of C in CHM 205 and CHM 206 for Chemistry majors and the proposal to require a minimum grade of C in CHM 205 and CHM 206 for Biochemistry majors. Our Departmental data support the fact that students who do poorly in CHM 205 and 206 generally do poorly in the rest of their chemistry classes and often change majors. This requirement will help to ensure that either students get the necessary foundation from CHM 205 and 206 by repeating the class or will encourage students to have earlier discussions with their advisor about whether Chemistry or Biochemistry is an appropriate major for them.

Stephen A. Godleski
Professor and Chair
Department of Chemistry and Biochemistry
The College at Brockport, SUNY

The Dean’s Office supports the proposal of the Department of Chemistry & Biochemistry to require a minimum grade of C in CHM 205 and 206 (College Chemistry I, II) for students pursuing the Chemistry Major.

Sincerely,

Jose Maliekal
Dean, School of Science and Mathematics