**Purdue Northwest Curriculum Document Coversheet**

|  |  |  |  |
| --- | --- | --- | --- |
| **Document No:**  (According to [Instruction](http://faculty.pnw.edu/blog/curriculum-document-approval-procedures/)s[[1]](#footnote-1)) | CES 18-07 REV CONCEN ENVIRONMENTAL SCIENCE | **Approval by Faculty Senate:**  (Leave Blank) | 12/14/18 |
| **Proposed Effective Date** | Spring 2019 | **Date Reviewed by Senate Curriculum**  **Committee:**  (Leave blank) | 11/9/18 |
| **Submitting Department:**  (Name of both Dept & College/School ) | Chemistry & Physics Department  College of Engineering and Sciences | **Name(s) of Library Staff Consulted:**  (NA if not required) |  |
| **Date Reviewed by Department** | September 21, 2018 |  |  |
| **Submission Date:**  (Date sent to College/School Curr Comm after Dept Review) |  | **Will New Library**  **Resources Used?** | **Yes** **No**  Double-click to check Yes / No. |
| **Date Reviewed by College/School Curriculum Committee** |  | **Form 40 Needed?**  (Double-click one box.)  Registrar will complete Form 40 **after** Senate approval of document. | **Yes** New courses or any course change, check **YES**  **No** For **all other** curriculum matters, check **NO**. |
| **Contact Person(s):**  (Name & Title) | Purna Das, Department Head |  |  |

Unless marked “Leave blank” all parts of this form must be filled in **before** sending to Secretary of the Faculty Senate.

|  |
| --- |
| **Task (check all that apply and fill out sections appropriate for each change).**  Program/Concentration Change or New Program/Concentration Proposal: Complete Section I, III, & IV  Minor Change or New Minor Proposal: Complete Section I (delete sections III & IV)  Certificate Change or New Certificate Proposal: Complete Section I (delete sections III & IV)  Course Change or New Course Proposal: Complete Section II (delete sections III & IV) |
| **Program name**. Physical Sciences – Environmental Science Concentration |
| **Degree name(s).** (If applicable.) Bachelor of Science |

## Section I: This section is for changes in programs, minors and certificates

|  |
| --- |
| **List the major changes in each program of study, minor or certificate.**  Minor changes to expand alternative offerings of freshman orientation and seminar courses. |
| **Impact on Students.** (State “N/A” if proposal will not greatly affect students.)  Students will have more flexibility in choosing their disciplinary focus (CHM or PHYS) by as they pursue the concentration.. |
| **Impact on University Resources.** (State “N/A” if proposal will not require new resources, faculty or funds.)  N/A |
| **Impact on other Academic Units.** (State “N/A” if proposal will not affect other units.)(Include name of person in affected area discussed with)  N/A |

## Section II: This section is for changes in courses only

|  |
| --- |
| **Subject.** (Brief description of proposed change, addition or deletion.) |
| **Justification.** (Briefly list main reasons for proposed change, addition or deletion.) |

Use the **Current** and **Proposed** spaces below for course changes only. Otherwise, mark “N/A”

|  |  |  |
| --- | --- | --- |
| **Current:** (Course changes: include entire present catalog information. Leave blank if new course)  N/A | | **Proposed:** (Course changes: include entire new catalog information.)  N/A |
| **Is this course also:** | **General Education** | **Currently Designated ExL (see** [**instructions[[2]](#footnote-2)**](http://faculty.pnw.edu/blog/curriculum-document-approval-procedures/)**)** |

|  |
| --- |
| **Course Objectives / Learning Outcomes.** (New courses only. List main outcomes. If lengthy, attach separate page.)  1.  2.  3. |
| **Impact on Students.** (State “N/A” if proposal will not greatly affect students.)  N/A |
| **Impact on University Resources.** (State “N/A” if proposal will not require new resources, faculty or funds.)  N/A |
| **Impact on other Academic Units.** (State “N/A” if proposal will not affect other units.) (Include name of person in affected area this was discussed with.)  N/A |

(Boxes will expand and spill over onto next page to accommodate your typing.)

***Document No:***

## Section III: PLAN OF STUDY REVISION

### Degree Name: Physical Sciences, BS, Concentration: Environmental Science

### Degree Requirements

* 120 Credit Hours
* Minimum grade of C- required for all College of Engineering and Sciences courses
* Minimum GPA of 2.0 required for graduation
* Certain courses may only be available at one campus location

### PNW General Education Core

| **Core Categories** | **Credits** | **Courses:** Enter “Select from list” or designate course(s) from list |
| --- | --- | --- |
| English Composition | 6 | Any two Gen Ed English Composition courses |
| Speech Communication | 3 | Select from the Speech Communication Core list |
| Quantitative Reasoning | 5 | MA 16300 - Integrated Calculus Analysis Geometry I Or MA 16031 - Calculus I For Life Sciences |
| Natural Sciences | 8 | * PHYS 15200 - Mechanics Or PHYS 22000 - General Physics * CHM 11500 - General Chemistry |
| Technology | 3 | Select from the Technology Core list |
| Humanities | 3 | Select from the Humanities Core list |
| Social Sciences | 3 | Select from the Social Sciences Core list |
| Additional credits | 3 |  |
| General Ed Elective |  |  |
| First-Year Experience (FYE) | 1 | CHM 19400 - Freshman Chemistry Orientation Or PHYS 19400 - Freshman Physics Orientation |
| **Total** (minimum) | **32** |  |

### Other Required Courses

#### **Restricted Electives** 12 Credits

Choose four (4) from:

CHM 33300 - Principles Of Biochemistry

BIOL 40500 - Conservation Biology

BIOL 41300 - Aquatic Ecology

BIOL 41400 - Invasive Species Ecology

EAS 22200 - Weather Studies

EAS 22300 - Ocean Studies

ENGL 22000 - Technical Report Writing

POL 22100 - Introduction To Science And Government

POL 22300 - Introduction To Environmental Policy

POL 30500 - Technology And Society

(Additional courses may be used with advisor permission.)

Free Electives 5 credits

Student may choose any course to fulfill this requirement

\_\_\_\_\_\_

Total Other Required Courses **17 credits**

### Core: Required Courses

BIOL 10100 – Introductory Biology 4 credits

BIOL 10200 - Introductory Biology 4 credits

CHM 11600 - General Chemistry 4 credits

CHM 26505 - Organic Chemistry 3 credits

CHM 26300 - Organic Chemistry Laboratory 1 credit

CHM 26605 - Organic Chemistry 3 credits

CHM 26400 - Organic Chemistry Laboratory 1 credit

CHM 29400 - Sophomore Chemistry Seminar or PHYS 29400 - Sophomore 1 credit

Physics Seminar

CHM 49400 - Junior-Senior Chemistry Seminar or PHYS 49400 - Junior-Senior 1 credit

Physics Seminar

CHM 49800 - Research In Chemistry or PHYS 46900 - Research in Physics (2) 2 credits

MA 16400 - Integrated Calculus Analysis Geometry II 5 credits

or MA 16032 - Calculus II For Life Sciences

PHYS 25100 - Heat, Electricity And Optics 5 credits

or PHYS 22100 - General Physics

STAT 30100 - Elementary Statistical Methods 3 credits

\_\_\_\_\_\_

Total **34 credits**

### Concentration

BIOL 31600 - Basic Microbiology 4 credits

BIOL 33300 – Ecology 4 credits

CHM 32100 - Analytical Chemistry I 4 credits

CHM 32400 - Survey of Environmental Chemistry 3 credits

CHM 42400 - Analytical Chemistry II 4 credits

EAS 11000 - Survey Of Geology 3 credits

EAS 22000 - Survey Of Physical Geography 3 credits

ECON 21000 - Principles Of Economics 3 credits

ECON 31100 - Environmental Economics 3 credits

SCI 13100 - Science And Environmental Issues 3 credits

SCI 20200 - Environmental Science 3 credits

SCI 22000 - Health And Safety 2 credits

\_\_\_\_\_\_

Total Concentration **39 credits**

**Total credits required for baccalaureate degree: \_120\_\_\***

**Note**: Students who choose to take MA 16300, MA 16400, PHYS 15200, and PHYS 25100 can reduce their free electives by five (5) credits to meet the 120 credit hour requirement.

**\***For degree programs that require an excess of 120 credit hours, provide explanation and attach documentation, if appropriate.

## Section IV: For all Program Changes;

## Current Semester by Semester

(Delete if new program)

**Requirements**

**Minimum Grade and Grade Point Average (GPA):**  Minimum grade of C- required for all College of Engineering and Sciences courses; 2.0 GPA

**Experiential Learning (EL):**  One EL course required.  EL courses are noted by (e) next to the course title.

**Milestone Courses noted by (m) next to the course title have been identified as being critical to your success in this field of study.**

Courses that are only offered on one campus will be noted by an **(H)** for Hammond, or **(W)** for Westville.

Please see the Additional Information and Guidelines section below for more information.

**Semester One Total Credits = 17**

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)**  **Yes=X** | **Credits**  **Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| Science and Environmental Issues - **(H) Fall Only** | SCI 13100 (See Note 3) |  | 3 | C- |  |
| Calculus I for Life Sciences | MA 16031 (Also allowed MA 16300 - Integrated Calculus Analysis Geometry I) (See Note 1) | X | 3 | C- | MA 15300 and MA 15400; or MA 15900; or ALEKS Placement 075 |
| General Chemistry I | CHM 11500 | X | 4 | C- | MA 15300 |
| Survey of Geology - **Fall Only** | EAS 11000 |  | 3 | C- |  |
| English Composition 1 | Any Gen Ed English Composition course | X | 3 |  |  |
| Freshman Chemistry Orientation - **Fall Only** | CHM 19400 | X | 1 |  |  |

**Semester Two Total Credits = 16**

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)**  **Yes=X** | **Credits**  **Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| Survey of Physical Geography - **Spring Only** | EAS 22000 |  | 3 | C- |  |
| General Chemistry II | CHM 11600 |  | 4 | C- | CHM 11500 |
| Principles of Economics | ECON 21000 |  | 3 |  |  |
| Calculus II for Life Sciences **(m)** | MA 16032 **(m)** (Also allowed MA 16400 - Integrated Calculus Analysis Geometry) (See Note 1) |  | 3 | C- | MA 16031or MA 22300 |
| Environmental Science - **(H) Spring Only** | SCI 20200 (See Note 3) |  | 3 | C- |  |

**Semester Three Total Credits = 14**

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)**  **Yes=X** | **Credits**  **Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| Introductory Biology 1 **(m)** | BIOL 10100 **(m)** |  | 4 | C- | MA 15300 |
| English Composition 2 | Any Gen Ed English Composition course | X | 3 |  |  |
| Speech Communications | Any Gen Ed Speech Communication course | X | 3 |  |  |
| Organic Chemistry - **Fall Only** | CHM 26505 |  | 3 | C- | CHM 11600 |
| Organic Chemistry Lab - **Fall Only** | CHM 26300 |  | 1 | C- | CHM 26505 |

**Semester Four Total Credits = 17**

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)**  **Yes=X** | **Credits**  **Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| Sophomore Chemistry Seminar - **Spring Only** | CHM 29400 |  | 1 | C- | CHM 26505 |
| General Physics | PHYS 22000 (Also allowed PHYS 15200 - Mechanics) (See Note 1) | X | 4 | C- | (MA 14700 and MA 14800) or (MA 15300 and MA 15400) |
| Health and Safety - **Spring Only** | SCI 22000 |  | 2 | C- | CHM 11600 |
| Organic Chemistry - **Spring Only** | CHM 26605 |  | 3 | C- |  |
| Organic Chemistry Lab - **Spring Only** | CHM 26400 |  | 1 | C- | CHM 26300 and CHM 26605 |
| Technology Elective | Any Gen Ed Technology course | X | 3 |  |  |
| Restricted Elective | See Note 2 |  | 3 |  |  |

**Semester Five Total Credits = 15**

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)**  **Yes=X** | **Credits**  **Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| General Physics **(m)** | PHYS 22100 **(m)** (Also allowed PHYS 25100 - Heat, Electricity And Optics) (See Note 1) |  | 4 | C- | PHYS 22000 |
| Introductory Biology 2 | BIOL 10200 |  | 4 | C- | MA 15300 or BIOL 10100 |
| Analytical Chemistry I - **Fall Only** | CHM 32100 |  | 4 | C- | CHM 11600 |
| Survey of Environmental Chemistry - **(H) Fall Only (odd years)** | CHM 32400 |  | 3 | C- | CHM 26505 or CHM 25500 |

**Semester Six Total Credits = 14**

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)**  **Yes=X** | **Credits**  **Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| Analytical Chemistry II - **(H) Spring Only (even years)** | CHM 42400 |  | 4 | C- | CHM 32100 |
| Ecology - **Spring Only** | BIOL 33300 |  | 4 | C- | BIOL 10100 and BIOL 10200 |
| Elementary Statistical Methods | STAT 30100 |  | 3 | C- | MA 14700 or MA 15200 or MA 15300 or MA 21300 |
| Social Science Elective | Any Gen Ed Social Science course | X | 3 |  |  |

**Semester Seven Total Credits = 14**

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)**  **Yes=X** | **Credits**  **Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| Research in Chemistry | CHM 49800 |  | 1 | C- |  |
| Basic Microbiology - **Fall Only** | BIOL 31600 (See Note 4) |  | 4 | C- | BIOL 10100 and BIOL 10200 and CHM 11500 and CHM 11600 |
| Environmental Economics - **Fall Only** | ECON 31100 |  | 3 |  |  |
| Restricted Elective | See Note 2 |  | 3 |  |  |
| Free Elective | Any Free Elective |  | 3 |  |  |

**Semester Eight Total Credits = 13**

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)**  **Yes=X** | **Credits**  **Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| Junior-Senior Chemistry Seminar - **(H) Spring Only** | CHM 49400 |  | 1 | C- | CHM 29400 and CHM 49800 |
| Research in Chemistry **(e)** | CHM 49800 |  | 1 | C- |  |
| Restricted Elective | See Note 2 |  | 3 | C- |  |
| Restricted Elective | See Note 2 |  | 3 | C- |  |
| Gen Ed Elective | Any Gen Ed course | X | 3 |  |  |
| Humanities Elective | Any Gen Ed Humanities course | X | 3 |  |  |

Notes:

***Additional Information and Guidelines***

Upper division chemistry and physics courses are offered on a two year rotation. Contact an advisor to determine the specific semester a particular course will be offered. Certain courses may only be available at one campus location.

Any individual course within CES must be a C- or better, but the avg. G.P.A. for all disciplinary courses (CHM or PHYS courses) must be at least 2.50. At least 4 credit hours of Free Electives must be 30000 level or higher.

**Note 1**: Students who choose to take MA 16300, MA 16400, PHYS 15200, and PHYS 25100 can reduce their free electives by five (5) credits to meet the 120 credit hour requirement.

**Note 2**: Restrictive Elective – CHM 33300 (see note 1 regarding prerequisites), BIOL 40500, BIOL 41300, BIOL 41400, EAS 22200, EAS 22300, ENGL 22000, POL 22100, POL 22300, POL 30500. Additional courses may be used with advisor permission.

**Note 3**: Students must take SCI 13100 and either SCI 10400 or SCI 20200.

**Note 4**: Students must take CHM 32400 and either BIOL 31600 or BIOL 22000.

## Section IV continued: For all Program Changes;

## Proposed Semester by Semester

**Requirements**

**Minimum Grade and Grade Point Average (GPA):**  Minimum grade of C- required for all College of Engineering and Sciences courses; 2.0 GPA

**Experiential Learning (EL):**  One EL course required.  EL courses are noted by (e) next to the course title.

**Milestone Courses noted by (m) next to the course title have been identified as being critical to your success in this field of study.**

Courses that are only offered on one campus will be noted by an **(H)** for Hammond, or **(W)** for Westville.

Please see the Additional Information and Guidelines section below for more information.

**Semester One Total Credits = 17**

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)**  **Yes=X** | **Credits**  **Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| Science and Environmental Issues - **(H) Fall Only** | SCI 13100 (See Note 3) |  | 3 | C- |  |
| Calculus I for Life Sciences | MA 16031 (Also allowed MA 16300 - Integrated Calculus Analysis Geometry I) (See Note 1) | X | 3 | C- | MA 15300 and MA 15400; or MA 15900; or ALEKS Placement 075 |
| General Chemistry I | CHM 11500 | X | 4 | C- | MA 15300 |
| Survey of Geology - **Fall Only** | EAS 11000 |  | 3 | C- |  |
| English Composition 1 | Any Gen Ed English Composition course | X | 3 |  |  |
| Freshman Chemistry Orientation - **Fall Only** | CHM 19400 (Also allowed PHYS 19400 - Freshman Physics Orientation) | X | 1 |  |  |

**Semester Two Total Credits = 16**

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)**  **Yes=X** | **Credits**  **Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| Survey of Physical Geography - **Spring Only** | EAS 22000 |  | 3 | C- |  |
| General Chemistry II | CHM 11600 |  | 4 | C- | CHM 11500 |
| Principles of Economics | ECON 21000 |  | 3 |  |  |
| Calculus II for Life Sciences | MA 16032 **(m)** (Also allowed MA 16400 - Integrated Calculus Analysis Geometry) (See Note 1) |  | 3 | C- | MA 16031or MA 22300 |
| Environmental Science - **(H) Spring Only** | SCI 20200 (See Note 3) |  | 3 | C- |  |

**Semester Three Total Credits = 14**

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)**  **Yes=X** | **Credits**  **Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| Introductory Biology 1 **(m)** | BIOL 10100 **(m)** |  | 4 | C- | MA 15300 |
| English Composition 2 | Any Gen Ed English Composition course | X | 3 |  |  |
| Speech Communications | Any Gen Ed Speech Communication course | X | 3 |  |  |
| Organic Chemistry - **Fall Only** | CHM 26505 |  | 3 | C- | CHM 11600 |
| Organic Chemistry Lab - **Fall Only** | CHM 26300 |  | 1 | C- | CHM 26505 |

**Semester Four Total Credits = 17**

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)**  **Yes=X** | **Credits**  **Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| Sophomore Chemistry Seminar - **Spring Only** | CHM 29400 (Also allowed PHYS 29400 - Sophomore Physics Seminar) |  | 1 | C- | CHM 26505 |
| General Physics | PHYS 22000 (Also allowed PHYS 15200 - Mechanics) (See Note 1) | X | 4 | C- | (MA 14700 and MA 14800) or (MA 15300 and MA 15400) |
| Health and Safety - **Spring Only** | SCI 22000 |  | 2 | C- | CHM 11600 |
| Organic Chemistry - **Spring Only** | CHM 26605 |  | 3 | C- |  |
| Organic Chemistry Lab - **Spring Only** | CHM 26400 |  | 1 | C- | CHM 26300 and CHM 26605 |
| Technology Elective | Any Gen Ed Technology course | X | 3 |  |  |
| Restricted Elective | See Note 2 |  | 3 |  |  |

**Semester Five Total Credits = 15**

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)**  **Yes=X** | **Credits**  **Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| General Physics **(m)** | PHYS 22100 **(m)** (Also allowed PHYS 25100 - Heat, Electricity And Optics) (See Note 1) |  | 4 | C- | PHYS 22000 |
| Introductory Biology 2 | BIOL 10200 |  | 4 | C- | MA 15300 or BIOL 10100 |
| Analytical Chemistry I - **Fall Only** | CHM 32100 |  | 4 | C- | CHM 11600 |
| Survey of Environmental Chemistry - **(H) Fall Only (odd years)** | CHM 32400 |  | 3 | C- | CHM 26505 or CHM 25500 |

**Semester Six Total Credits = 14**

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)**  **Yes=X** | **Credits**  **Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| Analytical Chemistry II - **(H) Spring Only (even years)** | CHM 42400 |  | 4 | C- | CHM 32100 |
| Ecology - **Spring Only** | BIOL 33300 |  | 4 | C- | BIOL 10100 and BIOL 10200 |
| Elementary Statistical Methods | STAT 30100 |  | 3 | C- | MA 14700 or MA 15200 or MA 15300 or MA 21300 |
| Social Science Elective | Any Gen Ed Social Science course | X | 3 |  |  |

**Semester Seven Total Credits = 14**

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)**  **Yes=X** | **Credits**  **Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| Research in Chemistry **(e)** | CHM 49800 **(e)** (Also allowed PHYS 46900 - Research in Physics) |  | 1 | C- |  |
| Basic Microbiology - **Fall Only** | BIOL 31600 (See Note 4) |  | 4 | C- | BIOL 10100 and BIOL 10200 and CHM 11500 and CHM 11600 |
| Environmental Economics - **Fall Only** | ECON 31100 |  | 3 |  | ECON 10100 or ECON 25100 |
| Restricted Elective | See Note 2 |  | 3 |  |  |
| Free Elective | Any Free Elective |  | 3 |  |  |

**Semester Eight Total Credits = 13**

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)**  **Yes=X** | **Credits**  **Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| Junior-Senior Chemistry Seminar | CHM 49400 - **(H) Spring Only** (Also allowed PHYS 49400 - Junior-Senior Physics Seminar) |  | 1 | C- | CHM 29400 and CHM 49800 |
| Research in Chemistry **(e)** | CHM 49800 **(e)** (Also allowed PHYS 46900 - Research in Physics) |  | 1 | C- |  |
| Restricted Elective | See Note 2 |  | 3 | C- |  |
| Restricted Elective | See Note 2 |  | 3 | C- |  |
| Gen Ed Elective | Any Gen Ed course | X | 3 |  |  |
| Humanities Elective | Any Gen Ed Humanities course | X | 3 |  |  |

Notes:

***Additional Information and Guidelines***

Upper division chemistry and physics courses are offered on a two year rotation. Contact an advisor to determine the specific semester a particular course will be offered. Certain courses may only be available at one campus location.

Any individual course within CES must be a C- or better, but the avg. G.P.A. for all disciplinary courses (CHM or PHYS courses) must be at least 2.50. At least 4 credit hours of Free Electives must be 30000 level or higher.

**Note 1**: Students who choose to take MA 16300, MA 16400, PHYS 15200, and PHYS 25100 can reduce their free electives by five (5) credits to meet the 120 credit hour requirement.

**Note 2**: Restrictive Elective – CHM 33300, BIOL 40500, BIOL 41300, BIOL 41400, EAS 22200, EAS 22300, ENGL 22000, POL 22100, POL 22300, POL 30500. Additional courses may be used with advisor permission.

**Note 3**: Students must take SCI 13100 and either SCI 10400 or SCI 20200.

**Note 4**: Students must take CHM 32400 and either BIOL 31600 or BIOL 22000.

1. <http://faculty.pnw.edu/blog/curriculum-document-approval-procedures/> [↑](#footnote-ref-1)
2. <http://faculty.pnw.edu/blog/curriculum-document-approval-procedures/> [↑](#footnote-ref-2)