May 8, 2018

To:       Dean Van Galen, Chancellor  
          116 North Hall  
          University of Wisconsin – River Falls

From: Mialisa Moline, Chair  
       Faculty Senate  
       University of Wisconsin – River Falls

Re:     UWRF Faculty Senate Motion 2017-18/128

The following motion was approved with 21 in favor, 0 opposed, and 0 abstentions by the Faculty Senate on May 2, 2018:

Motion from the Academic Program and Policy Committee (Tammy Kincaid, Chair) to approve the attached program change proposal for the Chemistry – Chemistry program.

_____ Approved  

_____ Disapproved

Dean Van Galen, Chancellor  
Date  
5/10/18
# UWRF - Program Change Transmittal Form

Instructions. In a separate document: a) include a rationale for the requested changes or new program, b) clarify which courses have not been approved, c) include a listing of course array for the current as well as the proposed program, d) include minutes from the department meeting where the requested changes were approved. On the addendum to this form: a) include signatures from all department chairs and deans whose programs will be affected by the proposal, b) secure all signatures prior to review by all other shared governance levels.

<table>
<thead>
<tr>
<th>Undergraduate Program Change</th>
<th>College</th>
<th>Department</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparer(s)</td>
<td>CAS</td>
<td>Chemistry and Biotechnology</td>
<td>Mar. 23, 2018</td>
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<thead>
<tr>
<th>Program Title</th>
<th>Implementation Term</th>
<th>Nature of Proposal</th>
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<tr>
<td>Chemistry - Chemistry</td>
<td>Fall 2018</td>
<td>An existing program</td>
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Have all courses been approved? Yes

Requested changes (select all that apply): Name change, Curriculum change, Change in major, Change in option/emphasis

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<thead>
<tr>
<th>Reviewed and approved by</th>
<th>Approval date</th>
<th>Signature of Chair/Dean</th>
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<tbody>
<tr>
<td>Department</td>
<td>Mar. 23, 2018</td>
<td>Karl Peterson</td>
</tr>
<tr>
<td>College Curriculum Committee</td>
<td>4/4/18</td>
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<tr>
<td>Dean of</td>
<td>4/4/18</td>
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<tr>
<td>University Curriculum Committee</td>
<td>4/9/2018</td>
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<tr>
<td>Acad. Policy &amp; Program Committee</td>
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<td>Tamara Kincaid</td>
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<tr>
<td>Faculty Senate</td>
<td>5/8/18</td>
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<tr>
<td>Provost/Vice Chancellor</td>
<td>5/10/18</td>
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<tr>
<td>Chancellor</td>
<td>5/10/18</td>
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Revised: Fall 2015
Chemistry Major - Chemistry option
Program Change Narrative

The program is being updated to capture recent changes to courses within the curriculum. The changes include:

1) Change CHEM 121 to CHEM 111/116. CHEM 121 became CHEM 111/116 for Fall 2017
2) Change CHEM 122 to CHEM 112/117. CHEM 122 became CHEM 112/117 in Spring 2018
3) CHEM 322 was originally a 4 credit lecture/lab. The course has since been split into CHEM 322, a 3 credit lecture, and CHEM 325, a 1 credit lab.
4) CHEM 325 is moved to the in-depth elective area of the major with appropriate adjustments to credit counts in the required and in-depth elective areas.
5) Remove CHEM 120 from area 1) of Track A. We do not currently have staff to offer CHEM 120 and it would likely undergo a change in course number if offered in the future (similar to CHEM 121 and 122 described above).
6) Update elective course list for courses that have been added or removed from the curriculum.
   a. Remove CHEM 401, CHEM 402
   b. Add CHEM 345

There is also a change requiring both CHEM 341 and CHEM 342. During our previous program change we embraced curricular flexibility allowed by the curriculum guidelines from the American Chemical Society in requiring only one of the two physical chemistry courses. The proposed change is to require both physical chemistry courses, which is more consistent with our sister programs at UW-EC, UW-L, UW-SP and UW-O.

1) Require CHEM 341 and CHEM 342 in Track A and B. Adjust in-depth electives by 3 credits.
Chemistry - ACS Major (68-72 cr. hrs.)
(72-76 cr. hrs. including required supporting courses)

Track A Requirements: 56-59 cr. hrs.
CHEM 121 General Chemistry I (5 cr) OR
    CHEM 120 Introduction to General Chemistry (6 cr)
CHEM 122 General Chemistry II (5 cr)
CHEM 231 Organic Chemistry I (3 cr)
CHEM 232 Organic Chemistry II (3 cr)
CHEM 236 Organic Chemistry Lab I (1 cr)
CHEM 237 Organic Chemistry Lab II (1 cr)
CHEM 250 Foundations of Analytical Chemistry (4 cr)
CHEM 261 Laboratory Safety (2 cr)
CHEM 322 Inorganic Chemistry (includes a 1 cr. lab portion) (4 cr)
CHEM 341 Chemical Thermodynamics and Kinetics (3 cr) OR
    CHEM 342 Molecular Structure and Spectroscopy (3 cr)
CHEM 360 Foundations of Biochemistry (4 cr) OR
    CHEM 361 Biochemistry I (3 cr)
CHEM 380 Chemistry Junior Seminar (1 cr)
CHEM 480 Chemical Communications and Research (writing intensive) (1 cr)
BIOL 150 General Biology (3 cr) OR
    BIOL 160 General Biology – Freshman Research Focus (4 cr)
MATH 167 Calculus II (4 cr)
MATH elective (3-4 cr)*
PHYS 121 and PHYS 122 General Physics I, II: Algebra-based (10 cr) OR
    PHYS 131 and PHYS 132 General Physics I, II: Calculus-based (10 cr)

In Depth Electives: 12 credits (incl. at least 6 lab credits, one of which must be CHEM 366 or 402).
CHEM 311 Polymer Chemistry (3 cr)
CHEM 316 Polymer Laboratory (1 cr)
CHEM 333 Organic Synthesis (2 cr)
CHEM 334 Organic Synthesis Lab (2 cr)
CHEM 341 Chemical Thermodynamics and Kinetics (3 cr) OR
    CHEM 342 Molecular Structure and Spectroscopy (3 cr)
CHEM 355 Separation Science Laboratory (1 cr)
CHEM 356 Chemical Instrumentation Lab (writing intensive) (1 cr)
CHEM 362 Biochemistry II (3 cr)
CHEM 366 Biochemistry Laboratory (writing intensive) (1 cr)
CHEM 378 Semester Abroad (1-4 cr)
CHEM 379 Internship (1-4 cr)
CHEM 401 Advanced Chemistry Lab I (writing intensive) (1 cr)
CHEM 402 Advanced Chemistry Lab II (writing intensive) (1 cr)
CHEM 422 Advanced Inorganic Chemistry (writing intensive) (3 cr)
CHEM 461 Pharmacology (3 cr)
CHEM 489 Special Topics in Chemistry (1-4 cr)
CHEM 495 Undergraduate Research (1-3 cr)
BIOL 451 Molecular Biology (4 cr)
PHYS 465 Quantum Mechanics (4 cr)

Required Supporting Courses: 4 cr. hrs.
MATH 166 Calculus I (4 cr)

*Math electives could include: MATH 236: Discrete Mathematics, MATH 256: Linear Algebra, MATH 266: Calculus III, MATH 326: Applied Statistics, MATH 346: Numerical Analysis I, or PHYS 361: Mathematics of Physics & Engineering. All have a pre-requisite no higher than MATH 167.
Track B Requirements: 56 - 59 cr. hrs.

CHEM 130 Introduction to Organic Chemistry (5 cr)
CHEM 233 Foundations of Organic Chemistry (5 cr)
CHEM 240 Principles of General Chemistry (4 cr)
CHEM 250 Foundations of Analytical Chemistry (4 cr)
CHEM 261 Laboratory Safety (2 cr)
CHEM 322 Inorganic Chemistry (includes a 1 cr. lab portion) (4 cr)
CHEM 333 Organic Synthesis (2 cr)
CHEM 334 Organic Synthesis Lab (2 cr)
CHEM 341 Chemical Thermodynamics and Kinetics (3 cr) OR
   CHEM 342 Molecular Structure and Spectroscopy (3 cr)
CHEM 360 Foundations of Biochemistry (4 cr) OR
   CHEM 361 Biochemistry I (3 cr)
CHEM 380 Chemistry Junior Seminar (1 cr)
CHEM 480 Chemical Communications and Research (writing intensive) (1 cr)
BIOL 150 General Biology (3 cr) OR
   BIOL 160 General Biology – Freshman Research Focus (4 cr)
MATH 167 Calculus II (4 cr)
MATH elective (3-4 cr)*

PHYS 121 and PHYS 122 General Physics I, II: Algebra-based (10 cr) OR
   PHYS 131 and PHYS 132 General Physics I, II: Calculus-based (10 cr)

In Depth Electives: 12 credits (incl. at least 4 lab credits, one of which must be CHEM 366 or 402).

CHEM 311 Polymer Chemistry (3 cr)
CHEM 341 Chemical Thermodynamics and Kinetics (3 cr) OR
   CHEM 342 Molecular Structure and Spectroscopy (3 cr)
CHEM 355 Separation Science Laboratory (1 cr)
CHEM 356 Chemical Instrumentation Lab (writing intensive) (1 cr)
CHEM 362 Biochemistry II (3 cr)
CHEM 366 Biochemistry Laboratory (writing intensive) (1 cr)
CHEM 378 Semester Abroad (1-4 cr)
CHEM 379 Internship (1-4 cr)
CHEM 401 Advanced Chemistry Lab I (writing intensive) (1 cr)
CHEM 402 Advanced Chemistry Lab II (writing intensive) (1 cr)
CHEM 411 Polymer Science (3 cr)
CHEM 416 Polymer Laboratory (1 cr)
CHEM 422 Advanced Inorganic Chemistry (writing intensive) (3 cr)
CHEM 461 Pharmacology (3 cr)
CHEM 489 Special Topics in Chemistry (1-4 cr)
CHEM 495 Undergraduate Research (1-3 cr)
BIOL 451 Molecular Biology (4 cr)
PHYS 465 Quantum Mechanics (4 cr)

Required Supporting Courses: 4 cr. hrs.
MATH 166 Calculus I (4 cr)

*Math electives could include: MATH 236: Discrete Mathematics, MATH 256: Linear Algebra, MATH 266: Calculus III, MATH 326: Applied Statistics, MATH 346: Numerical Analysis I, or PHYS 361: Mathematics of Physics & Engineering. All have a pre-requisite no higher than MATH 167.
Chemistry - Major (68-71 cr. hrs.)
(72-75 cr. hrs. including required supporting courses)

Track A Requirements: 58-61 cr. hrs.
CHEM 111 General Chemistry I (4 cr) OR
CHEM 116 General Chemistry Lab 1 (1 cr)
CHEM 112 General Chemistry II (4 cr)
CHEM 117 General Chemistry Lab II (1 cr)
CHEM 231 Organic Chemistry I (3 cr)
CHEM 232 Organic Chemistry II (3 cr)
CHEM 236 Organic Chemistry Lab I (1 cr)
CHEM 237 Organic Chemistry Lab II (1 cr)
CHEM 250 Foundations of Analytical Chemistry (4 cr)
CHEM 261 Laboratory Safety (2 cr)
CHEM 322 Inorganic Chemistry (3 cr)
CHEM 341 Chemical Thermodynamics and Kinetics (3 cr)
CHEM 342 Molecular Structure and Spectroscopy (3 cr)
CHEM 360 Foundations of Biochemistry (4 cr) OR
  CHEM 361 Biochemistry 1 (3 cr)
CHEM 380 Chemistry Junior Seminar (1 cr)
CHEM 480 Chemical Communications and Research (1 cr)
BIOL 150 General Biology (3 cr) OR
  BIOL 160 General Biology – Freshman Research Focus (4 cr)
MATH 167 Calculus II (4 cr)
MATH elective (3-4 cr)*
PHYS 121 and PHYS 122 General Physics I, II: Algebra-based (10 cr) OR
  PHYS 131 and PHYS 132 General Physics I, II: Calculus-based (10 cr)

In Depth Electives: 10 credits (incl. at least 7 lab credits).
CHEM 311 Polymer Chemistry (3 cr)
CHEM 316 Polymer Laboratory (1 cr)
CHEM 325 Inorganic Chemistry Laboratory (1 cr)
CHEM 333 Organic Synthesis (2 cr)
CHEM 334 Organic Synthesis Lab (2 cr)
CHEM 345 Physical Chemistry Laboratory (1 cr)
CHEM 355 Separation Science Laboratory (1 cr)
CHEM 356 Chemical Instrumentation Lab (1 cr)
CHEM 362 Biochemistry II (3 cr)
CHEM 366 Biochemistry Laboratory (1 cr)
CHEM 378 Semester Abroad (1-4 cr)
CHEM 379 Internship (1-4 cr)
CHEM 461 Pharmacology (3 cr)
CHEM 489 Special Topics in Chemistry (1-4 cr)
CHEM 495 Undergraduate Research (1-3 cr)
BIOL 451 Molecular Biology (4 cr)
PHYS 465 Quantum Mechanics (4 cr)

Required Supporting Courses: 4 cr. hrs.
MATH 166 Calculus I (4 cr)

*Math electives could include: MATH 236: Discrete Mathematics, MATH 256: Linear Algebra, MATH 266: Calculus III, MATH 326: Applied Statistics, MATH 346: Numerical Analysis I, or PHYS 361: Mathematics of Physics & Engineering. All have a pre-requisite no higher than MATH 167.
Track B Requirements: 58 - 61 cr. hrs.

CHEM 130 Introduction to Organic Chemistry (5 cr)
CHEM 233 Foundations of Organic Chemistry (5 cr)
CHEM 240 Principles of General Chemistry (4 cr)
CHEM 250 Foundations of Analytical Chemistry (4 cr)
CHEM 261 Laboratory Safety (2 cr)
CHEM 322 Inorganic Chemistry (3 cr)
CHEM 333 Organic Synthesis (2 cr)
CHEM 334 Organic Synthesis Lab (2 cr)
CHEM 341 Chemical Thermodynamics and Kinetics (3 cr)
CHEM 342 Molecular Structure and Spectroscopy (3 cr)
CHEM 360 Foundations of Biochemistry (4 cr) OR
  CHEM 361 Biochemistry 1 (3 cr)
CHEM 380 Chemistry Junior Seminar (1 cr)
CHEM 480 Chemical Communications and Research (1 cr)
BIOL 150 General Biology (3 cr) OR
  BIOL 160 General Biology – Freshman Research Focus (4 cr)
MATH 167 Calculus II (4 cr)
MATH elective (3-4 cr)*
PHYS 121 and PHYS 122 General Physics I, II: Algebra-based (10 cr) OR
  PHYS 131 and PHYS 132 General Physics I, II: Calculus-based (10 cr)

In Depth Electives: 10 credits (incl. at least 5 lab credits).

CHEM 311 Polymer Chemistry (3 cr)
CHEM 325 Inorganic Chemistry Laboratory (1 cr)
CHEM 345 Physical Chemistry Laboratory (1 cr)
CHEM 355 Separation Science Laboratory (1 cr)
CHEM 356 Chemical Instrumentation Lab (1 cr)
CHEM 362 Biochemistry II (3 cr)
CHEM 366 Biochemistry Laboratory (1 cr)
CHEM 378 Semester Abroad (1-4 cr)
CHEM 379 Internship (1-4 cr)
CHEM 411 Polymer Science (3 cr)
CHEM 416 Polymer Laboratory (1 cr)
CHEM 461 Pharmacology (3 cr)
CHEM 489 Special Topics in Chemistry (1-4 cr)
CHEM 495 Undergraduate Research (1-3 cr)
BIOL 451 Molecular Biology (4 cr)
PHYS 465 Quantum Mechanics (4 cr)

Required Supporting Courses: 4 cr. hrs.
MATH 166 Calculus I (4 cr)

*Math electives could include: MATH 236: Discrete Mathematics, MATH 256: Linear Algebra, MATH 266: Calculus III, MATH 326: Applied Statistics, MATH 346: Numerical Analysis I, or PHYS 361: Mathematics of Physics & Engineering. All have a pre-requisite no higher than MATH 167.
Faculty meeting on Friday, March 23, 2018 in CSH 173
In attendance: Lisa Krouth, Ross Jilk, Sam Alvarado, Dan Marchand, Matt O’Reilly, Barb Nielsen, Kevin McLaughlin, Karl Peterson, and Mike Kahlow

1. Meeting called to order at 2:06pm
2. Approval of the minutes from February 23, 2018 as submitted by Mike Kahlow. (Dan/Barb)
   a. Kevin can help with Chem Demons Fall 2019 not next Fall
3. Announcements
   a. Family Day recap
      i. need to go back to hard copy mailing to prospective students
      ii. poster session seems like a good addition
      iii. could facilitate interaction of alumni with current and prospective students better; afternoon session attendance drops
   b. Budget request for increase in S&E was not funded.
   c. Workshops in General Chemistry implementation will be delayed.
      i. small implementation Spring 2019 and full implementation Fall 2019
   d. We need textbooks for the student awards: Inorganic, Analytical, Biochemistry
   e. Recruiting more Peer Leaders for next semester Chem 231/232
   g. Others
4. Old Business
5. New Business
   a. Visiting Assistant Professor Position search committee. Karl will chair the committee. Nate Ockwig from IFC will participate. Matt O’Reilly will serve on the committee.
   b. Program updates for (documentation attached):
      i. Chemistry option - motion to approve Mike/Dan – unanimous 9/0/0
      ii. Biochemistry option – motion to approve Matt/Barb - unanimous 9/0/0
      iii. Biochemistry pre-professional option – motion Mike/Barb - unanimous 9/0/0
   c. Recommendation of Chad Fleck for Tier 2 of the educator preparation program – confirmed by department.
   d. Student Awards
      i. ACS Organic Chemistry Award – Done (Thalia Anderson)
      ii. First-Year Chemistry Award – Morgan Beckman nominated
      iii. Organic Chemistry Award – John Lowery and Jonathan Farren nominated
      iv. ACS Analytical Chemistry Award – Morley Struss was nominated
      v. ACS Inorganic Award – Michelle Hoffer was nominated
      vi. ACS Physical Chemistry Award – Lucy Peterson and Miranda Rang were nominated
      vii. Biochemistry Award – Michael Burns, Samantha Topel and Michelle Hoffer were nominated
      viii. Outstanding Senior Award – Thalia Anderson was nominated
   a. Others
6. Miscellaneous Business
7. Adjournment Barb/Lisa 2:55pm