**Requirements for Teachers of Chemistry, Grades 9-12** (MAY 2023)

*Chemistry (Major), Secondary Education Minor*

**Requirements for MN licensure in Chemistry 9-12. A BA degree in any subject area is required to apply for this license. (This is not a major.)**

\_\_\_\_\_\_\_ CHEM 125 Intro/Chemistry Structures and Properties (4 credits)

\_\_\_\_\_\_\_ CHEM 250 Reactions of Nucleophiles and Electrophiles (React. I) (4 credits)

\_\_\_\_\_\_\_ CHEM 251 Intermediate Reactions of Nucleophiles and Electrophiles (React. II) (4 credits)

\_\_\_\_\_\_\_ CHEM 255 Macro Chem Analysis (4 credits)

\_\_\_\_\_\_\_ CHEM 315 Advanced Reactions (React. III) (4 credits)

\_\_\_\_\_\_\_ CHEM 349 Chem in Experience (1 credits)

\_\_\_\_\_\_\_. CHEM 360 Chem Capstone (2 credits)

5 additional upper division CHEM credits

**CHEM LABS**

\_\_\_\_\_\_\_ CHEM 201 Purification/Separation Lab I (0-1 credit)

\_\_\_\_\_\_\_ CHEM 202 Purification/Chromatography Lab II (0-1 credit)

\_\_\_\_\_\_\_ CHEM 203 Synthesis Lab (0-1 credit)

\_\_\_\_\_\_\_ CHEM 205 Measurement Lab (0-1 credit)

(The following additional courses are required for a **CHEM major**: CHEM 305, 318, 3 two-credit in-depth courses, and MATH 119, 120, PHYS 191 and 200 OR PHYS 105 and 106. The CHEM major is not required for the licensure, provided a major in another subject area is completed.)

**Foundational Education Courses Required for Licensure** (41 credits)

\_\_\_\_\_\_\_ EDUC 111 Introduction to Teaching and learning in a Diverse World (4 credits) **[CI]**

\_\_\_\_\_\_\_ First-Year Teacher Shadow Field Experience

\_\_\_\_\_\_\_ EDUC 203 Human Growth and Development (4 credits) Pre-req: EDUC 111 **[SW, J1]**

\_\_\_\_\_\_\_ EDUC 213 Clinical Experience 5-8/K-12 Diversity Immersion (1 or 2 credits)

* Pre-req: EDUC 111 & First-Year Teacher Shadow

\_\_\_\_\_\_\_ EDUC 305 Human Exceptionalities (1 credit) Pre-req: EDUC 203

\_\_\_\_\_\_\_ EDUC 352 Teaching Reading in the Middle/Secondary Classroom (1-2 credits) Pre-req: EDUC 379

\_\_\_\_\_\_\_ EDUC 355 Science Pedagogy 9-12 (4 credits) **(Fall Semester, Even Years)**

* Take concurrently with EDUC 379A & acceptance into the Education minor

\_\_\_\_\_\_\_ EDUC 359 Issues in Education (1 credit) Take semester prior to student teaching

* Pre-req: unconditional acceptance into the Education Program

\_\_\_\_\_\_\_ EDUC 379A Educational Psychology (4 credits) Pre-req: EDUC 203 **[SW, TF, QR]**

\_\_\_\_\_\_\_ EDUC 390 Ethics in Human Relations (4 credits) **[CS, BN]**

* Pre-req: Acceptance into the Education Program)

\_\_\_\_\_\_\_ Passing Scores on the MTLE content and pedagogy tests for this licensure area.

*Capstone Experience* Pre-req: successful completion of all requirements

\_\_\_\_\_\_\_ EDUC 365 Student Teaching 9-12 (16 credits)