## The University of Puget Sound

## 2019-2020 CURRICULUM GUIDE

MATH/DUAL DEGREE ENGINEERING
DEGREE: BS IN MATHEMATICS: SAMPLE 3-YEAR PROGRAM
CONTACT PERSON: RAND WORLAND, PHYSICS
A suggested three-year program:
This schedule is a possible sequence that allows completion in three years. Other sequences are possible. Please talk with your advisor and the Dual Degree Engineering program director. Those students with advanced standing (transfer credit, AP, etc.) will have more flexibility.
$\underline{\text { Fall Semester Classes } \quad \underline{S p r i n g ~ S e m e s t e r ~ C l a s s e s ~}}$

| Freshman | 1 | SSI 1 | Units |
| :--- | :---: | :--- | :---: |
| SSI 1 | 1 | PHYS 122/Lab | 1 |
| PHYS 121/Lab (NS core) | 1 | MATH 181 | 1 |
| MATH 180 (MA core) | 1 | FL (if needed) or elective | 1 |
| FL (if needed) or elective | 1 |  |  |


| Sophomore | Units | Units |  |
| :--- | :---: | :--- | :---: |
| MATH 280 | 1 | MATH 290 | 1 |
| CHEM 110/lab or CHEM 115/lab | 1 | CHEM 120/lab or CHEM 230/lab | 1 |
| CSCI 161 | 1 | MATH 300+ elective | 1 |
| Approaches core | 1 | Approaches core | 1 |


| Junior | Units | Units |  |
| :--- | :---: | :--- | :---: |
| MATH 300+ Elective | 1 | MATH 300+ Elective | 1 |
| MATH 300+ Elective | 1 | MATH 300+ Elective | 1 |
| MATH 301 | 1 | CN core* | 1 |
| Approaches core | 1 | Elective | 1 |

## NOTES

Students majoring in Mathematics must earn a GPA of at least 2.0 in all upper-division mathematics courses (upper division courses are those at the 300-400 level).
There are two options for the Mathematics major: the contract option and the standard option.
Contract option: Each contract will consist of: (1) Between eight and 16 units with no more than nine units in mathematics; (2) CSCI 161 or equivalent and (3) At least five-upper-division (300-400 level) units in mathematics or mathematics substitute courses to include: (a) two units of related upper-division courses to provide depth and (b) one upper-division unit in a proof-based course. Final shape is worked out in consultation with the advisor and a departmental committee before the end of the semester in which the first upper-division course on the contract is completed. The contract will normally include 180/181/280/290.
Standard option: (1) Completion of 180/181/ 280/290; (2) CSCI 161 and (3) At least five upper-division (300-400 level) units in mathematics to include (a) two units of related upper-division courses to provide depth; (b) one upper-division unit in a proof-based course; and (c) at least one upper-division unit from each of the following two lists: (List A) MATH 301, 302, 350, 355, 360, 375, $376,380,420$ (some topics as noted in topic course descriptions), 480, 481 and (List B) MATH 300, 310, 335, 338, 340, 345, 390, 420 (some topics as noted in topic course descriptions), 471, 490, 491.
*Of the three units of upper division coursework required outside the first major, the Connections course will count for one unless it is used to meet a major requirement.

CORE CURRICULUM

| UNIVERSITY CORE | CRS | TERM | GRADE |
| :--- | :--- | :--- | :--- |
| SSI 1 |  |  |  |
| SSI 2 |  |  |  |
| AR |  |  |  |
| HM |  |  |  |
| MA (MATH 180, 181, CSCI 161) |  |  |  |
| NS (PHYS 121) |  |  |  |
| SL |  |  |  |
| CN |  |  |  |

## KEY

SSI1 $=$ Seminar in Scholarly Inquiry1
SSI2 $=$ Seminar in Scholarly Inquiry2
AR=Artistic Approaches
HM= Humanistic Approaches
MA= Mathematical Approaches NS = Natural Scientific Approaches SL= Social Scientific Approaches CN=Connections FL= Foreign Language

Foreign Language Requirement (circle one)

1) Two semesters at $101 / 102$ level or One semester at 200+ level
2) Proficiency exam (3rd year high school level or 1st year college level)
3) AP foreign language score of 4 or 5
4) IB higher level foreign language score of 5, 6, or 7

## Upper Division Level Requirement

Three units at the upper division level outside the first major.
KNOWledge, Identity, and Power Requirement
One course. See Bulletin for details. Courses may also fulfill other program or graduation requirements.

MAJOR REQUIREMENTS

| COURSE | UNITS | TERM | GRADE |
| :--- | :--- | :--- | :--- |
| MATH 180 |  |  |  |
| MATH 181 |  |  |  |
| MATH 280 |  |  |  |
| MATH 290 |  |  |  |
| CSCI 161 (or equivalent) |  |  |  |

Five units at the MATH 300-400 level:

| $1 . \#$ |  |  |  |
| :--- | :--- | :--- | :--- |
| $2 . \#$ |  |  |  |
| $3 . \# \#$ |  |  |  |
| 4. List $^{1}$ |  |  |  |
| 5. List $^{1}$ |  |  |  |

## Additional DDE Requirements:

| MATH 301 |  |  |  |
| :--- | :--- | :--- | :--- |
| PHYS 121 |  |  |  |
| PHYS 122 |  |  |  |
| CHEM 110 or 115 |  |  |  |
| CHEM 120 or 230 |  |  |  |

## THIS FORM IS

NOT AN
OFFICIAL GRADUATION ANALYSIS

## NOTES

A grade of C - or better is required in all prerequisite courses in Math and Computer Science.
This curriculum guide is based on the Mathematics Department's standard major requirements.
\#When choosing upper-division units in mathematics include two related courses to provide depth. Current options include: MATH 301/302, 335/471, 340/345, 350/355, 375/376, 480/481, 490/491.
\#\#Include one proof-based upper-division mathematics course.

1) Two of the five upper-division mathematics units need to include one from List A and one from List B.

List A: MATH 301, 302, 350, 355, 360, 375, 376, 380, 420 (some topics as noted in topic course descriptions), 480, 481.
List B: MATH 300, 310, 335, 338, 340, 345, 390, 420 (some topics as noted in topic course descriptions), 471, 490, 491.
When choosing upper division math courses, consider MATH 302 (Partial Differential Equations), MATH 335 (Optimization), and MATH 471 (Modeling).
Both Columbia University and Washington University (St. Louis) have specific requirements that can be met by choosing core classes appropriately. See the Dual Degree Engineering requirements.
Majors must maintain a minimum of 2.0 GPA in all contract courses and in all upper-division courses. A higher GPA is necessary for successful admission to the affiliate engineering programs. At least 4 units of upper-division courses must be completed at Puget Sound. All contracts must meet specific requirements (see Bulletin) and will normally include MATH 180, 181, 280, 290.
Refer to the Engineering 2019-20 Bulletin for courses recommended for students interested in pursuing Biomechanical, Electrical, Chemical, or Mechanical Engineering.

