To be adopted:  Proposed Changes in the B.A. and B.S. in Chemistry

PRESENT:
The major requirements for the B.A. and the B.S. degree in Chemistry are as follows:

Bachelor of Arts

1. Lower-division requirements (48-49 units)
   a) MATH 009A, MATH 009B, MATH 009C, MATH 010A
   b) PHYS 040A, PHYS 040B, PHYS 040C (or PHYS 002A, PHYS 002B, PHYS 002C, PHYS 02LA, PHYS 02LB, PHYS 02LC)
   c) CHEM 001A, CHEM 001B, CHEM 001C (or CHEM 01HA, CHEM 01HB, CHEM 01HC), CHEM 005

2. Upper-division requirements (38 units)
   A minimum grade of “C-” for any upper-division course used to fulfill the requirements for the B.A. degree.
   a) CHEM 110A, CHEM 110B, CHEM 112A, CHEM 112B, CHEM 112C, CHEM 113, CHEM 125, CHEM 150A, CHEM 191, and either CHEM 111 or CHEM 166
   b) Ten (10) additional upper-division units in Chemistry if the year of organic chemistry is taken at a community college

PROPOSED:
The major requirements for the B.A. and the B.S. degree in Chemistry are as follows:

Bachelor of Arts

1. Lower-division requirements (51-53 units)
   a) MATH 009A or MATH 008B, MATH 009B, MATH 009C, MATH 010A
   b) PHYS 040A, PHYS 040B, PHYS 040C (or PHYS 002A, PHYS 002B, PHYS 002C, PHYS 02LA, PHYS 02LB, PHYS 02LC)
   c) CHEM 001A, CHEM 001B, CHEM 001C (or CHEM 01HA, CHEM 01HB, CHEM 01HC), CHEM 005

2. Upper-division requirements (38 units)
   A minimum grade of “C-” for any upper-division course used to fulfill the requirements for the B.A. degree.
   a) CHEM 110A, CHEM 110B, CHEM 112A, CHEM 112B, CHEM 112C, CHEM 113, CHEM 125, CHEM 150A, CHEM 191, and either CHEM 111 or CHEM 166
   b) Ten (10) additional upper-division units in Chemistry if the year of organic chemistry is taken at a community college
Bachelor of Science

1. Lower-division requirements (61–62 units)
   a) CHEM 001A, CHEM 001B, CHEM 001C (or CHEM 01HA, CHEM 01HB, CHEM 01HC), CHEM 005

   b) MATH 009A, MATH 009B, MATH 009C, MATH 010A, MATH 010B, MATH 046

   c) PHYS 040A, PHYS 040B, PHYS 040C, PHYS 040D

2. Upper-division requirements (50 units)
   A minimum grade of “C-” for any upper-division course used to fulfill the requirements for the B.S. degree.

   a) CHEM 110A, CHEM 110B, CHEM 111, CHEM 112A, CHEM 112B, CHEM 112C, CHEM 113, CHEM 125, CHEM 150A, CHEM 191

   b) Two laboratory courses from CHEM 140, CHEM 166, BCH 102

   c) One course from BCH 110A, CHEM 135/ENSC 135/ENTX 135, CHEM 136/ENSC 136/ENTX 136/SWSC 136, CHEM 150B

Bachelor of Science

1. Lower-division requirements (64–66 units)
   a) CHEM 001A, CHEM 001B, CHEM 001C (or CHEM 01HA, CHEM 01HB, CHEM 01HC), CHEM 005

   b) MATH 009A or MATH 008B, MATH 009B, MATH 009C, MATH 010A, MATH 010B, MATH 046

   c) PHYS 040A, PHYS 040B, PHYS 040C, PHYS 040D

2. Upper-division requirements (50 units)
   A minimum grade of “C-” for any upper-division course used to fulfill the requirements for the B.S. degree.

   a) CHEM 110A, CHEM 110B, CHEM 111, CHEM 112A, CHEM 112B, CHEM 112C, CHEM 113, CHEM 125, CHEM 150A, CHEM 191

   b) Two laboratory courses from CHEM 140, CHEM 166, BCH 102

   c) One course from BCH 110A, CHEM 135/ENSC 135/ENTX 135, CHEM 136/ENSC 136/ENTX 136/SWSC 136, CHEM 150B
Chemical Physics Option

Students must consult with the undergraduate advisor before electing this option.

1. Lower-division requirements (64–66 units)
   a) CHEM 001A, CHEM 001B, CHEM 001C (or CHEM 01HA, CHEM 01HB, CHEM 01HC), CHEM 005
   
   b) MATH 009A, MATH 009B, MATH 009C, MATH 010A, MATH 010B, MATH 046
   
   c) PHYS 040A, PHYS 040B, PHYS 040C, PHYS 040D

2. Upper-division requirements (74 units)

   A minimum grade of “C-” for any upper-division course used to fulfill the requirements for the Chemical Physics option.

   a) CHEM 110A, CHEM 110B, CHEM 111, CHEM 112A, CHEM 112B, CHEM 112C, CHEM 113, CHEM 140, CHEM 150A, CHEM 150B, CHEM 191
   
   b) Twenty-four (24) units of upper-division course work in Mathematics or Physics (110 or above excluding 190 series)
   
   c) Nine (9) additional units in physical chemistry
Environmental Chemistry Option

Students must consult with the undergraduate advisor before electing this option.

1. Lower-division requirements (73–74 units)
   a) CHEM 001A, CHEM 001B, CHEM 001C (or CHEM 01HA, CHEM 01HB, CHEM 01HC), CHEM 005
   b) MATH 009A, MATH 009B, MATH 009C, MATH 010A, MATH 010B, MATH 046
   c) PHYS 040A, PHYS 040B, PHYS 040C, PHYS 040D
   d) BIOL 005A, BIOL 05LA, BIOL 005B, BIOL 005C

2. Upper-division requirements (66–67 units)
   A minimum grade of “C-” for any upper-division course used to fulfill the requirements for the Environmental Chemistry option.
   b) One course from ENSC 104/SWSC 104 or GEO 137
   c) Two additional courses from CHEM 150B, CHEM 197, CHEM 199, ENSC 100, ENSC 101, ENSC 102, ENSC 104/SWSC 104, ENSC 140/SWSC 140, ENSC 142, ENSC 155, ENSC 163, ENTX 101, GEO 132, GEO 137, GEO 157 (4 units total from CHEM 197 and/or CHEM 199)

Environmental Chemistry Option

Students must consult with the undergraduate advisor before electing this option.

1. Lower-division requirements (76–78 units)
   a) CHEM 001A, CHEM 001B, CHEM 001C, CHEM 01LB, CHEM 01HC, CHEM 005
   b) MATH 009A or MATH 008B, MATH 009B, MATH 009C, MATH 010A, MATH 010B, MATH 046
   c) PHYS 040A, PHYS 040B, PHYS 040C, PHYS 040D
   d) BIOL 005A, BIOL 05LA, BIOL 005B, BIOL 005C

2. Upper-division requirements (66–67 units)
   A minimum grade of “C-” for any upper-division course used to fulfill the requirements for the Environmental Chemistry option.
   b) One course from ENSC 104/SWSC 104 or GEO 137
   c) Two additional courses from CHEM 150B, CHEM 197, CHEM 199, ENSC 100, ENSC 101, ENSC 102, ENSC 104/SWSC 104, ENSC 140/SWSC 140, ENSC 142, ENSC 155, ENSC 163, ENTX 101, GEO 132, GEO 137, GEO 157 (4 units total from CHEM 197 and/or CHEM 199)
JUSTIFICATION:

1) Reordering of the PHYS 002ABC and PHYS 02LABC series.
   Justification: Change required to be in compliance with other programs’ course catalog descriptions.

2) The separation of CHEM 001A, CHEM 001B, and CHEM 001C into two distinct co-requisite courses (lectures and labs) will increase the lower-division requirement unit counts by 3 in each of our 4 tracks: BA, BS, BS with Chemical Physics option, and BS with Environmental Science option. The lectures will now include an integrated discussion section worth 4 units and the labs will be worth 1 unit.
   Justification: a) currently resources are wasted requiring both the lecture and labs to be repeated for the significant number (~30%) of students who fail the lecture portion; b) improved articulation of courses for transfer students since most other colleges have separate lecture and lab courses (currently students who transfer credit for only lab or lecture are forced to repeat both); c) to maintain the desired correlation between lecture and lab material these courses will be required co-requisites.

3) Alteration of the BA degree and all three BS degree tracks (BS, BS with Chemical Physics option, and BS with Environmental Science option) to allow the newly approved MATH 008B to be taken in place of MATH 009A.
   Justification: Change required to accommodate the newly approved Math track: MATH 008A, MATH 008B, MATH 009B, MATH 009C.

APPROVALS:

Approved by the faculty of the Department of Chemistry: November 15, 2005
Approved by the faculty of the College of Natural and Agricultural Sciences: April 4, 2006
Approved by the Executive Committee of the College of Natural and Agricultural Sciences: April 4, 2006
Approved by the Committee on Educational Policy: May 2, 2006