

CHEMISTRY AND EDUCATIONAL STUDIES: *DEPARTMENT-SPECIFIC REQUIREMENTS CHART*

	<u>Educational Studies Major,</u> <i>Secondary Chemistry Teacher Certification</i>	Chemistry and Educational Studies Course <u>Special</u> <u>Major</u>
Chemistry Requirements (CHEM)	Total: 5 credits — CHEM 010/010H: General Chemistry — CHEM 022: Organic Chemistry I — CHEM 056: Inorganic Chemistry — 2 additional credits of choice	Total: 7 credits — Five chemistry credits, plus any prerequisites necessary. — One of these courses must be numbered 040 or higher. — Research credits (094, 096, 180) may not be used to fulfill the requirements. — At least four of the five credits must be earned at Swarthmore College.
Thesis (EDUC/CHEM)	Total: 1 credit — Topic: Chemistry pedagogy	Total: 1 credit — Topic: Chemistry pedagogy
Additional Requirements	Total: 4 credits — PHYS 003: General Physics I — PHYS 004: General Physics II* — MATH 015 — MATH 025 — Assist in Intro. Chem. lab once a week for 2 semesters** *or equivalent course	Total: 4 credits — PHYS 003: General Physics I0 — PHYS 004: General Physics II* — MATH 015 — MATH 025 *or equivalent course
Educational Studies Requirements	Total: 9.5 credits in Educational Studies Refer to description of general Educational Studies Secondary Certification Requirements .	Total: 5 credits in Educational Studies
Strongly Recommended	— EDUC 075 Introduction to Science Pedagogy	

For more information,
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** For students considering Chemistry or Physics certification, given the pandemic circumstances, please note that our requirement to work as a lab assistant or science associate may be met by other means provided by the department during your student teaching experience. Please speak to an advisor in Educational Studies.

CHEMISTRY AND EDUCATIONAL STUDIES: *DEPARTMENT-SPECIFIC REQUIREMENTS CHART*

	Special Major Chemistry and Educational Studies, Secondary Chemistry Teacher Certification	Chemistry Major and Educational Studies Minor, Secondary Chemistry Teacher Certification	Biochemistry Special Major & Educational Studies Minor, Secondary Chemistry Teacher Certification
Chemistry Requirements (CHEM)	<p>Total: 5 credits</p> <ul style="list-style-type: none"> — CHEM 010/010H: General Chemistry — CHEM 022: Organic Chemistry I — CHEM 056: Inorganic Chemistry — 2 additional credits of choice, one of which must be numbered above 040. — The required five credits should not include any prerequisites necessary for the classes listed above. — Research credits (094, 096, 180) may not be used to fulfill the requirements. — At least four of the five credits must be earned at Swarthmore College. 	<p>Total: 10 credits</p> <ul style="list-style-type: none"> — CHEM 010/010H: General Chemistry — CHEM 022: Organic Chemistry I — CHEM 032: Organic Chemistry II — CHEM 038: Biological Chemistry — CHEM 043: Analytical Methods and Instrumentation — CHEM 044: Phys. Chem.: Atoms, Molecules and Spectro. — CHEM 055: Physical Chemistry: Energy and Change — CHEM 056: Inorganic Chemistry — CHEM 065: Advanced Experimental Chemistry: Physical <i>or</i> CHEM 066: Advanced Experimental Chemistry: Inorganic — 1 single-credit 100-level seminar 	<p>Total: 8 credits</p> <ul style="list-style-type: none"> — CHEM 010/010H: General Chemistry — CHEM 022: Organic Chemistry I — CHEM 032: Organic Chemistry II — CHEM 038: Biological Chemistry — CHEM 044: Phys. Chem.: Atoms, Molecules and Spectro. <i>or</i> CHEM 055: Physical Chemistry: Energy and Change — CHEM 048: Biological Chemistry II — CHEM 058: Advanced Experimental Biological Chemistry <i>or</i> CHEM 058B: Computational/Experimental Biochemistry — 1 biochemically-related 100-level seminar (e.g., 106, 108, 110, 112, 118)
Thesis (EDUC/CHEM)	<p>Total: 1 credit</p> <ul style="list-style-type: none"> — Topic: Chemistry pedagogy 	Thesis/examination details provided by Major Department	Thesis/examination details provided by Major Department
Additional Departmental Requirements	<p>Total: 4 credits</p> <ul style="list-style-type: none"> — PHYS 003: General Physics I — PHYS 004: General Physics II* — MATH 015 — MATH 025 — Assist in Intro. Chem. lab once a week for 2 semesters** 	<p>Total: 5 credits</p> <ul style="list-style-type: none"> — PHYS 003: General Physics I — PHYS 004: General Physics II* — MATH 015 — MATH 025 — MATH 033, 034, or 035 — Assist in Intro. Chem. lab once a week for 2 semesters** 	<p>Total: 7 credits</p> <ul style="list-style-type: none"> — PHYS 003: General Physics I — PHYS 004: General Physics II* — MATH 015 — MATH 025 (for CHEM 044) — MATH 033, 034, or 035 (for CHEM 055) — 2 intermediate-level biology courses (with labs) <i>or</i> an intermediate-level biology course (with lab) and a 100-level biology seminar — Assist in Intro. Chem. lab once a week for 2 semesters**
Strongly Recommended	— EDUC 075 Introduction to Science Pedagogy	— EDUC 075 Introduction to Science Pedagogy	— EDUC 075 Introduction to Science Pedagogy

Educational Studies Requirements	Total: 9.5 credits in Educational Studies Refer to description of general Educational Studies Secondary Certification Requirements .	Total: 9.5 credits in Educational Studies Refer to description of general Educational Studies Secondary Certification Requirements .	Total: 9.5 credits in Educational Studies Refer to description of general Educational Studies Secondary Certification Requirements .
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*or equivalent course

** For students considering Chemistry or Physics certification, given the pandemic circumstances, please note that our requirement to work as a lab assistant or science associate may be met by other means provided by the department during your student teaching experience. Please speak to an advisor in Educational Studies.

Additional Notes:

1. Please note that this chart contains 2 pages.
2. This chart lists only the Chemistry Department requirements for special majors and/or secondary certification. The required Educational Studies courses are described elsewhere.
3. Occasionally departments have special offerings that may fulfill the required content. Please discuss such possibilities with your advisor or the department chair.
4. The Department of Educational Studies works closely with each individual student to determine a semester-by-semester plan.
5. Please see the Chair of the Department of Educational Studies to design a plan that includes Honors.

Mission Statement for Secondary Chemistry Certification Program

The Secondary Chemistry certification program engages students in the investigation of educational theory, policy, research, and practice. Candidates for certification develop their pedagogical content knowledge in chemistry as well as their general knowledge of the subject. The program encourages undergraduates to think critically and creatively about the processes of teaching and adolescent learning and about the place of education in society. The program is committed to preparing students to employ evidence-based practice. Instructional practice, including the use of technology and assessments, are designed to enable preservice teachers to meet the needs of all students, including those with learning differences, and with consideration for racial, ethnic, linguistic and/or social economic diversity.