

TEACHING MAJOR IN PHYSICAL SCIENCE, CHEMISTRY CONCENTRATION AREA STUDENT HANDBOOK

This handbook is for students electing the Chemistry Option of the Teaching Major in Physical Science 74-75 hour (middle school and high school option) or 56-57 hour (high school only option) programs. The specific program information is on pages 233 and 234 of 2002-2004 Undergraduate Catalog.

Please note that this handbook is intended to be advisory only; it is your responsibility to meet all the requirements as summarized in the Undergraduate Catalog and on your DAPR.

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and office number:**

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FRESHMAN YEAR HIGHLIGHTS (See the following two pages for sample programs)

1. Let your Academic Advisor know as soon as possible that you want to pursue a professional education program in Physical Science.
2. Enroll in SCI 150 the first term you declare a Teaching Major . Note that this course is offered only during the fall term
3. Start your CHEM and MATHS courses your first term.
4. Meet with the departmental advisor for teaching majors during your first term. Your advisor will help you prepare for your first decision point meeting and provide you with the names of the faculty who will comprise your departmental “decision points” committee. Your first decision point meeting will be near the end of your second semester of study.
5. Save the artifacts and answer keys (rubrics) needed for your first “decision points” meeting (see page 6). These are:
 - a. final exam practice sets (PSS) from Chem 111 and 112
 - b. final exam from Chem 111 and 112 if possible
 - c. One each computer- and noncomputer-based lab report from Chem 111 and 112

This is a sample student program including UCC, program and elective courses.

Teaching Major in Physical Science 56-57 hour (high school only option) program.

FALL

FRESHMAN

| <u>Course</u> | Hrs. |
|---------------|------|
| Chem 111 | 4 |
| Maths 165 | 4 |
| UCC | 3 |
| Sci 150 | 3 |
| UCC | 3 |
| Sub Total | 17 |

SPRING

| <u>Course</u> | Hrs |
|---------------|-----|
| Chem 112 | 4 |
| Maths 166 | 4 |
| UCC | 3 |
| UCC | 3 |
| UCC | 3 |

SOPHOMORE

| <u>Course</u> | Hrs. |
|---------------|------|
| Chem 231 | 4 |
| Phycs 120 | 5 |
| UCC | 3 |
| Edmul 205 | 3 |
| Edpsy 251 | 3 |
| Sub Total | 18 |

Sub Total 17

| <u>Course</u> | Hrs |
|---------------|-----|
| Chem 232 | 4 |
| Chem 225 | 3 |
| Phycs 122 | 5 |
| UCC | 3 |
| UCC | 2 |

JUNIOR

| <u>Course</u> | Hrs. |
|---------------|------|
| Chem 463 | 3 |
| Chem 470 | 2 |
| Phycs 260 | 3 |
| Phycs 262 | 1 |
| UCC | 3 |
| Edpsy 290 | 3 |
| Sub Total | 15 |

Sub Total 17

| <u>Course</u> | Hrs. |
|---------------|------|
| Chem 450 | 4 |
| Chem 470 | 1 |
| UCC | 3 |
| UCC | 3 |
| Sci 395 | 3 |
| Edfon 420 | 3 |

SENIOR

| <u>Course</u> | Hrs. |
|---------------|------|
| Chem 344 | 4 |
| Edsec 380 | 3 |
| Edjhm 385 | 3 |
| Sci 396 | 3 |
| UCC | 3 |
| Sub Total | 16 |

Sub total 17

| | |
|-----------|---|
| Edsec 460 | 6 |
| Edjhm 460 | 6 |

Sub Total 12

Grand Total 129 hrs.

This is a sample student program including UCC, program and elective courses.
Teaching Major in Physical Science 74-75 hour (high school and middle school option) program

74-75 Hour Option

| FALL | | SPRING | |
|------------------|-----------|---------------|-----------|
| <u>FRESHMAN</u> | | | |
| <u>Course</u> | Hrs. | <u>Course</u> | Hrs. |
| Chem 111 | 4 | Chem 112 | 4 |
| Maths 165 | 4 | Maths 166 | 4 |
| UCC | 3 | UCC | 3 |
| Sci 150 | 3 | UCC | 3 |
| UCC | 3 | UCC | 3 |
| | | Bio 111 | 4 |
| | Sub Total | | Sub Total |
| | 17 | | 18 |
| <u>SOPHOMORE</u> | | | |
| <u>Course</u> | Hrs. | <u>Course</u> | Hrs. |
| Chem 231 | 4 | | |
| Phycs 120 | 5 | | |
| Edmul 205 | 3 | | |
| Edpsy 251 | 3 | | |
| | Sub Total | Chem 232 | 4 |
| | 15 | Chem 225 | 3 |
| | | Phycs 122 | 5 |
| | | Bio 112 | 4 |
| | | UCC | 2 |
| | | | Sub Total |
| | | | 18 |
| <u>JUNIOR</u> | | | |
| <u>Course</u> | Hrs. | <u>Course</u> | Hrs. |
| Chem 463 | 3 | | |
| Phycs 260 | 3 | | |
| Phycs 262 | 1 | | |
| UCC | 6 | | |
| Edpsy 290 | 3 | | |
| | Sub total | Chem 450 | 4 |
| | 16 | Chem 470 | 3 |
| | | Geog 230 | 3 |
| | | Edfon 420 | 3 |
| | | Sci 395 | 3 |
| | | | Sub Total |
| | | | 16 |
| <u>SENIOR</u> | | | |
| <u>Course</u> | Hrs. | <u>Course</u> | Hrs. |
| Chem 344 | 4 | | |
| Edsec 380 | 3 | | |
| Edjhm 385 | 3 | | |
| Sci 396 | 3 | | |
| Geol 102 | 3 | Edsec 460 | 6 |
| | Sub Total | Edjhm 460 | 6 |
| | 16 | | |
| | | | Sub Total |
| | | | 12 |
| <u>FIFTH YR</u> | | | |
| <u>Course</u> | Hrs. | | |
| UCC | 12 | | |
| Astro 120 | 3 | | |
| Astro121 | 1 | | |
| | Sub Total | | |
| | 16 | GRAND TOTAL | 144 hrs. |

Anticipated offerings: for the most recent schedules, check the Current Schedule of Classes and/or <http://www.bsu.edu/apps/courseplanner/courseschedule.asp>

| | Fall | Spring | 1 st SS | 2 nd SS | Sum. Sem. |
|-------------------------------|------|--------|--------------------|--------------------|-----------|
| ASTRO 120 Stars Stel Sys | X | | | | |
| ASTRO 121 Honrs Astr Lab | X | | | | |
| BIO 111 Princ Bio 1 | X | X | X | | |
| BIO 112 Princ Bio 2 | X | X | | X | |
| GEOL 102 Earth Time (3 hr) | X | X | | X | |
| GEOG 230 Elm Meteor (3 hr) | | | | | |
| CHEM 111 Gen Chem 1 | X | X | X | | |
| CHEM 112 Gen Chem 2 | X | X | | X | |
| MATHS 165 Calculus 1 | X | X | | | X |
| MATHS 166 Calculus 2 | X | X | | | X |
| PHYCS 120 Gen Phycs 1 | X | X | X | | |
| PHYCS 122 Gen Phycs 2 | X | X | | X | |
| PHYCS 260 Intro Modern (& QM) | X | | | | |
| PHYCS 262 Modern lab | | X | | | |
| CHEM 225 Analysis | X | X | | X | |
| CHEM 231 Organic 1 | X | X | X | | |
| CHEM 232 Organic 2 | | X | | X | |
| CHEM 344 Phys Chem 1 | X | | | | |
| CHEM 369 | X | X | X | X | X |
| CHEM 450 Inorganic | | X | | | |
| CHEM 463 Pm Biochm 1 | X | | | | |
| CHEM 470 | X | X | X | X | X |
| HONRS 499 | X | X | X | X | X |

Physical Science, 56-57 Hour Option, Chemistry Emphasis, Decision Point Document

| Decision Point # | 1 | 2 | 3 | 4 |
|--|--|--|--|---------------------------|
| Proposed Time for Decision Point | end of 1 st year | end of 2 nd year | term prior to student teaching | end of last term |
| Significance/Rationale | initial identification with Teacher Educ. program | admission to teacher Educ. Program; take 200 level Educ. Courses | ready to student teacher | recommended for licensure |
| Teacher Educ. Requirements | Sci. 150, grade of "C" or better | Edmul 205, Edpsy 251 | Sci 395, 39; Edpsy 290, Edsec 380, Edjhm 386, Edfon 420 | Edsec 460, Edjhm 460 |
| Content Requirements (courses) | Chem 111, 112; Maths 165 | Chem 225, 231, 232; Maths 166; Phycs 120, 122 | remaining math/physical science courses | completed |
| Other requirements: standardized exams and grades | 6. ACS exam score of 22 or more. "C" or better in courses above. | ETS AP chemistry exam score of 3 or more. "C" or better in courses above. | Overall GPA of 2.5 or more. "C or better in courses above. | |
| Content Portfolio (all artifacts should include both the student work and the instructors assessment document/rubric and class averages) (minimum requirements) | <ol style="list-style-type: none"> Final exam practice sets (PSS) from Chem 111 and 112 Final exam from Chem 111 and 112 if possible One each computer- and noncomputer-based lab report from Chem 111 and 112 Reflective statement regarding progress in course work and continuing interest in teaching | <ol style="list-style-type: none"> Final exams from Chem 231 and Maths 165, representative exam from Chem 232 Evidence of involvement in Chem 111 or 112 PSS sessions, or SI/tutoring activities Chem 231/232 lab book Reflective statement regarding progress in content area | <ol style="list-style-type: none"> Two final exams from Chem 344, 450, 463 Laboratory report from Chem 344 Copy (such as a video tape) of demonstrations presented in Sci 395, 396 or to gen. chem. classes Evidence of completed research or creative project including notebook and power point versions of presentations made. Reflective statement regarding progress in physical science and mathematics | |
| Standards of importance for the presentation and evaluation of the Content Portfolio. (from Appendix C of PSB Standards Document) | <ol style="list-style-type: none"> Atomic structure & isotopes Structure of matter, Lewis and VSEPR methods, phase diagrams Chemical reactions, writing and balancing Conservation of energy and the increase in disorder, use of free energy, enthalpy and entropy | <ol style="list-style-type: none"> Structure of matter, structure and bonding of carbon compounds. Reactions of carbon compounds including radical, substitution and addition reactions Interactions of energy and matter, M.O. diagrams of molecules to help explain spectroscopic and chemical properties. | <ol style="list-style-type: none"> Structure of atoms Structure and properties of matter Chemical reactions Conservation of matter and increase in disorder | |
| Evaluation (assessment) of content portfolio (2-3 person committee assigned by the Chem. Dept.) Rankings: Unsatisfactory -disorganized approach to problem solving, numerous uncorrected content area errors. Basic - few content errors, knowledge and concepts not integrated Proficient - solid and integrated knowledge Distinguished - solid and integrated knowledge with evidence of continued learning | <ol style="list-style-type: none"> Evidence of abilities to organize and present portfolio items. Evidence of progress in problem solving and writing skills Evidence of use of computers to acquire and present data Evidence of an ability to respond to oral questions such as: where do you think you made the most progress this year? Problem solving? Writing? Integrating basic principles and concepts? | <ol style="list-style-type: none"> Evidence of abilities to organize and present portfolio items. Evidence of progress in problem solving and writing skills Evidence of use of computers to acquire and present data Evidence of an ability to respond to oral questions such as: where do you think you made the most progress this year? Problem solving? Writing? Integrating basic principles and concepts? | <ol style="list-style-type: none"> Evidence of abilities to organize and present portfolio items Evidence of progress in problem solving and writing skills Evidence of abilities to carry out a research project and keep detailed records Evidence of abilities to use technology to present information Evidence of being able to describe complex phenomena and/or processes for solving complex problems in Chem 344, 450, 463 | |

Approved July 10, 2002