B.S. Applied and Computational Math Program Sheet		
(120 SH Required to Complete Degree)		
Note: DS = Mathematics of Data Science and Machine Learning Option		
Part 1: Foreign Language Requirement		
Complete a foreign language at an elementary II level or above. Students who have completed three years of language in high school with at least a 'C' average have satisfied this requirement. Consult your advisor.		
Part 2: General Education Competency Requirement		
Students must complete each of the competencies listed below. In addition, students must complete three of the competencies a second time excluding First Year (FY) and Writing (W1,W2,W3). Non-MAT courses in this section count towards the 40 credit requirement in Part 3 (General Education Exploration). Please note, some classes offered by the university satisfy multiple competencies simultaneously.		
Competency	**Comp1**	**Compe2**
First Year (FY)	**MAT 150**	
Creative Process (CP)		
Critical Thinking (CT)		
Oral Communication (OC)		
Health and Wellness (HW)		
Scientific Inquiry (SI)		
Intercultural Competence (IC)		
Information Literacy (IL)	**PHI 227**	
Writing Course (W1)	**WRT 101**	
Writing Intensive II (W2)	**PHI 227**	
Writing Tier III (W3)	**MAT 453**	
Quantitative Reasoning (QR)	**MAT 181**	**MAT 182**
Culminating Experience (CE)	**MAT 453**	
Part 3: General Education Exploration incl Cognates		
You need to complete a total of 40 credits outside your major. Count the non-MAT courses from part 2 and the following courses towards these 40 credits.		**Credits:**
WRT 101 - Composition I: Habit of Writing		**3**
DS Option Cognates:		
PHI 227 - Ethics in Computing (IL, W2)		**3**
CS 140 - Introduction to Programming (Python)		**4**
DS Exploration Credit Total (Incl non-MAT Competencies)		**40**
Part 4: Major Requirements		
A minimum of 23 credits of the major requirements must be taken at WCSU. A Minimum GPA of 2.0 is required for your major requirements.		
All Option Areas Must Take:		**Credits:**
MAT 141 - Foundational Discrete Math		**3**
MAT 150 - Math Seminar I (FY)		**0.5**
MAT 151 - Math Seminar II		**0.5**

MAT 181 - Calculus I (QR)	4
MAT 182 - Calculus II (QR)	4
MAT 207 - Proofs	3
MAT 222 - Introductory Statistics	3
MAT 272 - Linear Algebra	3
MAT 281 - Calculus III	4
MAT 282 - Ordinary Differential Equations	3
MAT 322 - Probability	3
MAT 332 - Applied Linear Algebra and Math of Machine Learning	3
MAT 380 - Math Modeling with Symbolic and Scientific Computations	3
MAT 383 - Introduction to Mathematical Analysis	3
MAT 453 - Senior Seminar (CE,W3) (OR SIS with Project) (OR Senior Thesis) (OR Internship)	3
SH Subtotal of Common Classes for all Options	**43**
DS Option Must Take:	**Credits:**
MAT 422 - Statistics for Data/Actuarial Science and Machine Learning	3
MAT 470 - Applications of Machine Learning and Wavelets	3
DS Option Pick One of	
MAT 468 - Partial Differential Equations MAT 469 - Numerical Methods for Ordinary and Partial Differential Equations (OPDEs)	3
DS Option Total MAT Credits in Major	**52**
Part 5: Application Area (Option Area Specific Courses)	
DS Option Must Take:	**Credits:**
CS 172 - Intermediate Java Programming	3
CS 205 - Data Modeling and Database Design	4
CS 250 - Introduction to Data Structures, Algorithms and Complexity	3
CS 303 - Introduction to Data Science with Python	4
DS Option Total Application Area Credits	**14**
DS Option Total Credits excl Electives	**106**
Part 6: Free Electives (14 SH)	**Credits:**
DS Option Total Free Elective Credits	**14**
Total Semester Hours	**Credits:**
DS Option	**120**