

TOTAL PROGRAM REQUIREMENTS = 135 CREDITS <b>MAJOR AND SPECIALIZATION: 74+16 = 90credits:</b> <u>When there are course options, some courses will fulfill competencies and/or requirements. Consult the Schedules of Course Offerings for details.</u>	COMPETENCIES (See right column for further details.)							REQUIREMENTS (See right column for further details.)						
	AJ	CR	CS	CC	CT	IT	ME	LC	QL	RP	SL	UD	WI	
Major:					X									
• BIO109/L-110/L General Biology I-II (4/4)														
• BIO302/L General Ecology (4)														
• CHE110/L-111/L Chemistry I-II (4/4)														
• CHE301/L-302/L Organic Chemistry I-II (4/4)														
• CHE303/L Introduction to Physical Chemistry (4)														
• CHE304/L Advanced Topics in Physical Chemistry (4)														
• CHE311/L Contemporary Chemical Analysis (4)														
• CHE312/L Modern Instrumental Analysis (4)														
• NSC131 Nat Sci.: Introduction to Scientific Literacy (1)														
• NSC231 Nat Sci: Literacy in Science Seminar (2)														
• NSC331 Natural Science Literature Survey (2)										NSC331 +NSC443			X	
• NSC443 Natural Science Research Seminar (2)										NSC331 +NSC443			X	
• PHY101/L Physics I or PHY151/L General Physics I(4)														
• PHY102/L Physics II or PHY152/L General Physics II (4)												N/A		
• <b>Science Electives:</b> 15 credits to be selected from the course options listed at right. Labs may be optional for some courses, i.e., credit listed as 3/1.														
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Specialization:														
• ENS304/L Conservation Biology (4)														
• <b>6 credits: Select 2: ENS205 Planet Earth I: Physical Features; ENS206 Planet Earth II: Geographical Features; ENS/NSC303 Environmental Toxicology; ENS309 Population Dynamics</b>														
○														
• <b>6 credits: Select 2: GVT115 Local Environmental Problems; GVT217 American Political Parties &amp; Pressure Groups; GVT219 Politics, Planning &amp; Land Use; GVT411 Environmental Law</b>														
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<b>II. CORE CURRICULUM: 45 credits:</b>														
▶ All courses taken at Daemen must have a competency.														
▶ 9 credits must be in upper division (UD) (UD=courses with 300/400 number).														
▶ No courses in the major/specialization (Section # I above) are allowed. (Science courses determined by the NSC Chair to be non-major courses are allowed.)														
▶ If LC includes a course in the major, this is OK but credit for the course will count in the major and not in the core.														
1. Required Courses: 27 credits:			X										X	
• CMP101 English Composition (3)														
• <b>Select 1: ECO201</b> Princ of Microeconomics; <b>ECO202</b> Princ of Macroeconomics (see page 2 for further information on Economics requirement)					X									
• <b>Select 1: GVT113</b> Introduction to American Politics; <b>GVT114</b> State & Local Government		X												
• GVT211 Environmental & Energy Policies I (3)														
• GVT212 Environmental & Energy Policies II (3)														
• IND101 Sustainable & Critical Relationships (3)														
• MTH144 Calculus & Analytic Geometry I (3)					X				X					
• <b>Select 1: GVT113</b> Introduction to American Politics; <b>GVT114</b> State & Local Govt; <b>HIS222</b> Urban America; <b>HIS230</b> Problems of the Third World														
• <b>Select 1: GVT113</b> Introduction to American Politics; <b>GVT114</b> State & Local Govt; <b>HIS222</b> Urban America; <b>HIS230</b> Problems of the Third World; <b>MTH145</b> Calculus & Analytic Geometry II														
2. Core Electives: 18 credits:														
•														
•														
•														
•														
•														
•														
STATUS OF COMPLETION OF COMPETENCIES/REQUIREMENTS:		X	X		X				X	X		0of9	7of9	

CHECKLIST ON COMPLETION OF PROGRAM REQUIREMENTS:
<b>REQUIREMENT SUMMARY:</b> On the left is a summary of requirements of this program. Columns are provided to track completion of requirements. An "X" in a column indicates that the course meets a competency, and/or results in credit towards fulfillment of another requirement. Use the columns at left or the checklist below to track progress on completion of the program.
<b>REQUIREMENTS: STUDENTS MUST COMPLETE ALL OF THE FOLLOWING:</b>
<b>PLEASE NOTE:</b>
<ul style="list-style-type: none"> <li>Competencies and all other requirements may be satisfied anywhere in the student's program</li> <li>Courses may fulfill more than 1 requirement (Example CMP101 satisfies the CS competency AND 3 credits towards the WI requirement.)</li> <li>Other than the Upper Division core requirement, no transfer courses will satisfy requirements unless approved in writing by the Core Director.</li> </ul>
<b>1. COMPETENCIES:</b>
No transfer courses (other than those = to CMP101) will satisfy competencies.
<b>3 credits in each of the competencies is required:</b>
▶AJ: Affective Judgment ▶Critical Thinking & Problem Solving
▶CR: Civic Responsibility ▶Literacy in Info/MultiMedia Tech
▶CS: Communication Skills ▶ME: Moral & Ethical Discernment
▶CC: Contextual Competency
<b>2. LEARNING COMMUNITIES (LC):</b> A LC is normally comprised of 2 courses with a common theme. <b>2 LC's must be completed.</b> If a LC includes a course in the major, this is OK but credit for the course will count in the major and not in the core.
LC1: _____ LC2: _____
<b>3. QUANTITATIVE LITERACY (QL): 3 credits</b>
• 3 credits: MTH144 Calculus & Analytic Geometry I
<b>4. RESEARCH/PRESENTATION (RP):</b>
• 4 credits: NSC331 Natural Science Literature Survey AND NSC443 Natural Science Research Seminar
<b>5. SERVICE LEARNING (SL): 3 credits:</b> SL may be satisfied with 1 or multiple courses or SL add-ons:
• 3 credits: _____
<b>6. UPPER DIVISION IN THE CORE:</b> 9 of the credits counted under the Core Curriculum section of this plan must be courses at the 300 and/or 400 level.
<b>7. WRITING INTENSIVE (WI): 9 credits:</b>
• 3 credits: CMP101 English Composition
• 4 credits: NSC331 Natural Science Literature Survey AND NSC443 Natural Science Research Seminar
• 2 credits: _____
<b>RECOMMENDED SCIENCE ELECTIVES:</b>
Select 15 credits from the following courses:
<b>BCH313/L</b> Gen Biochemistry (3/1); <b>BIO247/347/447</b> Selected Topics (3-4); <b>BIO303/L</b> Plant Biology (4); <b>BIO304</b> Conservation Biology (3); <b>BIO307/L</b> Evolutionary Biology (4); <b>BIO315/L</b> General Microbiology(3/1); <b>BIO322/L</b> Invertebrate Biology (4); <b>BIO323/L</b> Animal Biology (4); <b>BIO324/L</b> Vertebrate Biology (4); <b>BIO325</b> Cell Biology (3); <b>BIO330/L</b> Gen Anatomy (4); <b>BIO333/L</b> Developmental Biology (4); <b>BIO335/L</b> Animal Behavior (4); <b>BIO340/L</b> Gen Physiology (4); <b>BIO406/L</b> Genetics (3/1); <b>BIO417</b> Immunology (3); <b>BIO/BCH440/L</b> Molecular Biology (3/1); <b>BIO541/L-542/L</b> Neurobiology I & II (4/4); <b>CHE309</b> Chemistry III (3); <b>CHE410</b> Organic Chemistry III (3); <b>CHE447</b> Selected Topics in Chemistry (3-4); <b>NSC310</b> Biostatistics (3); <b>NSC</b> Natural Science Research Problems (3-9)

BACHELOR OF SCIENCE - NATURAL SCIENCE  
ENVIRONMENTAL STUDIES SPECIALIZATION

Following is a suggested course sequence for your program. Courses may be offered as indicated and/or at other times. Consult your Advisor for further direction and planning.

YEAR 1	
FIRST SEMESTER	SECOND SEMESTER
<b>LEARNING COMMUNITIES are generally completed in the first year (LC1 in the 1<sup>st</sup> semester; LC2 in the 2<sup>nd</sup> semester)</b>	
BIO109/L General Biology I	BIO110/L General Biology II
CHE110/L Chemistry I	CHE111/L Chemistry II
IND101 Sustainable & Critical Relationships	CMP101 English Composition
MTH144 Calculus & Analytic Geometry I (See Program Notes)	NSC131 Natural Science: Introduction to Scientific Literacy
CORE ELECTIVES	CORE ELECTIVES
<b>17</b>	<b>18</b>

YEAR 2	
FIRST SEMESTER	SECOND SEMESTER
CHE301/L Organic Chemistry I	CHE302/L Organic Chemistry II
CHE311/L Contemporary Chemical Analysis	CHE312/L Modern Instrumental Analysis
GVT211 Environmental & Energy Policies I	GVT212 Environmental & Energy Policies II*
CORE ELECTIVES	NSC231 Natural Science: Literacy in Science Seminar
	<b>Select 1:</b> GVT113 Intro to Amer Politics; GVT114 State & Local Gvt; HIS222 Urban America ; HIS230 Problems of the Third World
	MTH145 Calculus & Analytic Geometry II
<b>17</b>	<b>16</b>

\* GVT212 is offered alternate years.

YEAR 3	
FIRST SEMESTER	SECOND SEMESTER
BIO302/L General Ecology*	ENS304/L Environmental Chemistry*
ECO201 Principles of Microeconomics <b>OR</b>	<b>Select 1:</b> GVT113 Intro to American Politics <b>OR</b> GVT114 State & Local Gvt <b>OR</b> HIS222 Urban America <b>OR</b> HIS230 Problems of the Third World
ECO202 Principles of Macroeconomics	
NSC331 Natural Science Literature Survey	PHY102/L or PHY152/L Physics II
PHY101/L or PHY151/L Physics I	Science Elective (See page 1 for course options)
SPECIALIZATION-additional requirement (see page 1)	SPECIALIZATION-additional requirement (see page 1)
CORE ELECTIVES	
<b>19</b>	<b>17-18</b>

\* Offered in alternate years and may be taken in third and fourth years.

YEAR 4	
FIRST SEMESTER	SECOND SEMESTER
CHE303/L Introduction to Physical Chemistry*	CHE304/L Advanced Topics in Physical Chemistry*
GVT113 Intro to Amer Pol <b>OR</b> GVT114 State and Local Gvt	NSC443 Natural Science Research Seminar
Science Electives (2) (See page 1 for course options)	Science Electives (2) (See page 1 for course options)
SPECIALIZATION-additional requirement (see page 1)	SPECIALIZATION-additional requirement (see page 1)
<b>16-18</b>	<b>15-17</b>

\* Offered in alternate years and may be taken in third and fourth years.

**COURSE LOADS:** Maximum of 17 credits allowed for 4 semesters; where required, 3 18-credit hour and 1 19-credit hour semesters are allowed at no additional tuition charge. Additional course loads are allowed for students who achieve Dean's List. Consult the catalogue for details on the Dean's List privilege.

**REQUIREMENTS FOR ADMISSION TO THE FRESHMAN YEAR:**

High school chemistry and mathematics through trigonometry

**ADMISSION TO UPPER DIVISION REQUIREMENTS:**

- A. A completed application with essay must be submitted to the Natural Sciences Department by the date published in the academic calendar.
- B. An overall grade point average (GPA) of 2.0 earned at the end of the sophomore year
- C. A minimum grade of C earned in lectures and labs as follows: BIO109-110; CHE110-111; 301-302; MTH134 (if required as prerequisite to MTH144); NSC131-231. Six credit hours of 300-level Biology may be substituted for CHE301-302. An additional 3 credit hours of 300-level Biology may be substituted for NSC131 and NSC231.

**GRADUATION REQUIREMENTS:**

- A. A minimum grade of C in all Science courses (including those referenced under the requirements for admission to upper division) and MTH144.
- B. An overall grade point average (GPA) of 2.00

**PROGRAM NOTES:**

- A. **MATH REQUIREMENT:** Students are expected to complete MTH144 Calculus & Analytic Geometry I by the end of the second year of study. Depending upon the Math background, students may be required to complete lower-level Math courses as prerequisite to the required MTH144. Therefore, students should begin their math studies in Year 1.
- B. **PREREQUISITE STUDIES:** As in all majors, all prerequisites for courses in the program must be satisfied.

NATSCIENS.BS  
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