INTRODUCTORY CHEMISTRY COURSES (Rev 5/1/2017)

CHEM 103 & 104 – General Chemistry I (4 credits) & II (5 credits); both courses offered Fall, Spring and Summer semesters

This course sequence is the traditional one-year introductory chemistry sequence that the majority of students needing chemistry will take. CHEM 103 is taken first, followed by CHEM 104.

- ***Math Requirement:*** Placement out of MATH 112 on UW Math Placement Test, which means at least 470 on MFUND (math fundamentals) and 540 on AALG (advanced algebra); completion of MATH 112, MATH 114, MATH 171 or equivalent also satisfies the prerequisite, as does calculus credit from AP exams.
- ***HS Chem:*** The vast majority of students have had at least one year of high school chemistry.
- ***Average Math ACT:*** 29 (5 year average)

CHEM 108 – Chemistry in Our World (5 credits; offered Spring semesters only)

This course teaches chemistry through contemporary topics such as air quality, energy, food, plastics, nuclear chemistry, and global climate change. This course is intended for students who need just one semester of chemistry with laboratory. Students majoring in nursing, business, life sciences communication, agricultural and applied economics, rehabilitation psychology, and wildlife ecology are among those who elect CHEM 108. This course (like all chemistry courses) counts towards College of Letters & Science breadth requirements in physical science. CHEM 108 does not serve as a prerequisite for further chemistry courses.

- ***Math Requirement:*** There are no math prerequisites for CHEM 108.
- ***HS Chem:*** More than 80% of CHEM 108 students have had one year of high school chemistry.

CHEM 109 – Advanced General Chemistry (5 credits; offered Fall semesters only)

This course is an accelerated introductory chemistry course recommended for students with an especially strong high school chemistry and math background. CHEM 109 covers the breadth of the material from CHEM 103/104, skipping the more basic concepts and focusing in depth on the more comprehensive topics, such as equilibrium, thermodynamics, acid and base chemistry, and electrochemistry. Students are expected and need to have strong college-level study skills for this course.

- ***Math Requirement:*** Placement into MATH 221 on UW Math Placement test, which means at least 470 on MFUND (math fundamentals), 540 on AALG (advanced algebra), and 560 on TAG (trigonometry and geometry); credit for calculus from course work or AP exams also satisfies the prerequisite.
- ***HS Chem:*** About 83% of CHEM 109 students have had two or more years of high school chemistry, often including AP Chemistry. Students with one year of high school chemistry may take CHEM 109, but they will need to work harder to perform satisfactorily.
- ***Average Math ACT:*** 31 (5 year average)

CHEM 109-3 Honors (5 credits; offered Fall semesters only)

The honors section of CHEM 109 provides a modern introduction to chemical principles within the context of current research themes, especially energy and global climate change. Fundamental concepts are applied to issues such as energy production and consumption, as well as their impact on the environment. Students need authorization from the Chemistry Consultant to enroll.

- ***Math Requirement:*** Placement into MATH 221 (1st semester calculus) or higher and a 30 or higher on the ACT math component. Students without MATH 221 credit should enroll concurrently.
- ***HS Chem:*** Two years of high school chemistry is required, with the second year being AP.
- ***HS Physics:*** One year of high school physics is strongly recommended.
- ***Average Math ACT:*** 32 (5 year average).

CHEM 115 & 116 (5 credits each; 115 offered Fall only; 116 spring only)

CHEM 115/116 is a two-semester honors sequence designed for well prepared and highly motivated students with an interest in science or engineering. The sequence satisfies both the general and analytical chemistry requirements for any major on campus. CHEM 115 includes quantum theory, molecular structure and bonding, kinetic theory of gases and phase transitions. CHEM 116 includes thermodynamics, chemical and physical equilibrium, kinetics and spectroscopy, in addition to a research-based laboratory experience. Course enrollment is by invitation.

- ***Math Requirement:*** Placement into MATH 222 (second semester calculus) or higher and a 33 or higher on the ACT Math and ACT composite. First semester calculus proficiency required.
- ***HS Chem:*** One year of high school chemistry is required; two years are recommended.
- ***HS Physics:*** One year of high school physics is strongly recommended.
- ***Average Math ACT:*** 35 (5 year average)