

TOTAL PROGRAM REQUIREMENTS = 149 CREDITS	COMPETENCIES (See right column for further details.)							REQUIREMENTS (See right column for further details.)							CHECKLIST ON COMPLETION OF PROGRAM REQUIREMENTS:
	AJ	CR	CS	CC	CT	IT	ME	LC	QL	RP	SL	UD	WI		
I. MAJOR: 68credits:															
• BCH313/L General Biochemistry (4)															
• BIO109/L-110/L General Biology I-II (4/4)					X										
• BIO302/L General Ecology (4)															
• BIO303/L Plant Biology (4)															
• BIO307/L Evolutionary Biology (4)															
• BIO406/L Genetics (4)															
• CHE110/L-111/L Chemistry I-II (4/4)															
• CHE301/L-302/L Organic Chemistry I-II (4/4)															
• NSC131 Nat Sci: Introduction to Scientific Literacy (1)															
• NSC231 Nat Sci: Literacy in Science Seminar (2)															
• NSC306 Teaching Science in the Middle and High School (3)															
• PHY101/L-102/L Physics I-II OR PHY151/L-152/L Gen Physics I-II (4/4)															
• Science Electives: 10 credits to be selected from the following courses. Some courses will fulfill competencies and/or requirements. Consult the Schedules of Course Offerings for details. (Labs may be optional for some courses, i.e., credit listed as 3/1.)															
BIO247/347/447 Selected Topics (3-4); BIO304 Conservation Biology (3); BIO315/L Gen Microbiology(3/1); BIO322/L Invertebrate Biology (4); BIO324/L Vertebrate Biology (4); BIO325 Cell Biology (3); BIO330/L Gen Anatomy (4); BIO333/L Developmental Biology (4); BIO335/L Animal Behavior (4); BIO340/L Gen Physiology (4); BIO417 Immunology (3); BIO/BCH440/L Molecular Biology (3/1); BIO541/L-542/L Neurobiology I-II (4/4); CHE311/L Contemporary Chemical Analysis (4); CHE447 Selected Topics in Chemistry (3-4); ENS304/L Environmental Chemistry (3/1); NSC310 Biostatistics (3); NSC Natural Science Research Problems (3-9)															
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II. ADDITIONAL REQUIREMENTS: 36 credits:															
• EDU203 Learning Theory (3)															
• EDU237 Instructional Design: Theory & Practice (3)															
• EDU313 Foundations of Education (3)															
• EDU314 Promoting English Language Arts Across the Content Areas (3)															
• EDU327 Teaching to the Standards (3)															
• EDU336 Lang/Lit Develop for the Adolescent Learner (3)															
• EDU402 Methods in Classroom Management in Secondary Ed (3)															
• EDU479-480 St Tchrg & Sem at the Early Secon/Secon Level (6/6)															
• SED270 Intro to Nature & Educ Needs of Chld with Disabil (3)															
III. CORE CURRICULUM: 45 credits:															
▶ 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 (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: 21 credits:			X												X
• CMP101 English Composition (3)															
• IND101 Sustainable & Critical Relationships (3)															
• MTH144 Calculus & Analytic Geometry I (3)					X					X					
• PSY311 Psychology of Adolescence (3)					X							X	X		
• SOC243 Child Welfare Policy & Services (3)															
• Foreign Language: 6 credits: must be completed in one Foreign Language (A student may not waive this requirement via demonstrated proficiency in a foreign language.) See p.2 for language placement guidelines.															
2. Core Electives: 24 credits:															
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STATUS OF COMPLETION OF COMPETENCIES/REQUIREMENTS:			X		X					X			3of9	6of9	

PROGRAM SUMMARY: 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.

REQUIREMENTS: STUDENTS MUST COMPLETE ALL OF THE FOLLOWING:

- PLEASE NOTE:**
- Competencies and all other requirements may be satisfied anywhere in the student's program
 - Courses may fulfill more than 1 requirement (Example CMP101 satisfies the CS competency AND 3 credits towards the WI requirement.)
 - Other than the Upper Division core requirement, no transfer courses will satisfy requirements unless approved in writing by the Core Director.

1. COMPETENCIES:
No transfer courses (other than those = to CMP101) will satisfy competencies.

- 3 credits in each of the competencies is required:**
- AJ: Affective Judgment
 - CR: Civic Responsibility
 - CS: Communication Skills
 - CC: Contextual Competency
 - CT: Critical Thinking/Problem Solving
 - IT: Literacy in Info/Multi-Media Tech
 - ME: Moral & Ethical Discernment

2. LEARNING COMMUNITIES (LC): A LC is normally comprised of 2 courses with a common theme. **2 LC's must be completed.** 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: _____

3. QUANTITATIVE LITERACY (QL): 3 credits

- 3 credits: MTH144 Calculus & Analytic Geometry I

4. RESEARCH/PRESENTATION (RP): minimum of 3 credits:

- 3 credits: _____

5. SERVICE LEARNING (SL): 3 credits: SL may be satisfied with 1 or multiple courses or SL add-ons:

- 3 credits: _____

6. UPPER DIVISION IN THE CORE: 9 of the credits counted under the Core Curriculum section of this plan must be courses at the 300 and/or 400 level.

- 3 credits: PSY311 Psychology of Adolescence
- 3 credits: _____
- 3 credits: _____

7. WRITING INTENSIVE (WI): 9 credits:

- 3 credits: CMP101 English Composition
- 3 credits: PSY311 Psychology of Adolescence
- 3 credits: _____

COMMENTS:

**BACHELOR OF SCIENCE- ADOLESCENCE EDUCATION: BIOLOGY
INITIAL CERTIFICATION (7-12)
CHEMISTRY MINOR**

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
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LEARNING COMMUNITIES are generally completed in the first year (LC1 in the 1st semester; LC2 in the 2nd semester)

BIO109/L General Biology I	4	BIO110/L General Biology II	4
CHE 110/L Chemistry I	4	CHE 111/L Chemistry II	4
EDU203 Learning Theory	3	CMP101 English Composition	3
IND101 Sustainable & Critical Relationships	3	NSC131 Natural Science: Introduction to Scientific Literacy	1
CORE ELECTIVES	3	CORE ELECTIVES	6
	17		18

YEAR 2

FIRST SEMESTER	SECOND SEMESTER
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BIO303/L Plant Biology*	4	BIO406/L Genetics *	4
CHE301 Organic Chemistry I	4	CHE302/L Organic Chemistry II	4
EDU237 Instruc Design:Theory & Practic (See Program Notes)	3	EDU314 Promoting Eng Lang Arts Across the Content Areas	3
Language (see Program Notes)	3	Language (see Program Notes)	3
MTH144 Calculus & Analytic Geometry I (See Program Notes)	3	NSC231 Natural Science: Literacy in Science Seminar	2
CORE ELECTIVES	3	CORE ELECTIVES	3
	20		19

*Course offered in alternate years- may be taken in second, third or fourth year.

YEAR 3

FIRST SEMESTER	SECOND SEMESTER
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BCH313 General Biochemistry	4	BIO307/L Evolutionary Biology*	4
BIO302/L General Ecology*	4	EDU336 Language/Literacy Dvlpmnt for Adolescent Learner	3
Language	3	EDU402 Classroom Management in Secondary Education	3
PHY101 Physics I OR 151/L General Physics I	4	Language	3
PSY311 Psychology of Adolescence	3	PHY102 Physics II OR 152/L General Physics II	4
CORE ELECTIVES	3	SOC243 Child Welfare Policy and Services	3
	21		20

*Course offered in alternate years- may be taken in second, third or fourth year.

YEAR 4

FIRST SEMESTER	SECOND SEMESTER
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EDU313 Foundations of Education	3	EDU327 Teaching to the Standards	3
NSC306 Teaching Science in the Middle and High School	3	EDU479 St Tchg & Sem at Early Secon Lev(7-9)(See Pr Notes)	6
Science Electives (3) (See page 1 for course options)	10-12	EDU480 St Tchg & Sem at Secondary Lev (10-12)	
SED270 Intro to the Nature & Educational Needs of Children with Disabilities	3	(See Program Notes)	6
	19-21		15

COURSE LOADS: Maximum of 17 credits allowed for 2 semesters; where required, 2 21-credit hour and 2 20-credit hour and 1 19-credit hour and 1 18-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: BIO 109-110; CHE 110-111; 301-302; MTH134 (if required as prerequisite to MTH144); NSC 131-231. 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.

REQUIREMENTS FOR STUDENT TEACHING:

A. An overall grade point average (GPA) of 2.55

B. A grade point average (GPA) of 2.55 in all courses in the major

C. Be recommended for student teaching by the Chairs of Education and Natural Sciences

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. A minimum grade of C in EDU237.

C. An overall grade point average (GPA) of 2.00

PROGRAM NOTES:

A. **PREREQUISITE STUDIES:** As in all majors, all prerequisites for courses in the program must be satisfied. Please note in particular the following:

- MTH144 Calculus & Analytic Geometry I is required. Depending upon Math background, a student may be required to complete lower level Math courses as prerequisite to the required MTH144. Therefore, students should begin any required prerequisite math studies as early as possible (MTH144 is to be taken in year 2, 1st semester).
- The minimum program requirement may be subject to increase depending upon the need to complete PSY103 Introduction to Psychology as prerequisite to PSY311 (consult Psychology Chair).

B. **EDU237 Instructional Design: Theory and Practice:** A student who has earned a C- or less in EDU237 in his/her first two attempts will be dismissed from the teacher certification program.

D. FOREIGN LANGUAGE REQUIREMENT AND PLACEMENT GUIDELINES:

6 credits: must be completed in **one Foreign Lang.** A student may not waive this requirement via demonstrated proficiency in a foreign language.

Guidelines for placement in language studies follow:

- **PLACE IN #101:** No previous language experience or only 1 year of high school language study
- **PLACE IN #102:** Credit for #101 or 2 years of high school language study
- **PLACE IN #105:** Credit for 102 or 3-4 years of high school language study
- **PLACE IN #106:** 4+ years of high school language study

NOTE: If a student has 4+ years of high school language (or is a native/heritage speaker), he/she may enroll in #105 and #106 or may take higher level courses. If taking higher level courses, the courses must carry a competency or they cannot count as credit in the core.