**Purdue Northwest Curriculum Document Coversheet**

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| --- | --- | --- | --- |
| **Document No:**(According to [Instruction](http://faculty.pnw.edu/blog/curriculum-document-approval-procedures/)s[[1]](#footnote-1)) | CES 18-22 REV PROG BS-MA POS | **Approval by Faculty Senate:** (Leave Blank) | 5/3/19 |
| **Proposed Effective Date**  | Fall 2019 | **Date Reviewed by Senate Curriculum****Committee:** (Leave blank) | 4/12/19 |
| **Submitting Department:**(Name of both Dept & College/School ) | Mathematics, Statistics & Computer Science, College of Engineering & Sciences | **Name(s) of Library Staff Consulted:** (NA if not required) | N/A |
| **Date Reviewed by Department**  | February 22, 2019 |  |  |
| **Submission Date:**(Date sent to College/School Curr Comm after Dept Review) | February 25, 2019 | **Will New Library****Resources Used?** | [ ]  **Yes**[x]  **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**[x]  **No** For **all other** curriculum matters, check **NO**. |
| **Contact Person(s):**(Name & Title) | Professor David Feikes; Professor Catherine Murphy |  |  |

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

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| --- |
| **Task (check all that apply and fill out sections appropriate for each change).** [x]  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**.BS in Mathematics with Concentration in Secondary Teaching of Mathematics |
| **Degree name(s).**  |

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

|  |
| --- |
| **List the major changes in each program of study, minor or certificate. Changes to concentration courses offered by School of Education** |
| **Impact on Students.** (State “N/A” if proposal will not greatly affect students.) Students’ education courses in junior and senior years are being changed to provide prospective teachers with more experience in the schools. |
| **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) Affects only School of Education which initiated these changes. La Vada Taylor is the contact. The new education courses in the concentration have already been APPROVED BY THE Faculty Senate. |

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

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

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| --- |
| **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.) |
| **Impact on University Resources.** (State “N/A” if proposal will not require new resources, faculty or funds.) |
| **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.) |

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

 ***Document No:***

## Section III: PLAN OF STUDY REVISION

### Degree Name: BS in Mathematics with Secondary Teaching Concentration

### Degree Requirements

### PNW General Education Core

| **Core Categories** | **Credits** | **Courses:** Enter “Select from list” or designate course(s) from list |
| --- | --- | --- |
| English Composition  | 6 | English 10400-English Composition I and English 10500-English Composition II |
| Speech Communication | 3 | COM 11400-Fundamentals of Speech Communication |
| Quantitative Reasoning  | 5 | MA 16300-Integrated Calculus and Analytic Geometry I |
| Natural Sciences  | 3-4 | Any Gen Ed Natural Science course with Lab |
| Technology | 3 | CS 20600-Computer Algebra and Programming |
| Humanities | 3 | Select from Humanities Core list |
| Social Sciences | 3 | Select from Social Sciences Core list |
| Additional credits | 3 | Select any course from the Gen Ed Core list except FYE |
| General Ed Elective |  |  |
| First-Year Experience (FYE) | 1 | MA 10000- An Introduction to Mathematical Sciences |
| **Total** (minimum)  | 30 |  |

### Other Required Courses

Any Science course with Lab 3-4 credits

Any Science course 3-4 credits

Any one(1) course from following list of math & statistics courses;

MA 37800- Computational Mathematics II

MA 44600-Introduction to Real Analysis

MA 47200-Introduction to Applied Mathematics

STAT 40001-Statistical Computing (EXL)

STAT 43000-Applied Statistics

50000 level course with approval of department 3 credits

Free Electives as needed 7-9 credits

Total Other Required Courses 18 credits

### Core: Required Courses

MA 16400-Integrated Calculus and Analytic geometry I 5 credits

MA 26100-Multivariate Calculus 4 credits

MA 26400-Differential Equations 3 credits

MA 26500-Linear Algebra 3 credits

MA 31500- Introduction to Abstract Mathematics 3 credits

MA 33000-Concepts in Geometry 3 credits

MA 34800- Discrete Mathematics 3 credits

MA 37700- Computational Mathematics I 3 credits

MA 45300-Elements of Algebra I 3 credits

STAT 34500- Statistics 3 credits

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Total Core 33 credits

### Concentration

EDPS 22000-Psychology of Learning 3 credits

EDPS 26000-Introduction to Special Education 3 credits

EDCI 28500-Diversity and Education 3 credits

EDCI 32300-Educational Technology 3 credits

EDCI 35500- Teaching and Learning in the K-12 Classroom 4 credits

EDCI 36600- Use of Assessment in K-12 Classroom 3 credits

EDPS 37000-Teaching Students with Diverse Needs 4 credits

EDCI 34400-Strategies of Math Instruction in Sr High, Jr High & Middle Schools (EXL) 4 credits

EDCI 30900- Reading in Middle/High Schools 3 credits

EDCI 49700- Supervised Teaching in Secondary Schools EXL) 9 credits

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Total Concentration 39 credits

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

**\***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)

Semester One **Total Credits** = 15

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)****Yes=X** | **Credits****Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| **Intro to Mathematical Sciences** | MA 10000 | X | 1 | P |  |
| Int Calc Analytic Geom I | MA 16300 | X | 5 | C | MA 15900 or MA 15400 or APPL score: 085 |
| English Composition I  | ENGL 10400 (ENGL 10800 also allowed) | X | 3 |  |  |
| Social Science Elective | Any Gen Ed Social Science | X | 3 |  |  |
| History & Philosophy of Ed | EDST 20000 |  | 3 | C |  |
|  |  |  |  |  |  |
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Semester Two **Total Credits** = 17-18

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)****Yes=X** | **Credits****Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| **Int Calc Analytic Geom II** | **MA 16400** |  | **5** | **C** | **MA 16300 or MA 16700** |
| English Composition II (e) | ENGL 10500 | X | 3 |  | ENGL 10400. See Note 1 |
| Natural Science with Lab | Any Gen Ed Science with Lab | X | 3-4 |  |  |
| Humanities Elective | Any Gen Ed Humanities | X | 3 |  |  |
| Psychology of Learning | EDPS 22000 |  | 3 | C |  |
|  |  |  |  |  |  |
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Semester Three **Total Credits** = 16-17

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)****Yes=X** | **Credits****Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| **Comp Algebra and Programming** | **CS 20600** | **X** | **3** | **C** | **MA 16400 or MA 16900** |
| Multivariate Calculus (m) | MA 26100 |  | 4 | C | MA 16400 |
| Fund of Speech Comm | COM 11400 | X | 3 |  |  |
| Intro to Special Education | EDPS 26000 |  | 3 | **C** |  |
| Science with Lab | Any Science with lab |  | 3-4 |  |  |
|  |  |  |  |  |  |
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Semester Four **Total Credits** = 15-16

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)****Yes=X** | **Credits****Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| **Teaching & Learning K-12 Classroom** | **EDCI 35501** |  | **3** | **C** | **EDFA 20000,EDPS 260000, EDPS 22000, PR1 score 176, PR2 Score 172, and PR3 Score 175** |
| Differential Equations | MA 26400 |  | 3 | C | MA 26100 |
| Linear Algebra (m) | MA 26500 |  | 3 | C | MA 16400 |
| Science Elective | Any Science |  | 3-4 |  |  |
| Gen Ed Elective | Any Gen Ed course | X | 3 |  |  |
|  |  |  |  |  |  |
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Semester Five **Total Credits** = 15

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)****Yes=X** | **Credits****Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| **Computational Mathmatics I** | **MA 37700** |  | **3** | **C** | **MA 26500** |
| Concepts in Geometry | MA 33000 |  | 3 | C | MA 26100 |
| Discrete Mathematics | MA 34800 |  | 3 | C | MA 26100 or MA 26500 |
| Use of Assessment in the K-12 Classroom | EDCI 36600 |  | 3 | **C** |  |
| Elective | See Note 2 |  | 3 |  |  |
|  |  |  |  |  |  |
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Semester Six **Total Credits** = 15

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)****Yes=X** | **Credits****Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| **Introduction to Abstract Mathematics** | **MA 31500** |  | **3** | **C** | **MA 26100** |
| Teaching Students with Diverse Learning Needs in K-12 Class | EDPS 37000 |  | 3 | C | EDCI 35500, EDPS 26000, 001 Score 220, 002 Score 220 , and 003 Score 220 |
| Statistics | STAT 34500 |  | 3 | C | MA 16400 |
| Electives | See Note 2 |  | 6 |  |  |
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Semester Seven **Total Credits** = 15

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)****Yes=X** | **Credits****Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| **Elements of Algebra I** | **MA 45300** |  | **3** | **C** | **MA 26500 and MA 31500** |
| Strategies of Mathematics Instruction in Senior High, Junior High, and Middle Schools (f) | EDCI 34400 |  | 3 | C | EDPS 26000 and EDCI 36500 |
| Reading in Middle and Secondary Schools: Methods and Problems | EDCI 30900 |  | 3 | C | EDCI 35501 |
| Mathematics major Elective | See Note 3 |  | 3 | **C** |  |
| Elective | See Note 2 |  | 3 |  |  |
|  |  |  |  |  |  |
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Semester Eight **Total Credits** =12

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)****Yes=X** | **Credits****Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| **Supervised Teaching (e,f)** |  |  | **12** | **P** | **EDPS 37000 and EDCI 34400** |
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Notes: 1: Students who take ENGL 10800 instead of ENGL 10400 must complete the Writing General Education requirement with a Gen Ed approved writing intensive English course.

 2: Approved Electives- See an academic advisor for acceptable courses to fulfill this requirement.

 3. Approved list of Mathematics Major Electives- Three courses must be selected from an Approved List of 30000/40000 level mathematics and statistics courses. Currently the approved list of Mathematics Major Electives consist of: MA 37800- Computational Mathematics II, MA 31500- Introduction to Absract Mathematics, MA 44600- Introduction to Real Analysis, MA 45300- Elements of Algebra I, MA 47200- Introduction to Applied Mathematics, or STAT 40002- Statistical Computing, STAT 43000-Applied Statistics. MA 31500 is prerequisite for MA 44600 and MA 45300. Mathematics majors in the Secondary Teaching Concentration must take MA 31500 and MA 45300 to prepare for state licensure exam.

Mathematics majors in the Secobdary Teaching Concentration may use 18 hours of their Education courses to fulfill Selected Area Requirement

 4. Admission to Gate 2 courses (EDCI 35501 and EDCI 36600) require application screening by the Department of Teacher Preparation advisor. Course marked with an (f) require field observations. Students may not receive more than 2 C’s in professional education courses.

 5. Admission to Gate 3 (EDPS 37000) and beyond requires Admission to Teacher Preparation program and passing of state licensure exams.

## Section IV continued: For all Program Changes;

## Proposed Semester by Semester

Semester One **Total Credits** = 15

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)****Yes=X** | **Credits****Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| **Intro to Mathematical Sciences** | **MA 10000** | **X** | **1** | **P** |  |
| Int Calculus Analytic Geometry I | MA 16300 | X | 5 | C | MA 15900 or MA 15400 or APPL score 085 |
| English Composition ! | ENGL 10400 0r ENGL 10800 | X | 3 |  | See Note 1 |
| Diversity and Education | EDPS 28500 |  | 3 | **C** |  |
| Social Science Elective | Any GEN ED Social Science course | X | 3 |  |  |
|  |  |  |  |  |  |
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Semester Two **Total Credits** = 17-18

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)****Yes=X** | **Credits****Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| **Int Calc Analytic Geometry II** | **MA 16400** |  | **5** | **C** | **MA 16300** |
| English Composition II (e)  | ENGL 10500 | X | 3 |  | ENGL 10400 See Note 1 |
| Psychology of Learning | EDPS 22000 |  | 3 | C |  |
| Humanities Elective | Any GEN ED Humanties course | X | 3 |  |  |
| Natural Science with Lab | Any GEN ED Science with Lab | X | 3-4 |  |  |
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Semester Three **Total Credits** = 16-17

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)****Yes=X** | **Credits****Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| **Computer Algebra and Programming** | **CS 20600** | **X** | **3** | **C** | **MA 16300** |
| Multivariate Calculus | MA 26100 |  | 4 | C | MA 16400 |
| Fundamentals of Speech Communication | COM 11400 | X | 3 |  |  |
| Science with Lab | Any science with Lab |  | 3-4 |  |  |
| Introduction to Special Education | EDCI 26000 |  | 3 | C |  |
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Semester Four **Total Credits** = 15-16

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)****Yes=X** | **Credits****Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| **Differential Equations** | **MA 26400** |  | **3** | **C** | **MA 26100** |
| Linear Algebra (m) | MA 26500 |  | 3 | C | MA 16400 |
| General Education Elective | Any Gen Ed course except FYE | X | 3 |  |  |
| Science Elective | Any science course |  | 3-4 |  |  |
| Free Elective |  |  | 3 |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

Semester Five **Total Credits** = 15

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)****Yes=X** | **Credits****Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| **Computational Mathematics** | **MA 37700** |  | **3** | **C** | **MA 26500** |
| Concepts of Geometry | MA 33000 |  | 3 | C | MA 26100 |
| Discrete Mathematics | MA 34800 |  | 3 | C | MA 26100 or MA 26500 |
| Free Electives |  |  | 6 |  |  |
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Semester Six **Total Credits** = 17 credits

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)****Yes=X** | **Credits****Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| **Introduction to Abstract Mathematics** | **MA 31500** |  | **3** | **C** |  |
| Statistics | STAT 34500 |  | 3 | C |  |
| Teaching and Learning in the K-12 Classroom | EDCI 35500 |  | 4 | B- | Admission to Program: Submit CASA Scores or Acceptable ACT/SAT Alternative ( 24 composite on ACT or 1100 Verbal+Math on SAT)EDPS 22000; EDPS 28500; EDPS 26000. No more than one (1) grade of “C” in Gate 1: Education Foundation Courses |
| Teaching Students with Diverse Needs | EDPS 37000 |  | 4 | **B-** | Course to be taken concurrently with EDCI 35500 |
| Use of Assessment in the K-12 Classroom | EDCI 36600 |  | 3 | B- | Course to be taken concurrently with EDCI 35500 and EDCI 37000 |
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Semester Seven **Total Credits** = 16

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)****Yes=X** | **Credits****Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| **Content Methods: Math** | **EDCI 34400** |  | **4** | **B-** | **Passing scores for CASA( or Acceptable ACT/SAT Alternative) EDCI 35500; EDCI 370; and EDCI 34400** |
| Educational Technology | EDCI 32300 |  | 3 | B- | Course to be taken concurrently with EDCI 34400 |
| Reading in Middle/High Schools | EDCI 30900 |  | 3 | B- | Course to be taken concurrently with EDCI 34400 and EDCI 32300 |
| Elements of Algebra I | MA 45300 |  | 3 | **C** | MA 26500 and MA 31500 |
| Mathematics Major Elective | See Note 3 |  | 3 | C |  |
|  |  |  |  |  |  |
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Semester Eight **Total Credits** = 6-9

| **Program Requirements : Designate Program Requirement** | **Subject Code/Course Number** | **(GenEd)****Yes=X** | **Credits****Number** | **Min Grade** | **Prerequisites** |
| --- | --- | --- | --- | --- | --- |
| **Supervised Teaching** | **EDCI 49700** |  | **6-9** | **P** | **EDCI 34400 and EDCI 32300 and EDCI 30900** |
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Notes:1: Students who take ENGL 10800 instead of ENGL 10400 must complete General Education Writing requirements with a Gen Ed approved writing intensive course.

 2: No mathematics courses below MA 16300 are allowed for credit ( but do count toward GPA).

 3: Approved List of Mathematics Major Electives: One(1) course must be selected from an Approved list of 3000 level or above mathematics and statistics courses. Currently the Approved List of Mathematics Majors Electives for Secondary Teaching Concentration consists of: MA 37800-Computational Mathematics II; MA 44600-Introduction to Real Analysis; MA 47200-Introduction to Applied Mathematics; STAT 40001-Statistical Computing; STAT 43000-Applied Statistics, or, with departmental approval a 5000 level course. For a Mathematics Major in this concentration who wants a Statistics minor, three(3) courses from the list much be selected with STAT 4001 and STAT 43000 as two of them.

 4. The best time to take the Content test is prior to Gate 3(EDCI 34400, EDCI 32300, EDCI 30900). During EDCI 35500 the roster will be used to identify students.

 The best time for the Pedagogy test is during EDCI 34400. This roster will be used to identify students

 A financial incentive to assist in paying for the first test attempt is being implemented. If test not passed, there is no penalty in student’s program. Students must register by the end of the semester of EDCI 35500 for Content Area Core and EDCI 34400 for Pedagogy Core.

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)